Integrated Natural Resources Management Plan and Environmental Assessment

Naval Weapons Station Seal Beach, Detachment Concord, California

March 2002

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Final Integrated Natural Resources Management Plan
For The
Naval Weapons Station Seal Beach Detachment Concord
March 2002

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INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
AND ENVIRONMENTAL ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD, CALIFORNIA

Lead Agency: US Department of the Navy

Coordinating Agencies: US Fish and Wildlife Service
California Department of Fish and Game

Title of Proposed Action: Integrated Natural Resources Management Plan and Environmental Assessment for Naval Weapons Station Seal Beach, Detachment Concord, California

Affected Jurisdictions: Contra Costa County, Solano County, City of Concord, Town of Clyde, and City of Bay Point/Pittsburg

ABSTRACT

Naval Weapons Station Seal Beach, Detachment Concord (Detachment Concord) is proposing to implement an Integrated Natural Resources Management Plan (INRMP), which would enable Detachment Concord to effectively manage its natural resources and to support the military mission from 2002 through 2006. This INRMP has been prepared in accordance with the Sikes Act Improvement Act of 1997 and Navy instructions for natural resource management on military lands and Department of Defense guidance and instructions. The document addresses the interrelationships among the natural resources at Detachment Concord, including wetlands, grazing, wildlife, public access, and the military mission. Without effective and proactive natural resource management, components of the military mission could be jeopardized, especially those related to existing Explosive Safety Quantity Distance arcs. This INRMP provides a flexible program to balance natural resource stewardship and military needs. The INRMP identifies a number of goals and objectives for specific natural resources at Detachment Concord, including managing wildlife, wetlands, threatened and endangered species, and grazing outleases. Specific management strategies to be implemented are proposed in this INRMP, with the purpose of meeting the specific objectives.

The INRMP contains baseline information that supports compliance with regulatory and planning processes. To fulfill the requirements of the National Environmental Policy Act of 1969, an environmental assessment (EA) has been prepared to assess possible impacts from implementing the INRMP. The EA has been integrated into this document, and, for this reason, this joint document is commonly referred to as the INRMP/EA. Two action alternatives and a no action alternative for developing an INRMP are evaluated in the EA. The first, and preferred, action alternative is to establish an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with Detachment Concord's military mission. The second action alternative is to establish a program that focuses on statutory and regulatory compliance. The no action alternative is the continued implementation of the objectives and practices under existing natural resource management programs. On-going practices used for management of natural resources at Detachment Concord would continue without changing the objectives of the natural resources management programs. No significant adverse environmental impacts have been identified from implementing any of the alternatives.

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LIST OF ACRONYMS

Acronym	Full Phrase
Army	US Army
C	Celsius
CAA	Clean Air Act
CCC	California Conservation Corps
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CINCPACFLT	Commander in Chief of the Pacific Fleet
cm	centimeter
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNO	Chief of Naval Operations
CNPS	California Native Plant Society
CNRSW	Commander, Navy Region Southwest
COE	US Army Corps of Engineers
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DDESB	Department of Defense Explosive Safety Board
DERP	Defense Environmental Restoration Program
Detachment Concord	Naval Weapons Station Seal Beach, Detachment Concord
DoA	Department of the Army
DoD	Department of Defense
DoN	Department of the Navy
DTSC	Department of Toxic Substances Control
EA	environmental assessment
EBRPD	East Bay Regional Park District
EFA West	Engineering Field Activity West
EFH	Essential Fish Habitat
EO	Executive Order
EPA	US Environmental Protection Agency
EPR	environmental program requirement
ESA	Endangered Species Act
ESO	Environmental Services Office
ESQD	explosive safety quantity distance
F	Fahrenheit
Far Western	Far Western Anthropological Research Group, Inc.
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMP	fishery management plan
g	grams
GIS	geographic information system

LIST OF ACRONYMS *(continued)*

Acronym	Full Phrase
ha	hectare
Highway	California State Highway
ICRMP	integrated cultural resources management plan
INRMP	integrated natural resources management plan
IPM	integrated pest management
IRP	installation restoration program
IUP	indefinite use permit
kg	kilograms
Km	kilometers
Kv	kilo-volts
L_{dn}	day-night average noise level
Legacy	legacy resource management program
L_{eq}	equivalent noise level
MBTA	Migratory Bird Treaty Act
MFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MMPA	Marine Mammal Protection Act
MOTCO	Military Ocean Terminal Concord
MOU	memorandum of understanding
msl	mean sea level
MTMC	Military Traffic Management Command
NACIP	Navy Assessment and Control of Installation Pollutants
NAVFAC	Naval Facilities Engineering Command
NAVFACENGCOM	Naval Facilities Engineering Command
NAVFACINST	Naval Facilities Engineering Command Instruction
Navy	US Navy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRMP	Natural Resources Management Plan
NWP	nationwide permit
NWS	naval weapons station
OIC	Officer-in-Charge
OMB	Office of Management and Budget
OPNAVINST	Chief of Naval Operations Instruction
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
PL	Public Law
$PM_{2.5}$	fine particulate matter
PM_{10}	inhalable particulate matter

LIST OF ACRONYMS *(continued)*

Acronym	Full Phrase
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
RONA	record of nonapplicability
ROS	reduced operational status
RWQCB	regional water quality control board
SAIA	Sikes Act Improvement Act of 1997
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SIP	state implementation plan
SWMU	solid waste management unit
SWRCB	State Water Resources Control Board
Tt EMI	Tetra Tech, EMI
US	United States
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound
WAPA	Western Area Power Administration
WQEC	Weapons Quality Engineering Center

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

This Integrated Natural Resources Management Plan (INRMP) addresses the interrelationships between the natural resources at Naval Weapons Station (NWS) Seal Beach, Detachment Concord, (hereinafter referred to as Detachment Concord) including grazing, wetlands, wildlife, and the military mission. Without effective and proactive natural resources management at Detachment Concord, components of the military mission could be jeopardized. This INRMP was prepared to comply with the requirements of the Sikes Act Improvement Act of 1997 (SAIA) (PL 105-85, Div. B. Title XXIX, Nov. 18, 1997, 111 Stat 2017-2019, 2020-2022) and in accordance with Department of Defense (DoD) and Department of Navy (DoN) guidance and instructions. This INRMP provides a flexible program to balance natural resource stewardship and military needs.

The INRMP contains baseline information to comply with regulatory and planning processes. To fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969, PL 91-190 (42 United States Code [USC] §§ 4321 – 4370d), an environmental assessment (EA) has been prepared to assess the environmental consequences of implementing the INRMP. For this reason, this joint document is commonly referred to as the INRMP/EA. For convenience, the EA has been separated from the INRMP and can be found in Appendix A.

Detachment Concord encompasses 12,920 acres (5,229 hectares [ha]) in north central Contra Costa County, California, and south of Suisun Bay and just northeast of the city of Concord (Figure 1-1). Oakland is 20 miles (32 kilometers [km]) to the southwest, and Sacramento is 35 miles (56 km) to the northeast. Detachment Concord is approximately 15 miles (24 km) east of the city of Richmond and San Pablo Bay and two miles (three km) north of Mount Diablo. The two primary land areas are the Tidal Area, composed of 7,648 acres (3,095 ha), and the Inland Area, consisting of 5,272 acres (2,134 ha). The United States (US) Navy (Navy) has ownership of all lands in both the Inland and Tidal Areas. Currently, the Navy occupies the Inland Area and has signed an Indefinite Use Permit (IUP) (Appendix C) with the US Army (Army) for use of the Tidal Area. As a result, Detachment Concord has two active military missions.

The mission of the Navy is to retain the Inland Area as a strategic asset in the event of increased requirements in response to a major conflict or changing geopolitical support in the Pacific (DoN 2000). The mission of the Army's Military Traffic Management Command (MTMC) is to conduct responsive deployment and sustainment of surface transportation and terminal operations for DoD in peace and crisis moving through strategic seaports in California (Rouhafza 2000). The mission for the Military Ocean Terminal Concord (MOTCO), which is located in the Tidal Area of Detachment Concord, is to process, ship, and receive military ordnance in a safe and efficient manner, as required.

PURPOSE OF AND NEED FOR THE INRMP

The purpose of this INRMP is to meet statutory requirements of the SAIA. In November 1997, the Sikes Act, 16 USC §§ 670a et seq., was amended to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement INRMPs for each military installation in the US unless the absence of significant natural resources on a particular installation makes preparation of a plan for that installation inappropriate. More specifically, the purpose of this INRMP is to guide the natural resources management program at Detachment Concord from 2002 to 2006 and to provide a solid foundation from which to build the program beyond 2006. The INRMP would help Detachment Concord achieve its goal to ensure the sustainability of the military mission while maintaining the integrity of the ecological processes and its ecosystems. In addition, the INRMP would ensure that natural resource conservation measures and Navy and Army activities on Detachment Concord are integrated and consistent with federal stewardship requirements.

The need for this INRMP is as follows:

- To update the existing Natural Resources Management Plan (NRMP) (DoN 1988). A number of resource-specific management plans and studies have been completed subsequent to completion of the NRMP. These plans and studies are discussed in Section 4 and include a Draft Integrated Cultural Resources Management Plan (ICRMP) (DoN 2000a), a Wildlife and Plant Community Survey (DoN 1999d), a NRMP for Outdoor Recreation (DoN 1994a), and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). The INRMP is needed to integrate these existing plans into one comprehensive NRMP. This process would resolve potential conflicts and would integrate the planning functions of multiple programs.
- To guide Navy and Army personnel in jointly managing the Tidal Area's natural resources. As a result of an IUP between the Navy and Army, the Army occupies and maintains the facilities, structures, and equipment in the Tidal Area. Many of the wetlands in the Tidal Area were declared a wetland preserve under the 1984 Memorandum of Understanding (MOU)

between the Navy and US Fish and Wildlife Service (USFWS) (DoN 1984). The INRMP would help Army personnel successfully implement established management strategies designed to conserve the natural resources in the Tidal Area.

- To document the principles of ecosystem management as part of Detachment Concord's natural resources program (Environmental Conservation Program, DoD Instruction 4715.3). It is Navy policy to incorporate ecosystem management as the basis for planning and managing Navy facilities (Naval Operations Instruction [OPNAVINST] 5090.1B). This approach takes a long-term view of human activities, including military training needs, human uses, and biological resources, as part of the same environment. The following is the goal of ecosystem management, as defined by the DoD's Environmental Conservation Program, Instruction 4715.3:

> "To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations" (DoD 1996).

PUBLIC INVOLVEMENT

This document has been prepared with input from and coordination with interested agencies, organizations, and individuals within the region. The USFWS and the California Department of Fish and Game (CDFG) are cooperating agencies in preparing this INRMP. On October 20, 2000, the Navy sent letters to the cooperating agencies and to other interested agencies and organizations notifying them that Detachment Concord was beginning its INRMP process. The mailing provided background information and solicited comments (see Appendix B for the distribution list). Two letters in response were received, one from the Contra Costa Water District and a second from USFWS. Their comments are provided in Appendix F.

The Navy provided the public with an opportunity to review and comment on the Draft INRMP/EA during a 30-day period. Notices of Availability for the Draft INRMP/EA were printed in the *Contra Costa Times* newspaper, copies of the document were made available at five branches of the Contra Costa County Public Library, and copies of the INRMP/EA were available upon request.

The Navy received several comment letters during the comment period for the draft INRMP/EA; copies of these comment letters have been included in Appendix K. Following the comment letters is a table containing the Navy's responses. In addition,

the USFWS and CDFG have provided concurrence letters, which are included as Appendix L.

PUBLIC ACCESS

Access to Detachment Concord lands is restricted for national security, public health and safety reasons. Detachment Concord does grant access to the installation on an individual basis for biological surveys including an annual bird count by the local chapter of the National Audubon Society, for public access to the National Park Service's Port Chicago Memorial; and for individuals and groups as requested for historical or cultural resources reviews. To request access to the Detachment Concord a written request needs to be submitted to the Officer-in-Charge (OIC) stating the purpose of the visit, dates, and times requested.

NATURAL RESOURCES MANAGEMENT AND THE MILITARY MISSION

The overall goal of the INRMP is to provide a means for managing the natural resources at Detachment Concord to sustain military readiness and to comply with applicable federal law and regulation. Both Navy and Army environmental personnel assigned to Detachment Concord have identified the following general objectives to achieve these goals:

- Ensure no net loss in the capability of the land and natural resources at Detachment Concord to support the current and future military missions of the Navy and Army;
- Ensure compliance with applicable federal laws and regulations as they pertain to natural resources;
- Maintain and enhance the level of biodiversity within the constraints of the military mission;
- Outlease lands that are suitable and available for livestock grazing consistent with the military mission;
- Implement adaptive management techniques to provide flexible and responsive management strategies based on scientific data gathered from monitoring programs, literature, and resource experts;
- Conserve the quality of habitat for federally listed endangered and threatened species;
- Maintain sufficient natural resources personnel to implement, manage, and monitor the management strategies of the INRMP; and
- Provide for an institutional memory that may be used as a framework for future resources personnel on which to base management decisions.

NATURAL RESOURCES SETTING

The natural resources setting categories described in this INRMP include land use, facilities, climate, geology, soil resources, water resources, vegetation, wetlands, wildlife, special status species, and cultural resources. In addition, air quality, noise, public health

and safety, socioeconomic resources, and environmental justice are described in the EA (Appendix A).

MANAGEMENT GOALS AND OBJECTIVES

A brief overview of the management goals and objectives for the natural resources setting is provided below. (Refer to Section 6 for specific management strategies that would be implemented in relation to the goals and objectives.)

Soil Management (Inland)

Goal: To protect the soil resources of Detachment Concord from erosion, while maintaining the military mission and sustainable grazing practices.

Objectives:

- Manage Mt. Diablo/Seal Creek and other stormwater conduits to prevent bank cutting and flooding in operational areas.
- Reduce likelihood of sedimentation of ponds and wetlands from existing or future erosion problem areas.

Water Resources Management (Inland)

Goal: To efficiently use and conserve water resources presently available to Detachment Concord to support the military mission and natural resources.

Objective: Proactively manage the conservation and use of water supplies and opportunistic waters (flood waters and drain waters) to support natural resources management goals. Maintain water supplies to support the grazing leases and benefits derived therefrom.

Grazing Outlease Management (Inland)

Goal: To maintain sustainable grazing practices to the maximum extent possible compatible with the military mission and ecological constraints in accordance with Public Law (PL) 97-321, Agricultural Outleasing.

Objective: Manage current and future grazing lease agreements to reduce negative ecological impacts from grazing activities.

Terrestrial Habitat Management (Inland)

Goal: To maintain and enhance upland resources and vegetation for the benefit of water quality, native vegetation, and wildlife resources.

Objectives:

- Manage upland habitats for the benefit of upland wildlife species.
- As native oaks (*Quercus lobata*) and other trees are planted, protect them by fencing to ensure establishment.

Wetlands Management (Inland)

Goal: To protect and enhance the wetland resources at Detachment Concord.

Objectives:

- Manage wetlands on Detachment Concord in compliance with federal laws and Executive Orders (EOs).
- Maintain water quality in aquatic habitats that support sensitive plant or wildlife species.
- Maintain the water quality and historic integrity of the Cistern Pond, by restoring the windmill to an operative condition at the existing well site. Once operative, the windmill can be used to provide additional groundwater to Cistern Pond. This groundwater may be needed during times of drought and/or to assist with seasonal flushing of this pond.

Riparian Habitat Management (Inland)

Goal: Protect and conserve riparian habitat, while maintaining the military mission and sustainable grazing practices.

Objective: Manage grazing activities to reduce negative ecological impacts on riparian habitat and associated wildlife.

Wildlife Management (Inland)

Goal: Protect and conserve the wildlife resources in the Inland Area of Detachment Concord.

Objectives:

- Protect wildlife habitat areas from adverse grazing and human-induced impacts.
- Support biodiversity at Detachment Concord by enhancing specific wildlife habitat areas, when and where appropriate.
- Manage the tule elk herd in accordance with the management measures identified in the 1982 Agreement for the Cooperative Management of Tule Elk (DoN 1982c) (Appendix I).
- Manage habitats for continuing use by avian species and in compliance with the Migratory Bird Treaty Act (MBTA) and Migratory Bird Conservation Act.

Federally Listed Endangered, Federally Listed Threatened, and Other Special Status Species Management (Inland)

Goal: To conserve the habitat and populations of federally listed endangered, federally listed threatened, and other species of concern (plant and animal) known to grow, reside at, or migrate through the Inland Area of Detachment Concord.

Objectives:

- Continue to conserve habitat for the federally listed threatened California red-legged frog (*Rana aurora draytonii*).

- Continue to conserve habitat for the federally designated candidate California tiger salamander (*Ambystoma californiense*).

Pest Management (Inland)

Goal: Using integrated pest management (IPM) methods, to control noxious and invasive plants, rodents, insects, and other pests found in the Inland Area of Detachment Concord and to reduce the dependence on chemical means of control, as stated in DoD Directive 1450.7, Navy Directive 6250.4b.

Objectives:

- Monitor pesticide/herbicide applications in the Inland Area used by the grazing lessees.
- Assist lessees to reduce reliance on chemical means of pest control, per DoD Directive 4150.7 and Navy Directive 6250.4b.
- Continue to monitor ground squirrel (*Spermophilus* sp.) and coyote (*Canis latrans*) populations.
- To control by IPM methods all noxious weeds, undesirable plants, and invasive plant species.

Cultural Resources Management (Inland)

Goal: To maintain and preserve the cultural resources at Detachment Concord.

Objective: Preserve the physical and ecological integrity of known Inland Area sites that contain high to moderate archaeological potential.

Outdoor Recreation Management (Inland)

Goal: To support public access as approved by the Navy and where it does not conflict or interfere with Detachment Concord's military mission.

Objective: Manage access to the Inland Area, as requested by the public and approved by the Navy.

Fire Management (Inland)

Goal: Reduce likelihood of wildfires in Inland Area of Detachment Concord.

Objective: Manage Inland Area grasslands in a way that is compatible with the military mission and its natural resources.

Soil Management (Tidal)

Goal: To protect the soil resources of Detachment Concord from erosion, while maintaining the military mission and sustainable grazing practices.

Objective: Reduce likelihood of sedimentation of tidal wetlands from existing or future erosion problem areas.

Water Resources Management (Tidal)

Goal: To protect water resources needed for present and future military missions and natural resources management goals.

Objective: Proactively manage conservation and use of potable water supplies.

Grazing Outleases Management (Tidal)

Goal: To maintain sustainable grazing practices to the maximum extent compatible with the military mission and ecological constraints, in accordance with Public Law 97-321, Agricultural Leasing.

Objective: Manage current and future grazing lease agreements to prevent negative ecological impacts from grazing activities.

Terrestrial Habitat Management (Tidal)

Goal: To maintain and enhance Tidal Area upland resources and vegetation for the benefit of water quality, native vegetation, and wildlife resources.

Objective: Initiate program to plant wildlife windrows to benefit native species through assistance by the California Conservation Corps (CCC).

Wetlands Management (Tidal)

Goal 1: To comply with the February 1, 1984, MOU between the Navy and USFWS relating to Designation of Wetland Preserve in the Tidal Area of Detachment Concord (1984 MOU [DoN 1984]).

Objective: Implement the management strategies identified in the 1984 MOU, as feasible.

Goal 2: To protect and enhance the wetland resources in the Tidal Area of Detachment Concord.

Objectives:

- Manage wetlands in the Tidal Area in compliance with federal and state laws and EOs.
- Protect water quality of wetland areas.

Wildlife Management (Tidal)

Goal: Protect and conserve the wildlife resources that inhabit the Tidal Area of Detachment Concord.

Objectives:

- Protect and conserve the wildlife resources that reside in the Tidal Area of Detachment Concord.
- Encourage biodiversity at Detachment Concord by enhancing specific wildlife habitat areas, when and where appropriate.

- Manage habitats for continuing use by avian species and in compliance with the Migratory Bird Treaty Act (MBTA) and Migratory Bird Conservation Act.

Fisheries Resource Management (Tidal)

Goal: To protect the habitat and population of fish species at Detachment Concord.

Objective: Manage fisheries to conserve essential fish habitat (EFH) as described under the Magnuson-Stevens Fishery Conservation and Management Act (MFCMA).

Federally Listed Endangered, Federally Listed Threatened, and Other Special Status Species Management (Tidal)

Goal: To conserve the habitat and populations of federally listed endangered, federally listed threatened, and other species of concern (plant and animal) known to grow, reside at, or migrate through the Tidal Area of Detachment Concord.

Objectives:

- Continue to conserve habitat for the federally listed endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), and California clapper rail *(Rallus longirostris)*.
- Minimize noise disturbance to California clapper rail.
- Continue to conserve habitat for the federally listed endangered soft bird's beak (*Cordylanthus mollis)* and the federally designated species of concern delta tule pea (*Lathyrus jepsonii jepsonii)*.
- Avoid adverse impacts to federally listed threatened delta smelt (*Hypomesus transpacificus*), Sacramento splittail (*Pogonichthys macrolepidotus*), Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*), and federally listed endangered Sacramento winter-run chinook salmon (*Oncorhynchus tshawytscha*) and their associated critical habitat.
- Determine the presence or absence of federally listed threatened California red-legged frog in the Tidal Area.

Pest Management (Tidal)

Goal: To control by IPM methods all noxious and undesirable weeds, rodents, insects, and other pests found in the Tidal Area of Detachment Concord and to reduce the dependence on chemical means of control as stated in DoD Directive 1450.7 and Navy Directive 6250.4b.

Objective: Protect Tidal Area resources from effects of pesticide/herbicide applications.

Cultural Resources Management (Tidal)

Goal 1: To maintain and preserve the cultural resources in the Tidal Area of Detachment Concord.

Objective: Preserve the physical and ecological integrity of known Tidal Area sites, which contain high to moderate archaeological potential.

Goal 2: To provide controlled and limited access to the Tidal Area while maintaining the military mission.

Objective: Provide public access annually to the Port Chicago Memorial.

Outdoor Recreation Management (Tidal)

Goal: To provide controlled and limited access to the Tidal Area for recreation and education, while maintaining the military mission.

Objective: Manage access to the Tidal Area as requested by the public and approved by the Navy.

Fire Management (Tidal)

Goal: Reduce likelihood of wildfires in the Tidal Area of Detachment Concord.

Objective: Manage Tidal Area grasslands in a way that is compatible with the military mission and its natural resources.

DESCRIPTION OF ALTERNATIVES

Given the policy-level detail of an INRMP and the large number of specific management actions, an infinite number of permutations of specific management alternatives are possible. In order to capture the full range of possible impacts that could result from implementing the INRMP, two alternative means of implementing a natural resources program at Detachment Concord for the next five years have been identified.

Alternative 1: Ecosystem-based INRMP. Under this alternative, Detachment Concord would implement the INRMP approach outlined in Section 6, focusing on sustaining military readiness, compliance with applicable federal laws and regulations, and promoting ecological stewardship. This alternative addresses the changes in the natural resources management program as a result of the 1999 IUP. Detachment Concord's grazing outlease program would be managed in compliance with PL 97-321, Agricultural Outleasing. In addition, this alternative integrates the management measures identified in the 1984 MOU with USFWS regarding the wetland preserve and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). Implementation of the management strategies identified in Section 6 would be dependent upon the availability of staff and funding. The implementation priority for each of the management measures under Alternative 1 is shown in Table A-2. An adaptive management strategy would be instituted to conduct additional research, to monitor management actions, and to revise the management plan accordingly.

Alternative 2: Compliance-based INRMP. Under this alternative, Detachment Concord would implement only those natural resources management actions necessary

to comply with applicable federal laws and regulations. This approach to natural resources management would be in response to Detachment Concord's progression toward reduced operational status. This operations progression would result in the further reduction of funds and staff available for natural resources management. Under this alternative the 1984 MOU with USFWS regarding the wetland preserve and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b) would continue to be recognized, however implementation of the management measures would be subject to reduced funding and staff availability. Public Law 97-321, Agricultural Outleasing, allows for a grazing outlease program to be undertaken at the discretion of natural resource managers. Due to the reduction in staff, the grazing outlease program would be discontinued under Alternative 2. Actions to support the mission and sustain military readiness would continue to be implemented. Therefore, this alternative focuses only on legally protected resources (e.g., federally listed endangered and threatened species) and does not emphasize specific management approaches or stewardship. Compliance management strategies, as identified in Section 6, would be the only actions implemented, with the exception of grazing outlease management strategies. The implementation priority for each of the management measures to be implemented under Alternative 2 is shown in Table A-2 (Appendix A).

No Action Alternative. The No Action Alternative would continue implementing the objectives and practices under the existing natural resources management programs. On-going practices used for management of natural resources at Detachment Concord would continue and there would be no change to the objectives of the current natural resources management programs. The current natural resources management programs are described in Section 4 of the INRMP and include the Detachment Concord NRMP (DoN 1988) and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). The current NRMP was written prior to the 1999 IUP and does not address the resulting changes in natural resource management. This program focuses on compliance actions as a top priority but also includes implementing some stewardship actions. This alternative broadly supports all natural resources and generally does not emphasize specific management areas. In this regard, the level of effort of the No Action Alternative falls between Alternative 1 and Alternative 2. A No Action Alternative is prescribed by Council on Environmental Quality (CEQ) regulations and serves as a benchmark against which proposed federal actions are evaluated. The implementation priority for each of the management measures to be implemented under the No Action Alternative is shown in Table A-2 (Appendix A).

ENVIRONMENTAL CONSEQUENCES

Land Use

Alternative 1 would promote the designated purpose of undeveloped land uses in the Inland Area of Detachment Concord. Specific management strategies would ensure continued compatibility among the developed areas and adjacent land uses. Wildlife and riparian management strategies would ensure continued compatibility among operational, grazing, and wildlife land uses. Under Alternative 1, Tidal Area

management strategies related to wetlands and wildlife would promote the conservation of sensitive habitats while supporting the military mission of the Tidal Area.

Implementing Alternative 2 in the Inland and Tidal areas would emphasize regulatory compliance. Existing land uses would be comparable to existing conditions and would not result in any significant land use impacts under this alternative. Selection of the No Action Alternative for the Inland and Tidal areas would result in the continuance of the current natural resources management program.

Facilities

Implementing the management strategies under Alternatives 1 and the No Action Alternative would have no significant adverse effects on facilities in the Inland or Tidal areas. All three alternatives place a high priority on management strategies that protect and potentially enhance existing facilities. Implementing Alternative 2 could have impacts on the Inland and Tidal Area facilities, due to increased fire danger as a result of discontinuing the agricultural outlease program.

Climate

Implementing Alternatives 1, 2, or the No Action Alternative would have no significant impacts on the local and regional climate for the Inland or Tidal areas.

Geological Resources

Implementing Alternatives 1, 2, or the No Action Alternative would have no significant impacts on geological resources in either the Inland or Tidal areas.

Soil Resources

The management strategies for the Inland and Tidal areas focus on reducing soil erosion by implementing or continuing certain erosion control measures such as managing cattle grazing and annually maintaining various water conduits, such as Mt. Diablo/Seal Creek. The impacts of these strategies on soils are expected to be beneficial to both the soil resources and surrounding wetland habitats.

Under the No Action Alternative, emphasis on stabilizing soils using proactive vegetation enhancement strategies would be given a lower priority than under Alternative 1. Under this alternative, soil resources in the Inland and Tidal areas may not be used at their highest functional value. Under Alternative 2, soil resources in the Inland and Tidal Areas may benefit due to the absence of grazing cattle, but no proactive soil management measures would be implemented under this alternative.

Water Resources

Alternative 1 proposes to use existing water quality management efforts in the Inland and Tidal areas, while implementing routine surveys of present water distribution systems. Under this alternative, the continued protection of stockwater ponds in the Inland Area will ensure both water quality and wildlife habitat health. The grazing outlease program in Inland and Tidal Areas would continue, with an emphasis on increased water quality for wetland habitats. By improving the water quality in both the

Inland and Tidal areas of Detachment Concord, the health and productivity of Tidal Area wetlands is expected to increase.

Under Alternative 2, additional enhancement strategies proposed in Alternative 1, such as enhancing the vegetation surrounding stockwater ponds in the Inland Area and improving water quality in the Tidal Area, would not be realized. The absence of grazing cattle may have beneficial impacts to water resources, such as increased water availability and water quality in and around the area's riparian and wetland habitats The No Action Alternative would continue to implement compliance-based strategies and additional conservation measures in both areas when feasible. Neither of these alternatives would result in significant adverse impacts to water resources in the Inland and Tidal areas.

Wetlands

Under Alternative 1, existing wetland habitat in the Inland Area would be protected and these wetland habitats will be enhanced by the wildlife wetland resource management strategies. Maintaining fencing at stockwater ponds will protect wetland vegetation from grazing cattle, while providing habitat cover for sensitive wildlife species. Continuing to restrict access of cattle to the riparian areas of Mt. Diablo/Seal Creek will enhance the existing riparian habitat by protecting the area from grazing overuse. In the Tidal Area, maintaining wetland preserve designation status for the six islands and several marshes would conserve and protect existing wetland resources. Maintaining wetland preserve designation status also would support and conserve habitat for migratory birds and endangered species.

Under Alternative 2, existing wetlands would likely not change and could possibly benefit from this alternative through the discontinuation of the agricultural outlease program, thereby enabling sensitive wetland habitats to grow unimpeded by grazing cattle. Many of the beneficial strategies to wetlands proposed under Alternative 1 for pest, soil, and wildlife management may not be realized under this alternative. While the MOU between USFWS and the Navy would continue to be recognized in the Tidal Area, the stewardship measures proposed under Alternative 1 would not be recognized and therefore could adversely affect plant and wildlife habitat quality.

Implementing a No Action Alternative would have some beneficial impacts to Inland and Tidal Area wetlands, but many of the beneficial strategies proposed in Alternative 1 would not be implemented, and, as a result, the net benefits to vegetation would be less than those for Alternative 1.

Vegetation

Alternative 1 proposes to maintain fences surrounding Inland Area water sources that support federally endangered species, such as the California red-legged frog. Properly managed livestock grazing will help to reduce fuel loading for wildfire concerns, while simultaneously providing sufficient vegetative cover for soil erosion concerns. This Alternative also places a higher priority on pursuing research and revegetation projects in the Inland and Tidal Area. The impacts of these strategies on vegetation are expected

to be beneficial to both the vegetation resources and the wildlife that inhabit the Inland and Tidal areas.

Implementing the management strategies under Alternative 2 may result in impacts to vegetation in the Inland and Tidal Areas. Fewer funds would be available for ESO staff to proactively manage vegetation. This could lead to fewer management strategies being planned and implemented and may encourage development of other resources to compensate for this loss of income. A loss of diversity could result from a greater infestation of invasive plants, with a corresponding loss of high-quality wildlife habitat. Benefits to grasslands would be limited, compared to those discussed for Alternative 1, because many of the beneficial management strategies would have a no implementation priority. Some wetland and riparian vegetation areas could benefit from discontinuing cattle grazing. Compared with Alternative 1 and the No Action Alternatives, many of the same wetland and riparian areas would benefit, but through different management methods.

Under the No Action Alternative, beneficial stewardship strategies would continue to be implemented when feasible. In addition, most stewardship strategies proposed in Alternative 1 would not be implemented and, as a result, the net benefits to vegetation would be less than those described for Alternative 1.

Wildlife

Implementing Alternative 1 would result in beneficial impacts to wildlife communities in the Inland and Tidal Areas of Detachment Concord. The management strategies proposed are designed to protect and conserve wildlife communities through habitat management. These strategies would not have any significantly adverse impact on wildlife.

Alternative 2 could result in adverse impacts to Inland Area wildlife communities. Management strategies that are required by federal law and regulation would continue to be implemented, although at a lower priority level. Ending the agricultural outlease program at Detachment Concord could have both beneficial and adverse effects on wildlife. Cattle help to maintain wildlife habitat in grassland areas by reducing fuel for wildfires and in some cases by helping to maintain populations of native plant species. Under this alternative, beneficial impacts would be somewhat reduced and the stewardship management strategies proposed in Alternative 1 would not be realized.

The No Action Alternative would not result in any significant adverse impact to Inland and Tidal Area wildlife communities, but the stewardship management strategies proposed in Alternative 1 would not likely be implemented under this alternative. As a result, the net benefits to wildlife would be less than those described for Alternative 1.

Federally Listed Endangered, Federally Listed Threatened and Other Sensitive Species

Implementing Alternative 1 would continue to address the issues associated with Inland and Tidal Area sensitive species and their habitats. This alternative would continue

many of the current management strategies, while utilizing additional stewardship activities aimed at enhancing Inland Area sensitive species habitat.

Implementing an environmental compliance-based INRMP under Alternative 2 would not result in any significant adverse impacts to Inland Area federally listed endangered, federally listed threatened, and other sensitive species because the amount of habitat available would not change. Environmental compliance would be emphasized under this alternative. Most management measures in this category are considered high priority compliance measures. However, some of the enhancement measures for federally listed endangered, federally listed threatened, and other sensitive species would be less likely to be implemented under this alternative than those proposed in Alternative 1. Therefore, beneficial impacts under Alternative 2 would be reduced when compared with Alternative 1.

Under the No Action Alternative, some of the enhancement measures for Inland and Tidal Area federally listed endangered, federally listed threatened, and other sensitive species would be less likely to be implemented than those proposed in Alternative 1. Management strategies that are required by federal law and regulation would be fully implemented and stewardship strategies would be implemented when feasible. However, many of the beneficial strategies proposed in Alternative 1 would not be implemented under this alternative and, as a result, the net benefits would be less than those described for Alternative 1.

Cultural Resources

There is one archaeological site in the Inland Area that may be eligible for the NRHP, and will be managed in compliance with the ICRMP. Two historical archaeological sites have been identified in the Tidal Area, but they have been determined to be ineligible for the NRHP. Grazing is considered a ground-disturbing activity, and although low sensitivity areas may not contain cultural resources, the potential exists for continued grazing and grazing-related activities, such as fence construction and stock ponds, to disturb undiscovered cultural resources. Under Alternative 1, there would be no adverse impacts to surface archaeological resources in the Inland and Tidal areas.

Under Alternative 2 and the No Action Alternative, the cultural resources management strategies proposed would provide the same level of protection to cultural resources as those discussed under Alternative 1. Because Alternative 2 would eliminate grazing and the potential of grazing-related ground disturbing activities, there would be no significant impacts to cultural resources under this alternative.

Air Quality

Implementing Alternative 1 or the No Action Alternative would have no significant adverse effects on air quality in the area. Under Alternative 2, discontinuing the agricultural outlease program could have an indirect impact on air quality should this alternative result in an increase in wildfires. A draft Record of Nonapplicability (RONA) has been prepared for this INRMP and is included as Attachment A-1.

Noise

Implementing Alternatives 1, 2, or the No Action Alternative would have no significant adverse effects on noise levels in the area.

Public Health and Safety

Implementing Alternative 1 or the No Action Alternative would have no significant adverse effects on public health and safety. There would be no significant impacts with respect to children's environmental health and safety under EO 13045. Discontinuing the agricultural outlease program under Alternative 2 could increase the likelihood of wildfires caused by an increase in fuel loads and a reduction in the maintenance of firebreaks at Detachment Concord. The result could be a loss of some structures at Detachment Concord in the event of wildfire.

Socioeconomic Resources

Implementing Alternative 1 or the No Action Alternative would have no significant adverse effects on socioeconomic resources. Implementing the management strategies under Alternative 2 would have an adverse impact to economic resources. The discontinuation of the agricultural outlease program under this alternative would result in reduced income to the lessee (Detachment Concord), thereby reducing the financial resources needed to manage natural resources programs.

Environmental Justice

Implementing Alternatives 1, 2, or the No Action Alternative would have no significant adverse effects on issues concerning environmental justice

CUMULATIVE EFFECTS

The CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as follows:

> The impact on the environment (that) results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR § 1508.7 [1997]).

To assess cumulative effects, a review of other projects, both on-station and off-station, was conducted. This included looking at past, present, and reasonable foreseeable projects that might be interdependent with the INRMP proposal. No current actions or past projects were identified. Any additional actions taken by the gas well lessee on Ryer Island would need to comply with the goals and objectives of this INRMP. The East Bay Regional Park District (EBRPD) has proposed a regional trail system that includes public trails on both the Inland and Tidal Areas of Detachment Concord. Both action alternatives and the No Action Alternative would not allow for public access as required in the trail plan, because of safety concerns. While the INRMP would conflict with the EBRBD's proposed land use, it is not expected to be a cumulative effect or reduce recreation opportunities from current conditions.

In addition, Detachment Concord has been directed to undertake a "joint use" study to evaluate potential uses by other agencies and organizations of Detachment Concord, as a result of the Navy implementing reduced operations status (ROS). The joint use study is to receive and evaluate potential uses of Detachment Concord, mainly the Inland Area, as the Navy's presence is reduced. The joint use technical advisory board will receive joint use proposals, and, on initial approvals by this board, the advisory board will undertake its own environmental analysis and endorsement by the Navy prior to any implementation of joint use proposals. Joint Use proposals may complement objectives put forth in this INRMP, or they may stand alone on their own merits. Implementing the INRMP with other proposed actions at Detachment Concord would not result in any significant impacts to local natural or cultural resources.

1.0 INTRODUCTION

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SECTION 1
INTRODUCTION

1.1 INTRODUCTION

This INRMP was prepared to comply with the requirements of the SAIA and in accordance with DoD and DoN guidance and instructions. The principal purpose of DoD lands and waters is to support mission-related activities and to facilitate the sustainability of military readiness (DoD 1996). Natural resources under DoD jurisdiction are managed in accordance with numerous laws, regulations, EOs, and DoD instructions. These documents direct the Secretary of the Navy to carry out a natural resources management program to balance sustainable military readiness, sustainable environmental stewardship, and sustainable economic development. In general, the natural resources management program at Detachment Concord must support the following:

- No net loss in capability to support the military mission;
- Conservation and enhancement of natural resources;
- Sustainable multiple use of natural resources, which may include livestock grazing and nonconsumptive uses, subject to resource availability, safety, and military security, including public access to the resources;
- Professional resource management, including protection, enhancement, and conservation of the natural resources;
- Implementation of land management practices that reduce grounds maintenance costs, use environmentally and economically beneficial landscaping practices, conserve soil and water, improve real estate value, abate nonpoint pollution, control noxious weeds and invasive species, and prevent erosion;
- Identification and conservation of federally listed endangered or threatened species, emphasizing mission requirements and interagency cooperation during consultation and species habitat management planning;

- Optimum uses of, and access to, the land;
- Outleased lands that are suitable and available for agricultural uses, consistent with operational requirements and long-term ecosystem management goals; and
- Interaction with the surrounding community to develop positive and productive community involvement and economic opportunities.

This INRMP addresses the interrelationships among the natural resources at Detachment Concord, including agriculture/grazing, wetlands, wildlife, and outdoor recreation, and the military mission. This INRMP provides a flexible program to balance natural resources with present and future military needs.

The INRMP contains baseline information that supports compliance with the regulatory and planning process. To fulfill the requirements of NEPA, an EA was prepared to assess possible impacts from implementing the INRMP. This EA is included as Appendix A to this INRMP. For this reason, this joint document is commonly referred to as the INRMP/EA. Section 2.2 discusses the NEPA process in detail.

1.2 DETACHMENT CONCORD MISSION

1.2.1 Historical Mission

Historically, the mission at Detachment Concord has involved the receiving, segregating, storing, and issuing of ammunition to ships and Navy facilities in the San Francisco Bay Area. More recently, Detachment Concord operated as the major west coast transshipment and fleet support point for ammunition of all DoD components. The mission included material and technical support for ammunition and weapons systems, maintenance and operation of an explosive ordnance outloading/transshipment facility, and homeport services to US Pacific Fleet ammunition ships (DoN 1989).

Navy-related ordnance has been stored in the San Francisco Bay Area since the 1850s. Between 1857 and 1936, Mare Island Naval Shipyard served as the Navy's major west coast ordnance storage and handling facility and was elevated to Naval Ammunition Depot status in January 1936. As both residential and industrial development increased near Mare Island Naval Shipyard, the Navy was forced to reduce activities related to large quantities of explosives. As a result, the Navy selected the more remote site of Bay Point (now the Tidal Area of Detachment Concord) to serve as an alternate explosives facility. After the bombing of Pearl Harbor on December 7, 1941, the Bay Point location was selected as the Navy's main ordnance shipping depot, eventually taking over all ammunition functions from Mare Island Naval Shipyard and becoming officially commissioned as Naval Magazine, Port Chicago.

When munitions passing through the Port Chicago waterfront exceeded the capacity of the new facility, the Navy acquired a 5,143-acre (2,081-ha) area of land in the Diablo

Creek Valley (now known as the Inland Area of Detachment Concord). On July 17, 1944, 3.5 million pounds (1.6 million kilograms [kg]) of high explosives detonated in the Port Chicago area, killing 320 people and injuring another 390. As a result of this explosion, ESQD arcs were implemented at Port Chicago. The threat of a second explosion kept the civilian population surrounding Port Chicago at approximately 3,000 residents. In 1967, Congress passed a law authorizing the acquisition of about 5,021 acres (2,032 ha) within a two-mile (three-km) radius of the loading piers at Port Chicago, subsequently leading to the removal of all civilian residents in the area.

As Port Chicago changed from a transshipment facility to a comprehensive ordnance facility, it was consolidated with Mare Island, and it became NWS Concord, with an annex at Mare Island Naval Shipyard. As the Inland Area was developed, administration and support facilities were gradually moved from the Tidal Area to the northern end of the Inland Area. Due to realignment within the Navy in 1998, NWS Concord became a detachment of NWS Seal Beach in southern California. Today, it is known as NWS Seal Beach, Detachment Concord.

As a result of past and present missions, much of Detachment Concord was and continues to be within ESQDs (Section 3 describes ESQDs), designed to limit access to high-risk areas. This has limited development at Detachment Concord.

Reduced Operational Status. Due to DoD workload and budget reductions, Detachment Concord is changing to Reduced Operational Status (ROS). ROS implementation began on October 1, 1999, and is expected to be fully implemented by October 2002. Under ROS, port operations have been transferred to the Department of the Army's (DoA) MTMC. Reflecting this change, Detachment Concord's Tidal Area has been renamed MOTCO (DoN 2001).

1.2.2 Current Mission

In September 1999, the DoA and Department of the Navy (DoN) signed an IUP, which resulted in two distinct DoD missions for Detachment Concord. The Navy's mission is to retain the Inland Area of Detachment Concord as a strategic asset in the event of increased requirements in response to a major conflict or changing geopolitical support requirements in the Pacific region. Currently, ordnance is not stored in the Inland Areas of Detachment Concord, but the Navy is required to maintain ESQD arcs for potential reactivation. Activities necessary to accomplish this mission will include only essential infrastructure maintenance with the majority of utilities being terminated. It is planned that approximately twelve Navy personnel will be employed at Detachment Concord to support this mission.

The mission of the Army's MTMC is to responsively deploy and sustain DoD surface transportation and terminal operations moving through strategic seaports in California in peace and crisis (Personal communication, Rouhafza 2000). The mission of MOTCO is to process, ship, and receive military ordnance in a safe and efficient manner. MOTCO plans for two large-scale discharge and load out operations per year, in accordance with Detachment Concord's ROS designation, while striving to maintain

overall port readiness to meet a wartime throughput capacity goal of 520 containers per day. In this regard, the MOTCO works closely with contracted maintenance and stevedore service providers to ensure the highest possible level of equipment and personnel readiness. It is planned that approximately fifty Army personnel will be employed at Detachment Concord to support this effort. Additionally, MOTCO coordinates select active-duty training opportunities for active duty and reservists.

1.3 RELATIONSHIP BETWEEN THE MILITARY MISSION AND NATURAL RESOURCES

1.3.1 Natural Resources Needed to Support the Military Mission

The Navy recognizes that healthy and viable natural resources aid in supporting the military mission at Detachment Concord by minimizing fire hazards for ammunition handling and storage activities. The grazing outlease program at Detachment Concord provides the safety functions listed above by reducing the likelihood of wildfires and is one of the active land uses compatible with military ammunition operations. Agricultural outlease programs also fund natural resources management programs on Navy installations.

In addition to operational health and safety, the natural resources at Detachment Concord enhance the quality of life for Navy personnel and their dependents by providing outdoor recreational opportunities. However, under ROS, opportunities for outdoor recreation will be greatly diminished for Navy personnel.

1.3.2 Effects of the Military Mission on Natural Resources

Detachment Concord was developed to assist with national security and to do so in a safe environment; therefore, specific natural resources management actions must be compatible with the military mission and must not jeopardize operational health and safety. Examples of compatible programs include seasonal grazing leases aimed at decreasing fire risk and fuel loading. Additionally, operations in the Tidal Area are within ESQDs and mandate certain land use restrictions, such as prohibiting public access and limiting development. The lack of development in the Tidal Area has allowed the wetlands to remain relatively undisturbed and the associated wildlife and plants to thrive.

1.3.3 Effects of Natural Resources Management on the Military Mission

While the military mission is paramount, natural resources management can constrain the mission when federal law and regulation are identified. For example, activities at Detachment Concord cannot cause harm to species, as defined under the Endangered Species Act (ESA) (16 USC §§ 1531-1544 PL 93-205, 1973). Such harm is referred to as a “take” and is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (ESA §3[19]). For a complete definition of a take, see Section 2.3. If such an action were proposed, the Navy would have to enter into formal Section 7 consultation with USFWS or the National Marine Fisheries Service (NMFS) and get approval prior to implementing the action. Likewise, wetlands and cultural resources are protected by federal law, which could affect the future expansion and use of certain areas within Detachment Concord.

This INRMP identifies such land use and operational constraints so that they can be considered and planned for in future actions.

1.3.4 Future Military Mission Impacts on Natural Resources

As mentioned in section 1.2, Detachment Concord has been placed in ROS. There is a possibility that Detachment Concord will receive new missions in the future, as technology and training needs change. Any development would likely occur near existing facilities. Development would be unlikely in any of the wildlife habitat areas or near sensitive resources, because of physical constraints (for example, terrain and the presence of wetlands) and limited access (for example, distance from developed roadways). Current and future operation of Detachment Concord will require that development and access remain limited in order to maintain the ESQDs.

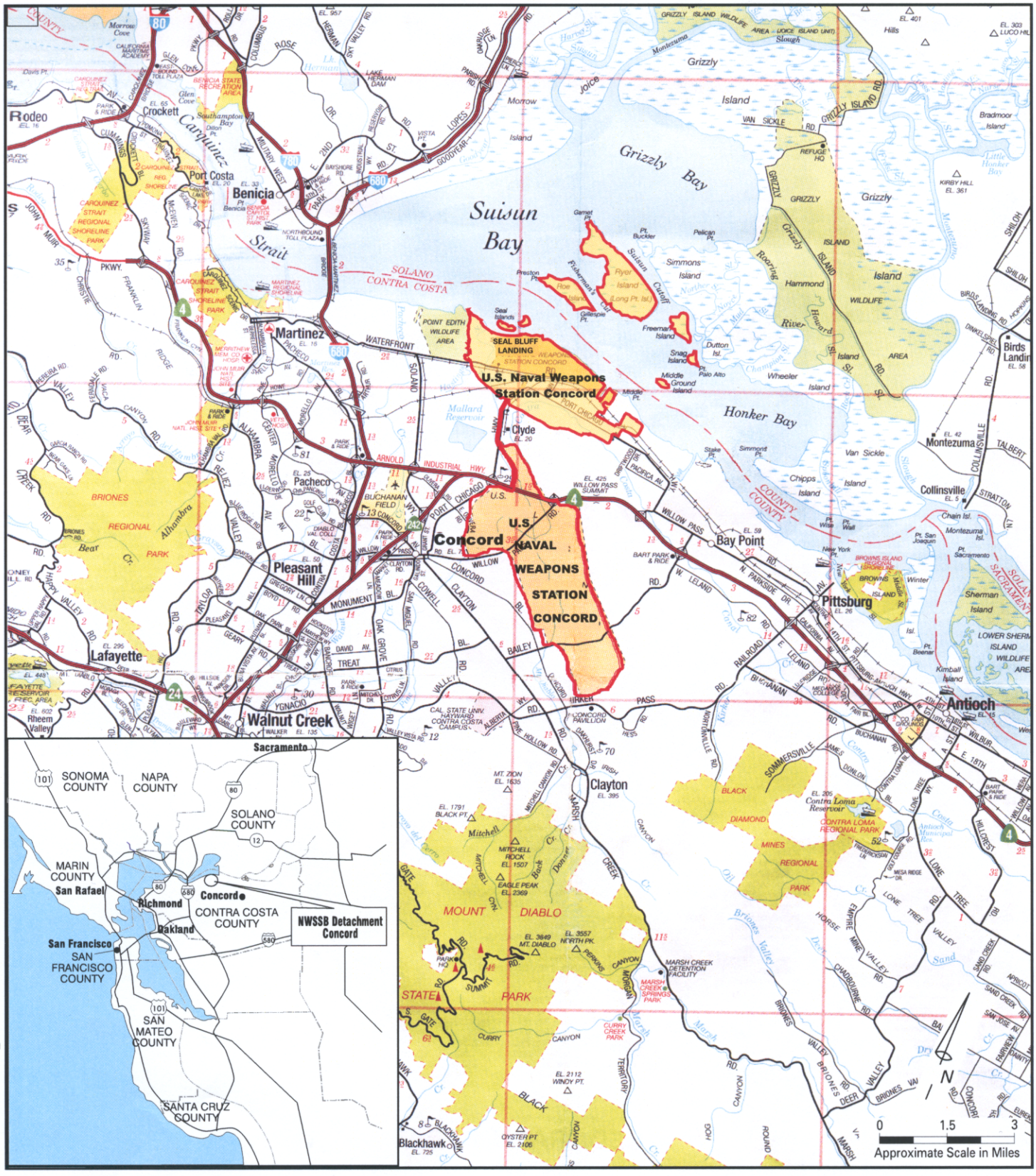
1.4 LOCATION AND LAND USE

Detachment Concord encompasses 12,920 acres (5,229 ha) in north central Contra Costa County, California, south of Suisun Bay and just northeast of the city of Concord (Figure 1-1). Oakland is 20 miles (32 km) to the southwest, and Sacramento is 35 miles (56 km) to the northeast. Detachment Concord is approximately 15 miles (24 km) east of the city of Richmond and San Pablo Bay and two miles (three km) north of Mount Diablo. Its two primary areas are the Tidal Area, composed of 7,648 acres (3,095 ha), and the Inland Area, composed of 5,272 acres (2,134 ha) (Figure 1-2). Most of Detachment Concord's land area lies along a broad valley plain and southwest-facing slope. Mt. Diablo/Seal Creek enters the Inland Area of Detachment Concord and flows north through Detachment Concord, terminating in the tidal marshes of Suisun Bay (DoN 1989). Land use in the area is diverse, characterized by a mixture of industrial, residential, agricultural, and open space zones. The Land Use Element of the *City of Concord General Plan* (City of Concord 1994) sets forth the goal of continuing and enhancing the long-standing relationship with Detachment Concord and recognizes its national security, open space, and wetlands habitat values.

Detachment Concord is bordered on the south by residential sections of the city of Concord, made up of single-family, medium-density housing, much of which was constructed in the mid-1950s. In addition, seven public schools and several parks are adjacent to Detachment Concord's property line. Concord also borders Detachment Concord's Inland Area to the west, mostly with small business parks. The northern boundary of Detachment Concord is approximately ten miles (16 km) west of the confluence of the Sacramento and San Joaquin rivers and is immediately south of Suisun Bay. The Navy does not own the waters and aquatic habitats of Suisun Bay which border Detachment Concord. Steep slopes and access problems have prevented extensive development along Kirker Pass Road and in the hills northeast of Detachment Concord. Additional details regarding land use at Detachment Concord are presented in Section 3.2.

1.5 PURPOSE OF THE INRMP

The purpose of this INRMP is to meet statutory requirements of the SAIA. In November 1997, the Sikes Act, 16 USC §§ 670a *et seq*., was amended to require the



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Detachment Concord is located 20 miles (32 km) northeast of Oakland and 35 miles (56 km) southwest of Sacramento.

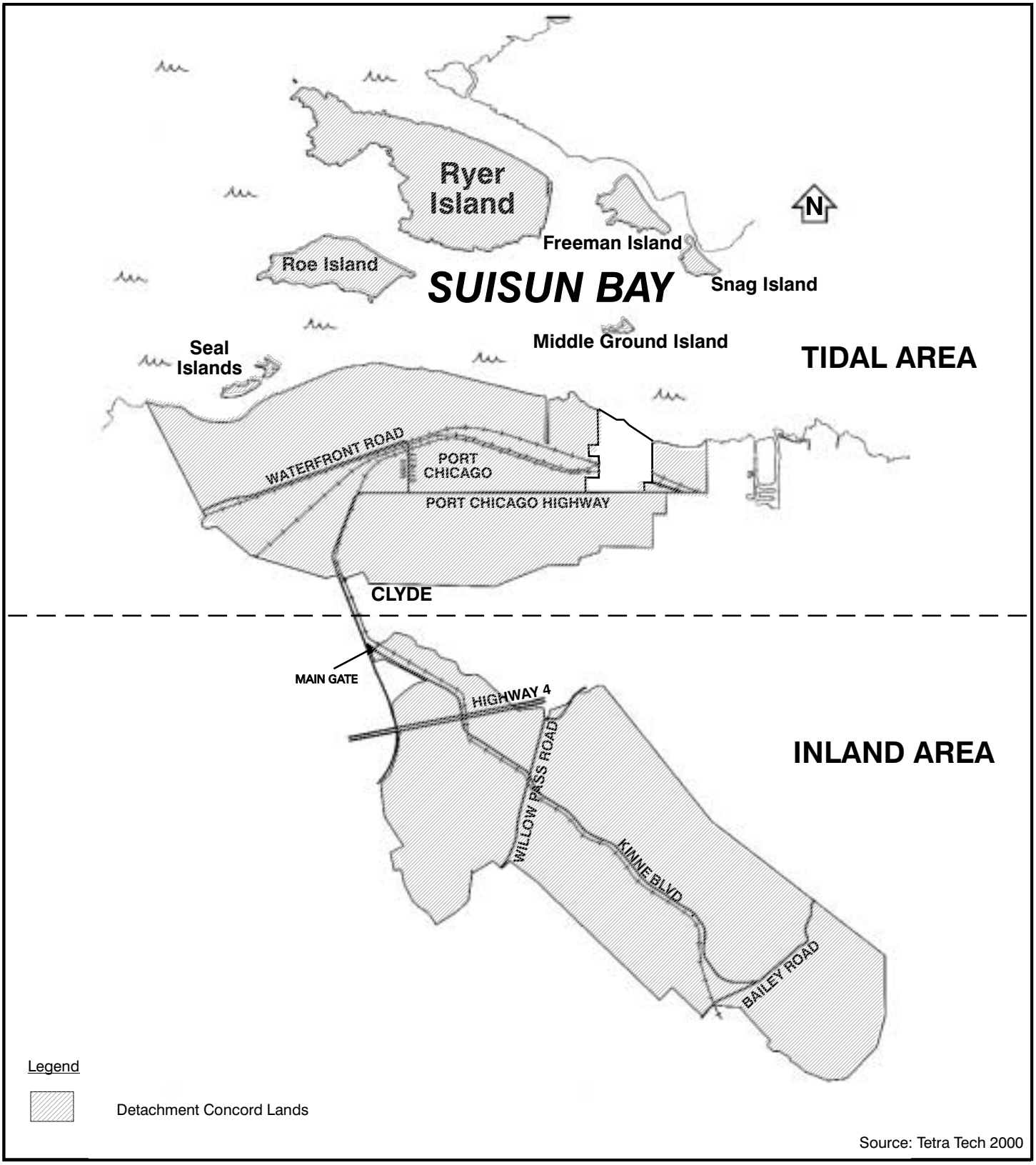
Property Boundary Detachment Concord

Regional Location

NWSSB, Detachment Concord
Concord, California

Tetra Tech, Inc.

Figure 1-1



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Detachment Concord is divided into two primary areas; The Inland Area, comprised of 7,648 acres (3,095 ha) and the Tidal Area, with 5,272 acres (2,134 ha). Included in the Tidal Area are six islands: Roe Island, Ryer Island, Freeman Island, Snag Island, Middle Ground Island, and the Seal Islands.

Site Map

NWSSB, Detachment Concord
Concord, California

Data may be dated and should be verified with appropriate natural resources office personnel.

Tetra Tech, Inc.

Figure 1-2

Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement INRMPs for each military installation in the US unless the absence of significant natural resources on a particular installation makes preparation of a plan for that installation inappropriate. More specifically, the purpose of this INRMP is to guide the natural resources management program at Detachment Concord from 2002 to 2006 and to provide a solid foundation from which to build the program beyond 2006. The INRMP will help Detachment Concord achieve its goal to ensure the sustainability of the military mission while maintaining the integrity of the ecological processes and its ecosystems. In addition, the INRMP will ensure that natural resource conservation measures and Navy and Army activities on Detachment Concord are integrated and consistent with federal stewardship requirements.

1.5.1 Need for the INRMP

The need for this INRMP is as follows:

- To update the existing NRMP (DoN 1988). A number of resource-specific management plans and studies have been completed subsequent to completion of the NRMP. These plans and studies are discussed in Section 4 and include a Draft ICRMP (DoN 2000a), a Wildlife and Plant Community Survey (DoN 1999d), a NRMP for Outdoor Recreation (DoN 1994a), and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). The INRMP is needed to integrate these existing plans into one comprehensive NRMP. This process will resolve potential conflicts and will integrate the planning functions of multiple programs.
- To guide Navy and Army personnel in jointly managing the Tidal Area's natural resources. As a result of an IUP between the Navy and Army, the Army occupies and maintains the facilities, structures, and equipment in the Tidal Area. Many of the wetlands in the Tidal Area were declared a wetland preserve under the 1984 MOU between the Navy and USFWS (DoN 1984). The INRMP will help Army personnel successfully implement established management strategies designed to protect the natural resources in the Tidal Area.
- To document the principles of ecosystem management as part of Detachment Concord's natural resources program (Environmental Conservation Program, DoD Instruction 4715.3). It is Navy policy to incorporate ecosystem management as the basis for planning and managing Navy facilities (OPNAVINST 5090.1B). This approach takes a long-term view of human activities, including military training needs, human uses, and biological resources, as part of the same environment. The following is the goal of ecosystem management, as defined by the DoD's Environmental Conservation Program, Instruction 4715.3:

> "To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations" (DoD 1996).

1.6 RESPONSIBLE AND INTERESTED PARTIES

The success of natural resources management and the implementation of this INRMP require a cooperative effort among the parties directly responsible for operating and maintaining Detachment Concord, namely the Navy and Army. The level of success can be enhanced by developing partnerships among other parties that have a vested interest in the responsible management of the natural resources at Detachment Concord. A brief description of the parties directly responsible for implementing the INRMP and of other interested parties is provided below.

1.6.1 US Navy and US Army

Detachment Concord's Tidal Area is operated and maintained by the Army under an IUP, signed in September 1999 between the Deputy Assistant Secretary of the Navy (Installations and Facilities) and the Deputy Assistant Secretary of the Army (Installations and Housing). Under this IUP, the Navy provides for the Army's use of facilities at Detachment Concord for an indefinite period, beginning on October 1, 1999, and until terminated by mutual agreement between the Secretary of the Navy and the Secretary of the Army:

- The Army shall have use of that portion of Detachment Concord property known as the "Tidal Area," containing 6,100 acres (2,469 ha), more or less, including Roe, Ryer, Freeman, Snag, Middle-Ground and Seal Islands, along with all facilities, buildings and structures located thereon. However, the Navy shall retain access to and use of the area "Q," associated with buildings 351 and 31-41.
- The Tidal Area shall be delivered to the Army, "AS IS WHERE IS." The Navy acknowledges that it remains liable for all environmental contamination safety and/or health hazards that arose from the Navy's past use of the property.
- Additionally, under the IUP, paragraph 9 j, "The Army acknowledges that the Navy and USFWS, under an MOU signed in 1984 (DoN 1984), jointly designated portions of the Tidal Area as a Wetland Preserve. The Army agrees to comply with all provisions of this MOU or future agreements between the Navy and the federal and state wildlife resource agencies and shall not undertake any activity that may violate such agreements. Consistent with paragraph 10 of this IUP, the Army's position will be solicited prior to any final signature on any future agreements, and the

> Navy expressly agrees, to the extent allowed by law, that any such agreements which it may enter into will not degrade or interfere with any Army operational requirement in the Tidal Area."

Roles of the Navy and Army organizations and divisions either directly responsible for or helping to implement the INRMP are provided below. Additional information regarding specific implementation responsibilities are described in Section 7, Implementation of the INRMP.

US Navy, Commander-in-Chief, Pacific Fleet (CINCPACFLT)—Navy Region Southwest. The Pacific Fleet supports activities ashore through six regional coordinators, including Commander, Navy Region Southwest (CNRSW). Navy Region Southwest provides expertise in such areas as housing, environment, security, family services, port services, and various other services for active duty, reserve, and retired military members in the area. The command also serves as the regional coordinator for the CINCPACFLT, headquartered in Hawaii, coordinating support for bases in southern California and Nevada.

Bases that fall under the command of this region are Naval Station San Diego, Naval Base Point Loma, Naval Base Coronado, Naval Air Facility El Centro, Naval Air Station Lemoore, Naval Base Ventura County, NWS Seal Beach (and its detachments), and Naval Air Station Fallon, Nevada.

US Navy, Naval Weapons Station Seal Beach. NWS Seal Beach, along with detachments Concord and Fallbrook, stores and loads weapons and supports ships and submarines of the US Pacific Fleet. These facilities also service US Coast Guard vessels and US Marine Corps units stationed afloat.

US Navy, Detachment Concord Officer-in-Charge (OIC). Detachment Concord is under the command of NWS Seal Beach and is commanded by an OIC, who is responsible for managing and operating Detachment Concord and all associated property. Accordingly, the OIC must ensure that environmental and natural resources management programs for the Inland and Tidal Areas support the military mission and that they do not pose risks to personnel. Navy policy for safety is to manage for a zero mishap rate.

US Navy, Detachment Concord, Environmental Services Office. The Environmental Services Office (ESO) has overall responsibility for the Inland and Tidal Areas' environment and natural resources management programs. The Navy implements and manages all natural resources programs at Detachment Concord. The ESO for Detachment Concord is located at NWS Seal Beach in southern California. The ESO is supported by the Environmental Site Manager located at Detachment Concord. The ESO, with support from the Environmental Site Manager, reviews and approves of proposed Army actions that may affect natural resources in the Tidal Area. Areas of responsibility include NEPA, air and water resources, solid and hazardous waste, cultural, and natural resources. Natural resources responsibilities include

agricultural outlease coordination, agronomy, pest management, wildlife management, outdoor recreation, and installation restoration.

US Navy, Naval Facilities Engineering Command, Engineering Field Activity West (EFA West). EFA West is designated as the contracting officer for leasing property and for coordinating centralized natural resources funding, such as those funds generated from agricultural outlease programs.

US Navy, Public Works Center, San Diego, Detachment Concord. The Public Works Center repairs and maintains all utilities in Detachment Concord's Inland Area. The Public Works Center also provides contract services, such as rodent control and custodial services.

US Army, Military Traffic Management Command. MTMC processes, ships, and receives military ammunition at Detachment Concord. It also coordinates select active-duty training opportunities with reservists from the 1,397th Terminal Transportation Brigade (Mare Island) to train and prepare them for their wartime role as MTMC's Strategic Port Operator. The US Army is responsible for natural resource management only when it has an action that may affect natural resources. The army with consult with, and receive approval from, the Navy before initiating any action in the Tidal Area that may affect natural resources. The approval process is coordinated through the US Navy, Detachment Concord Environmental Site Manager.

1.6.2 Other Federal Agencies

Several other federal agencies other than DoD and DoN have an interest in the management of natural resources at Detachment Concord. The involvement of these agencies is based on their designation as cooperating agencies and on cooperative agreements, regulatory authority, and technical assistance, as required by federal legislation and regulation. These agencies and their roles and responsibilities are described below.

US Fish and Wildlife Service. The USFWS is a designated cooperating agency with the development of this INRMP, in accordance with the SAIA. It is the primary federal agency for fish and wildlife management and is the regulatory authority for the ESA of 1973, and the MBTA of 1918, 40 Stat. 755 (codified as amended at 16 USC §§ 703-711). The USFWS has an informal agreement with Detachment Concord to provide technical assistance on sensitive species and wetlands-related management issues and a formal agreement with Detachment Concord to assist with wetlands management.

US Army Corps of Engineers (COE). The COE has regulatory responsibility for implementing Section 404 of the Federal Water Pollution Control Act, also known as the Clean Water Act (33 USC § 1344) (CWA), including the wetland permitting process. Detachment Concord is within the jurisdiction of the COE Sacramento District, which would be involved in determining the presence of protected or jurisdictional wetlands and in handling any permits related to dredge or fill activities within these wetlands.

National Marine Fisheries Service (NMFS). The NMFS, Southwest Region, is one of five regional offices that assesses, manages, and promotes the conservation of marine resources. The southwest region is responsible for 1.3 million square miles (3.4 million square km) of the Pacific Ocean and is composed of the Sustainable Fisheries, Habitat Conservation, and Protected Resources Divisions. The NMFS implements the ESA for marine and anadromous fish species. In addition, the NMFS is the regulatory authority for the Marine Mammal Protection Act (MMPA) and the MFCMA, which protects essential fish habitats (EFH).

1.6.3 State Agencies

California Department of Fish and Game (CDFG). The CDFG is the primary state agency responsible for managing fish and wildlife in California. Specific cooperation with CDFG generally involves wildlife management, an example being the cooperative agreement between Detachment Concord and CDFG for the management of the tule elk (DoN 1982c). The CDFG is a designated cooperative agency for developing this INRMP and is responsible for compliance issues affecting the California ESA. As a federal property, Detachment Concord is required to comply with federal but not state fish and wildlife management laws and regulations.

1.6.4 Other Interested Parties

A number of other interested organizations and stakeholders to the INRMP, in accordance with the SAIA, have been identified, including the following:

- ***Grazing Outlease Holders.*** Currently, there are three lessees that graze cattle on lands at Detachment Concord. In general, the lessees desire future land management to continue to support cattle grazing; thus, the lessees have a vested interest in how Detachment Concord lands are managed.
- ***Contra Costa County.*** Contra Costa is one of nine counties in the San Francisco-Oakland Bay area and has a population of approximately 930,000, as of January 2001. The county covers approximately 733 square miles (1,898 square km), or 469,120 acres (189,853 ha), and has one of the fastest growing work forces among Bay Area counties. Contra Costa has a general law form of government, with a five-member board of supervisors (Contra Costa County 2001). While all of Detachment Concord lies within the county, the Inland Area also lies within the city limits of Concord (DoN 1989).
- ***City of Concord.*** Concord, like the rest of the San Francisco Bay Area, has experienced unprecedented growth in recent decades. This growth has diminished the amount of open space in the area, as city boundaries continue to expand. Detachment Concord, in effect, has been a buffer against urban sprawl. As the preservation of open space becomes increasingly important, Detachment Concord's future management plans will be of interest to Concord.

- ***East Bay Regional Park District (EBRPD).*** The EBRPD manages much of the open space near Detachment Concord, including regional trails and nature areas. The EBRPD has proposed adding additional regional trails that would extend through Detachment Concord.

1.7 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

This document has been prepared with input from and coordination with interested agencies, organizations, and individuals within the region. The USFWS and the CDFG are cooperating agencies in preparing this INRMP. On October 20, 2000, the Navy sent letters to the cooperating agencies and to other interested agencies and organizations notifying them that Detachment Concord was beginning its INRMP process. The mailing provided background information and solicited comments (see Appendix B for the distribution list). Two letters were received, one from the Contra Costa Water District and a second from USFWS. Their comments are provided in Appendix F.

The Navy provided the public with an opportunity to review and comment on the Draft INRMP/EA during a 30-day period. Notices of Availability for the Draft INRMP/EA were printed in the *Contra Costa Times* newspaper, copies of the document were available at five branches of the Contra Costa County Public Library, and copies of the INRMP/EA were available on request.

The Navy received several comment letters during the comment period for the draft INRMP/EA. Copies of these letters are included in Appendix K, and, following the comment letters, is a table containing the Navy's responses. In addition, the USFWS and CDFG have provided concurrence letters, which are included as Appendix L.

1.8 PUBLIC ACCESS

Access to Detachment Concord lands is restricted for national security and public health and safety. Detachment Concord does grant access to the installation on an individual basis for biological surveys, including an annual bird count by the local chapter of the National Audubon Society, for public access to the National Park Service's Port Chicago Memorial, and for individuals and groups who request access for historical or cultural resources reviews. To request access to the Detachment Concord a written request needs to be submitted to the OIC stating the purpose of the visit and dates and times requested.

1.9 USE OF GEOGRAPHIC INFORMATION SYSTEMS

A geographic information system (GIS) has been created for Detachment Concord to demonstrate the various multidisciplinary activities and resources there. The use of GIS, along with written guidance from this INRMP, will assist land managers at Detachment Concord with future natural resources decisions. In addition, GIS will provide a number of benefits, including the following:

- Integrating the management of land use, engineering needs, biodiversity, social factors, and countless other environmental considerations;

- Providing a decision support system for environmental impact assessment;
- Maximizing area use, while ensuring proper natural resources management;
- Ensuring are consistent, comprehensive, and defendable decision processes; and
- Providing easy-to-use integrated tools to a wide range of users.

1.10 INRMP USERS GUIDE

The following is a brief outline of the INRMP to assist the user.

Section 1 of this document provides details regarding the historical and current mission of Detachment Concord and provides an overview of the roles and responsibilities for natural resource management. In addition, this section provides the general overview of the INRMP process.

Section 2 describes the compliance requirements that the INRMP must meet in regard to federal laws and regulations, and to DoD and DoN guidance and instructions. This section also describes compliance and integration with NEPA.

Section 3 contains detailed descriptions of the environmental conditions at Detachment Concord and is broken down by resource areas.

Section 4 consists of a review of the management programs and initiatives at Detachment Concord. This sections helps define the current natural resource management program.

Section 5 provides a land use management tool to facilitate planning at Detachment Concord. This tool is a land management zoning map that categorizes the facility into three management zones, based on natural resource regulatory concerns and land use patterns.

Section 6 provides the proposed natural resources management program for Detachment Concord.

Section 7 provides an overview of staffing and funding for implementing the INRMP. Natural resources management projects are ranked by order of priority for consideration by Detachment Concord, and sources of potential funding are identified.

Section 8 provides a list of references and persons consulted.

Section 9 provides a list of document preparers.

Appendix A contains the environmental assessment of the implementation of the INRMP, as defined in Section 6. This section has been prepared in accordance with Navy guidance on NEPA analysis for INRMPs.

2.0 COMPLIANCE WITH FEDERAL REQUIREMENTS

2.1	**SIKES ACT/SIKES ACT IMPROVEMENT ACT**	**2-1**
2.2	**NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA), PL 91-190 (42 USC §§ 4321 – 4370D)**	**2-2**
2.3	**ENDANGERED SPECIES ACT, PL 93-205 (16 USC §§ 1531 - 1544)**	**2-3**
2.4	**CLEAN WATER ACT, PL 92-500 (33 USC §§ 1251 - 1387)**	**2-6**
2.5	**MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT**	**2-6**
2.6	**BALD EAGLE PROTECTION ACT (PL 76-567), AS AMENDED 16 USC 668 ET SEQ.**	**2-8**
2.7	**MARINE MAMMAL PROTECTION ACT (16 USC 1361 *ET SEQ.*)**	**2-8**
2.8	**MIGRATORY BIRD TREATY ACT (MBTA) (16 USC § 703 *ET SEQ.*)**	**2-8**
2.9	**OTHER FEDERAL ACTS AND EXECUTIVE ORDERS**	**2-9**
2.10	**DEPARTMENT OF DEFENSE AND DEPARTMENT OF NAVY GUIDANCE AND INSTRUCTIONS**	**2-14**

SECTION 2
COMPLIANCE WITH FEDERAL REQUIREMENTS

Navy facilities are subject to numerous regulations affecting use and management of the natural resources, including federal laws, EOs, DoD policy, and Navy instructions. The most important federal laws that affect management of natural resources on Detachment Concord are summarized below.

2.1 SIKES ACT/SIKES ACT IMPROVEMENT ACT

Under the Natural Resources Management Act of 1960, commonly known as the Sikes Act, PL 86-797, as amended by the Sikes Act Improvement Act of 1997 (SAIA), the Secretary of Defense shall carry out a program for conserving and rehabilitating natural resources on military installations. To facilitate the program, the Secretary of each military department is required to prepare and implement an INRMP for each military installation in the US that is under the jurisdiction of the Secretary. These plans must be consistent with the use of military installations to ensure the preparedness of the Armed Forces. The Secretaries of the military departments shall carry out the program to provide for the following:

- Conservation and rehabilitation of natural resources on military installations;
- Sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and nonconsumptive uses, subject to safety requirements and military security; and
- Public access to military installations to use natural resources.

The SAIA requires DoD facilities to manage their natural resources so as to provide multiple uses and public access to the extent that the military mission is not jeopardized. The Act provides a mechanism whereby DoD, the Department of Interior, and the states cooperate to manage fish and wildlife on military installations.

Personnel charged with natural resources management are to be professionally trained in their fields of responsibility. Section 101 of the SAIA authorizes planning programs for developing, maintaining, and coordinating natural resources programs on each military installation. In compliance with the SAIA to the extent appropriate and applicable, the INRMP provides for the following:

- Fish and wildlife management, land management, forest management, and fish- and wildlife-oriented recreation;
- Fish and wildlife habitat enhancement or modifications;
- Wetlands protection and enhancement where necessary for support of fish, wildlife, and plants;
- Integration of and consistency among the various activities conducted under the plan;
- Establishment of specific natural resources management goals and objectives and timeframes for proposed actions;
- Sustainable public use of natural resources to the extent that the use is consistent with the needs of fish and wildlife resources;
- Public access to Detachment Concord that is necessary and appropriate for the use described above, subject to the requirements necessary to ensure safety and military security;
- Enforcement of applicable natural resource laws and regulations;
- No net loss in the capability of Detachment Concord to support the military mission; and
- Such other activities as the Secretary of the Navy determines appropriate.

2.2 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA), PL 91-190 (42 USC §§ 4321 – 4370D)

Under NEPA, federal agencies must take into consideration the environmental consequences of proposed major actions. The spirit and intent of NEPA is to protect and enhance the environment through well-informed federal decisions based on sound science. NEPA is premised on the assumption that providing timely information to the decision-maker and the public concerning the potential environmental consequences of proposed actions will improve the quality of federal decisions. Thus, the NEPA process includes the systematic, interdisciplinary evaluation of potential environmental consequences expected to result from implementing a proposed action. This document is a joint INRMP/EA to fulfill NEPA's requirements.

2.2.1 NEPA/INRMP Integration

Until recently, the Navy and other DoD agencies have prepared NEPA analyses and documentation for proposed actions, such as implementing management plans like INRMPs, after such plans have been developed. This approach may comply with the basic intent of the law, but it often produces redundant documents on similar subjects.

This report integrates the requirements of the SAIA and NEPA. Table 2-1 lists the required NEPA components and references where they are addressed in this report.

The CEQ regulations encourage NEPA and NEPA-related documents to be combined to reduce paperwork and duplication, so that federal agencies may concentrate on the spirit and intent of the law—that of making better informed management decisions (40 CFR § 1506.4). This regulation is supported by DoD, the DoN, and the US Environmental Protection Agency (EPA).

Table 2-1
Comparison of NEPA Requirements to INRMP Sections

Required NEPA Analysis	Corresponding INRMP Section
The **Executive Summary** briefly describes the proposed action, alternatives, environmental consequences, and mitigation measures.	**Executive Summary**
The **Purpose of and Need for the Proposed Action** summarizes what the proposed action will do and why it is needed.	**Section 1.5—Purpose of the INRMP** and, **Section 1.5.1—Need for the INRMP**
The **Scope of Analysis** describes what the environmental impact analysis process will encompass.	**Appendix A.3.3—Scope of Analysis**
The **Alternatives** describe different means to meet the purpose and need.	**Appendix A.3.2 —Alternatives (Environmental Assessment)**
The **Affected Environment** describes the existing environmental setting.	**Section 3.0—Natural Resources Settings and Appendix A.4 – Affected Environment**
Environmental Consequences identifies potential environmental effects of implementing any of the alternatives.	**Appendix A.5 —Environmental Consequences (Environmental Assessment)**
References provide bibliographical information for cited sources.	**Section 8—References**
List of Preparers identifies the persons who worked on the document, as well as their qualifications.	**Section 9—List of Preparers**
Distribution List indicates recipients of the NEPA document.	**Appendix B—Distribution List**
The **Appendices** include agency consultation letters and supplemental information used to conduct the NEPA analysis.	**Appendices**

2.3 ENDANGERED SPECIES ACT, PL 93-205 (16 USC §§ 1531 - 1544)

Under the ESA of 1973, all federal agencies, in consultation with the Secretary of the Interior, must take all necessary precautions to ensure that their actions do not jeopardize federally listed endangered or threatened species or destroy or degrade their habitats. Any agency whose action may affect (positively or negatively) the continued existence of a federally listed endangered or threatened species must consult with USFWS or NMFS (see 50 CFR § 17 and 50 CFR § 402). NMFS is the regulatory agency for federally listed endangered or threatened marine or anadromous fish species. The USFWS is the regulatory agency for all other federally listed endangered or threatened

species. Section 7 (a)(1) of the ESA states that, "All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of federally listed endangered and threatened species listed pursuant to Section 4 of the ESA."

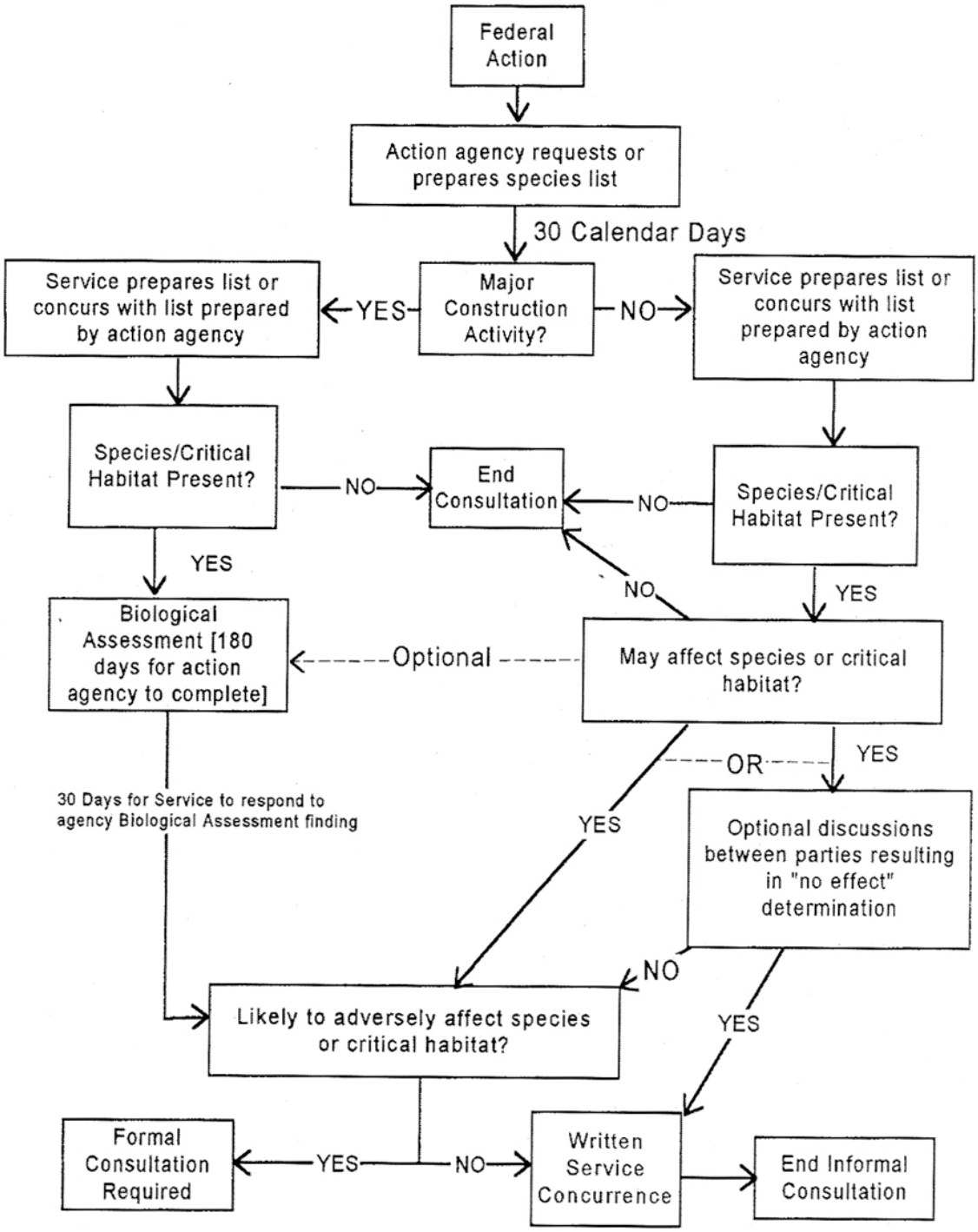
Consultations under the ESA are divided into two categories: formal and informal, and complete details regarding the procedures for compliance with the ESA are found in 50 CFR § 17 and 50 CFR § 402 . In general, no formal consultation is required if the action agency finds, with the USFWS's or NMFS's written concurrence, that the proposed action "may affect, but is not likely to adversely affect" listed species or critical habitat. This finding can be made only if all of the reasonably expected effects of the proposed action will be beneficial, insignificant, or discountable. The action agency must request concurrence in writing from the USFWS or NMFS for this finding. Figure 2-1 describes the informal consultation process.

A biological assessment is required before formal consultation begins and also is required for informal consultation in cases involving major construction activity where there are listed species or critical habitat. Anywhere from a few weeks to more than a year may be required to finalize a biological assessment before it can be submitted to the USFWS or NMFS as part of the request to initiate formal consultations. Formal consultations involve up to a 90-day consultation period and an additional 45-day period for the USFWS or NMFS to prepare a biological opinion (135 days total).

The initial 90-day period should be used by USFWS or NMFS and the action agency to achieve the following:

- Assess the status of the species and critical habitat;
- Verify the scope of the proposed action, which includes identifying the areas likely to be affected directly or indirectly by the proposed action and its cumulative effects;
- Identify adverse effects likely to jeopardizing the species or adversely modify critical habitat;
- Develop reasonable and prudent alternatives to an action likely to result in jeopardy or adverse modification;
- Identify adverse effects not likely to jeopardize listed species but which constitute "take," pursuant to section 9 of the Act:
  - Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (ESA §3[19])." Harm is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly disrupting normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3).

Figure 2-1 Informal ESA Consultation Process with USFWS or NMFS



Source: USFWS and NMFS 1998

- Develop reasonable and prudent measures, terms, and conditions for the incidental take statement as appropriate; and
- Identify conservation recommendations, as appropriate.

A biological opinion is a written statement from the USFWS or NMFS stating its opinion on the impact of a project on federally listed endangered and threatened species. The statement also summarizes the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat. The biological opinion provides nondiscretionary "reasonable and prudent" measures that should be implemented in conjunction with a proposed action to avoid or minimize impacts. The USFWS also provides nonbinding conservation recommendations as part of the biological opinion. The flowchart in Figure 2-2 describes the formal consultation process.

2.4 CLEAN WATER ACT, PL 92-500 (33 USC §§ 1251 - 1387)

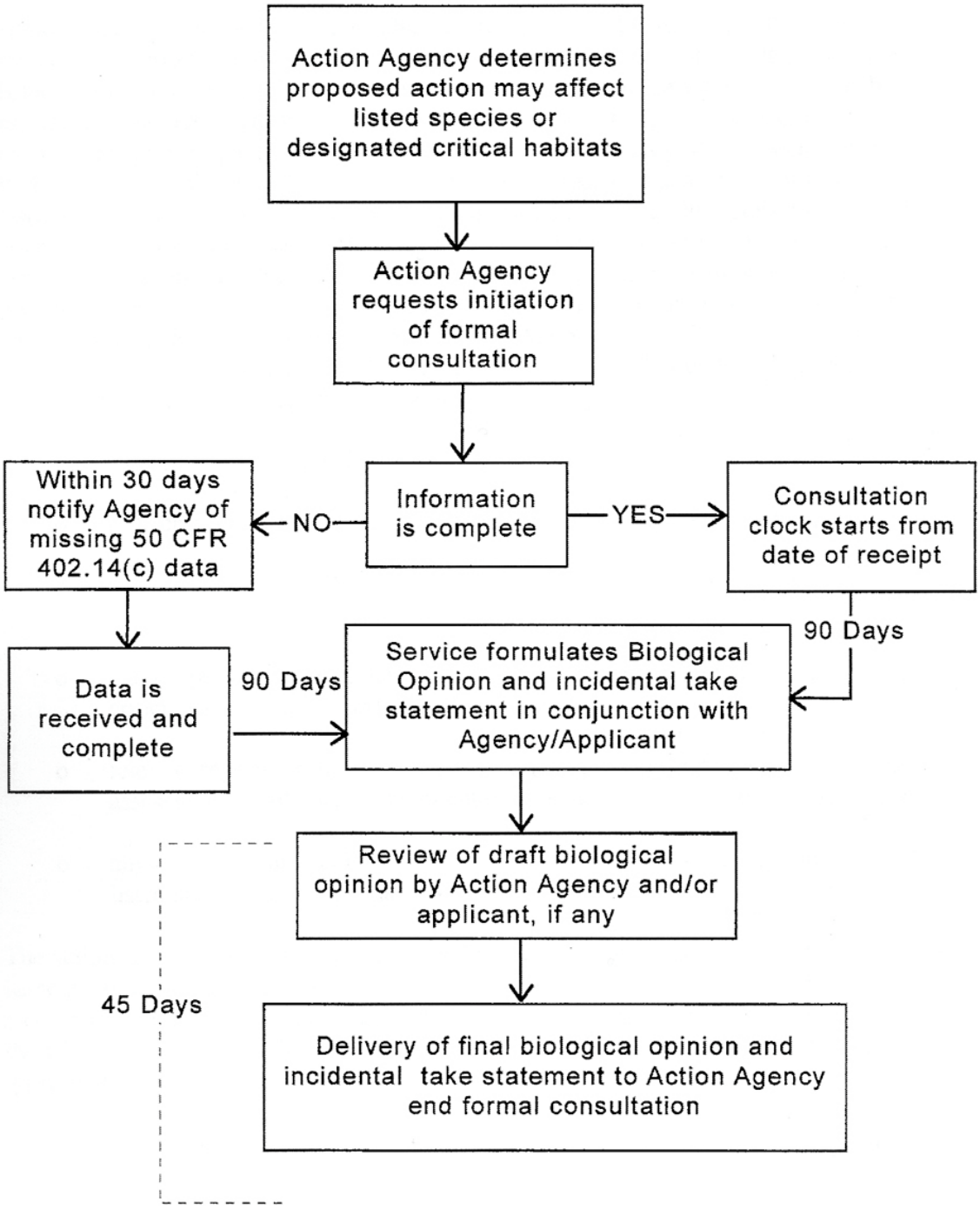
The CWA of 1972, PL 92-500, is the law under which most COE permits are issued for discharging fill into wetlands. Most of the CWA deals with water pollution, which is the purview of the EPA. Responsibility for disposing of dredged material was delegated to the COE because of its historic role in that arena, but the EPA still maintains ultimate responsibility for overseeing the program. COE regulations are published at 33 Code of Federal Regulations (CFR) §§ 320 - 384; those of the EPA are published at 40 CFR §§ 230 - 233 and are often referred to as Section 404 guidelines.

Section 404 defines dredge and fill responsibilities under the CWA. Exemptions for Section 404 permits are granted for normal agricultural, ranching, and silvicultural activities, as well as for maintaining existing drains, culverts, farm ponds, and roads. A January 2001 Supreme Court ruling found that the CWA does not protect hydrologically isolated wetlands (*Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, No. 99-1178, January 9, 2001). One permit commonly issued under Section 404 for such activities is the nationwide permit (NWP). An NWP is a type of COE general permit and is designed to regulate with little paperwork or delay certain activities having minimal impacts on wetlands. An activity is authorized under an NWP only if it and the permittee satisfy all of the NWP's terms and conditions. The COE manages the wetland permitting program, including NWPs, but the EPA has veto power over COE permit decisions, and the USFWS and NMFS have consultation rights. The COE and the EPA share enforcement authority, although states may adopt administration of parts of the program from the COE, with EPA oversight. The point of contact for Section 404 permit issues is the COE.

2.5 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The MFCMA of 1976 (16 USC 1851, PL 94-265) authorizes federal fishery management in offshore marine waters. The Act was created to address the nation's fishery resources, including declining fish stocks and overfishing. The Act extended federal fishery jurisdiction beyond the state jurisdiction of three miles, to 200 miles (322

Figure 2-2 Formal ESA Consultation Process with USFWS or NMFS



Source: USFWS and NMFS 1998

km) offshore and established a multifaceted regional management system that allocated fishing rights, with priority given to domestic enterprise. Under the MFCMA, there are eight Regional Fishery Management Councils, which prepare fishery management plans (FMP) for those fisheries that they determine require active federal management. After public hearings, revised FMPs are submitted to the Secretary of Commerce for approval. One of the major components of this Act is the protection of areas deemed EFH for species identified in FMPs. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (Congressional Research Service 1996).

2.6 BALD EAGLE PROTECTION ACT (PL 76-567), AS AMENDED 16 USC 668 *ET SEQ.*

The Bald Eagle Protection Act was enacted in 1940; in 1962, Congress extended the Bald Eagle Protection Act to cover golden eagles. This Act prohibits taking, removing, or destroying the birds' parts, nests, or eggs. Congress defined the term "take" expansively. It includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.

2.7 MARINE MAMMAL PROTECTION ACT (16 USC 1361 *ET SEQ.*)

The MMPA, enacted in 1972 and amended in 1994, establishes a moratorium on the capture of marine mammals in US waters and by US citizens outside of US waters. The purpose of this statute is to protect marine mammals and their habitat, regardless of their population status. These species include whales, dolphins, porpoises, seals, and sea lions. The MMPA prohibits intentionally harassing, hunting, capturing, or killing (with certain specific exceptions, often related to indigenous hunting) any marine mammal (NMFS 2001).

In July 2000, the NMFA, USFWS, and the Marine Mammal Commission reached consensus on proposed amendments to the MMPA. A number of enhancements and revisions to the MMPA were agreed upon which would help to standardize many of the provisions in the Act, allow for greater ease of enforcement, and strengthen the conservation tools available to the three agencies. These proposed amendments have been forwarded to the Office of Management and Budget for review and were transmitted formally to the House Subcommittee for Fisheries Conservation, Wildlife and Oceans for consideration in August 2000. The 107th Congress is expected to Act on these amendments (NOAA 2001).

2.8 MIGRATORY BIRD TREATY ACT (MBTA) (16 USC § 703 *ET SEQ.*)

The MBTA is a federal statute that implements US treaties with several countries for conserving and protecting migratory birds. The number of bird species covered by the MBTA is extensive and is listed at 50 C.F.R. § 10.13. Further, the regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, as well as any part, egg, or nest of such bird (50 C.F.R. § 10.12). Migratory birds are not necessarily federally listed endangered or threatened birds under the ESA. The MBTA, which is enforced by the USFWS, makes it unlawful "by any means or manner, to pursue, hunt, take, capture [or] kill" any migratory bird, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export,

transport, sale purchase, barter, or the offering of these activities, except as permitted by the implementing regulations.

2.9 OTHER FEDERAL ACTS AND EXECUTIVE ORDERS

In addition to the laws discussed above, there are a number of other laws and regulations that must be considered in natural resources management. Table 2-2 lists the major federal natural resource laws and regulations, along with a qualitative assessment on the likely influence they have on management activities at Detachment Concord. The Legal Information Institute, accessible on their Internet Web site at http://www.law.cornell.edu/topics/environmental.html, conveniently provides the complete text of codified laws.

2.9.1 Executive Orders

EO 11990—Protection of Wetlands. This EO states that federal agencies will avoid the destruction or modification of wetlands when there is a practicable alternative. Wetlands are defined in this EO as "…those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does (sic) or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds." Projects in wetlands should include all feasible measures to minimize harm to wetlands.

EO 11988—Floodplain Management. This EO states that agencies of the Executive Branch will preserve the natural and beneficial values served by floodplains while managing federal lands. Activities in floodplains must be evaluated for their impacts during project planning, and alternative sites outside the floodplain must be considered.

EO 11644—Use of Off-Road Vehicles on Public Lands. This EO requires federal agencies to establish policies and provide for procedures to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. The EO clarifies agency authority to define zones of use by off-road vehicles on public lands by exempting fire, military, emergency, law enforcement, or combat/combat support vehicles.

EO 11987—Exotic Species. To the extent permitted by law, federal agencies will restrict the introduction of exotic species into the natural ecosystems on lands and waters that they own, lease, or hold for purposes of administration, and they will encourage the states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States. Federal agencies shall, to the extent permitted by law, restrict the use of federal funds, programs, or authorities used to export native species for the purpose of introducing such species into ecosystems outside the US where they do not naturally occur.

Table 2-2
Natural Resource Laws and Regulations and their Expected Influence on Natural Resources Management at Detachment Concord

Law or Regulation	Influence		
	Direct	Indirect	Not Applicable
Abandoned Shipwreck Act of 1987, PL 100-298 (43 USC §§ 2101 - 2106)			✓
American Indian Religious Freedom Act of 1978, PL 95-341, as amended (42 USC §§ 1996 – 1996a)	✓		
Anadromous Fish Conservation Act of 1965, as amended (16 USC §§ 757a – 757f)	✓		
Animal Damage and Control Act, (7 USC §§ 426-426c) PL 99-19		✓	
Antiquities Act of 1906, PL 59-209 (16 USC §§ 431 - 433)		✓	
Archaeological and Historic Resources Management (Department of Defense Directive 4710-1)	✓		
Archaeological and Historic Preservation Act (Moss-Bennett Act) of 1974, PL 86-532 (16 USC §§ 469 – 469c)	✓		
Archaeological Resources Protection Act of 1979, PL 96-95 (16 USC §§ 470aa – 470mm)	✓		
Bald Eagle Protection Act of 1940, 54 Stat. 251, as amended (16 USC §§ 668 – 668d)	✓		
Clean Air Act of 1955, 69 Stat. 322, as amended (42 USC §§ 7401 – 7671q)	✓		
Clean Water Act (Federal Water Pollution Control Act) of 1972, PL 92-500, as amended (33 USC §§ 1251 - 1387)	✓		
Coastal Zone Management Act of 1972, PL 92-583 (16 USC §§ 1451 - 1465)	✓		
Sikes Act (Conservation Programs on Military Reservations), PL 86-797, as amended by PL 93-452 (16 USC §§ 670 – 670f)	✓		
Curation of Federally Owned and Administered Archaeological Collections (36 CFR § 79)		✓	
Determination of Eligibility for Inclusion in the National Register of Historic Places (36 CFR § 63)	✓		
Emergency Wetlands Resources Act of 1986, PL 99-645, as amended (16 USC §§ 3901 – 3932)	✓		
Endangered Species Act of 1973, PL 93-205, (16 USC §§ 1531 – 1544)	✓		
Environmental Protection and Enhancement: Subpart H Historic Preservation (32 CFR § 650)		✓	
Erosion Protection Act, PL 86-645, as amended (33 USC §§ 426 – 426-3)		✓	
Estuary Protection Act of 1968, PL 90-454 (16 USC §§ 1221 - 1226)	✓		
Farmland Protection Policy Act of 1981, PL 97-98, as amended (7 USC §§ 4201 - 4209)			✓

Table 2-2
Natural Resource Laws and Regulations and their Expected Influence on Natural Resources Management at Detachment Concord *(continued)*

Law or Regulation	Influence		
	Direct	Indirect	Not Applicable
Federal Cave Resources Protection Act of 1988, PL 100-691, as amended (16 USC §§ 4301 – 4310)			✓
Federal Insecticide, Fungicide and Rodenticide Act, PL 92-516, as amended (7 USC §§ 136 – 136y)	✓		
Federal Land Policy and Management Act of 1976, PL 94-579, as amended (43 USC §§ 1701 - 1785)	✓		
Federal Noxious Weed Act of 1974, PL 93-629, as amended (7 USC §§ 2801 - 2814)	✓		
Fish and Wildlife Conservation Act of 1980, PL 96-366 (16 USC §§ 2901 - 2912)	✓		
Fish and Wildlife Coordination Act of 1934, PL 85-624, as amended (16 USC §§ 661 – 666c)	✓		
Food, Agricultural, Conservation and Trade Act of 1990 (Pesticide Recordkeeping), PL 101-624, as amended (7 USC § 136i-1)			✓
Forest Rangeland Renewable Resource Planning Act of 1974, PL 93-378 (16 USC §§ 1600 - 1614)		✓	
Historic Preservation (Army Regulation 200-4)			✓
Historic Preservation Certificates (36 CFR § 67)		✓	
Historic Sites, Buildings and Antiquities Act of 1935, as amended by PL 74-292, PL 100-17 (16 USC §§ 461 - 467)		✓	
Hunting and Fishing Permits (32 CFR § 552.19)	✓		
Lacey Act of 1900, 31 Stat. 187, as amended (16 USC §§ 667e, 701)			✓
Magnuson-Stevens Fishery Conservation and Management Act of 1976, PL 94-265 (16 USC § 1851)	✓		
Marine Mammal Protection Act of 1972, PL 92-522 (16 USC §§ 1361 – 1421h)	✓		
Migratory Bird Conservation Act, PL Chapter 257, 45 Stat 1222 (16 USC §§ 715 *et seq.*)	✓		
Migratory Bird Treaty Act of 1918, 40 Stat. 755, as amended (16 USC §§ 703 - 712)	✓		
Migratory Marine Game-Fish Act, PL 86-358 (16 USC 760c-760g)	✓		
Multiple-use Sustained Yield Act of 1960, PL 86-517 (16 USC §§ 528 - 531)			✓
National Environmental Policy Act of 1969, PL 91-190 (42 USC §§ 4321 – 4370d)	✓		
National Historic Landmarks Program (36 CFR § 65)		✓	
National Historic Preservation Act of 1966, PL 89-665, as amended (16 USC §§ 470 – 470x-6)	✓		
National Register of Historic Places (36 CFR § 60)	✓		

Table 2-2
Natural Resource Laws and Regulations and their Expected Influence on Natural Resources Management at Detachment Concord *(continued)*

Law or Regulation	Influence		
	Direct	**Indirect**	**Not Applicable**
Native American Graves Protection and Repatriation Act of 1990, PL 101-601 (25 USC §§ 3001 - 3013)		✓	
Native American Graves Protection and Repatriation Act Regulations (43 CFR § 10)		✓	
North American Wetlands Conservation Act, PL 101-233 (16 USC §§ 4401 - 4414)	✓		
Outleasing for Grazing and Agriculture on Military Lands (10 USC § 2667)	✓		
Preservation of American Antiquities (Antiquities Act regulations) (43 CFR § 3)		✓	
Preservation of Historical and Archeological Data Act of 1974, PL 93-291 (16 USC § 469)		✓	
Protection of Archaeological Resources: Department of Defense Uniform Regulations (32 CFR § 229)		✓	
Protection of Historic and Cultural Properties (36 CFR § 800)	✓		
Rivers and Harbors Appropriations Act of 1899, 30 Stat. 1151, as amended (33 USC §§ 401 - 403)		✓	
Safe Drinking Water Act of 1974, PL 93-523, as amended (42 USC §§ 300f – 300j-26)			✓
Salmon and Steelhead Conservation and Enhancement Act of 1980, PL 96-561 (16 USC §§ 3301-3345)			✓
The Secretary of Interior's Standards for Historic Preservation Projects (36 CFR § 68)			✓
Sikes Act, PL 86-797, as amended by the Sikes Act Improvement Act of 1997, PL 105-85 (16 USC § 670 – 670f [1999])	✓		
Soil and Water Resources Conservation Act of 1977, PL 95-192, as amended (16 USC §§ 2001 – 2009)	✓		
Taylor Grazing Act of 1934, PL 73-482 (43 USC §§ 315 – 3150-2)	✓		
Timber Sales on Military Lands (10 USC § 2665)			✓
Tule Elk Preservation Act (16 USC § 673d) PL 94-389, 1976	✓		
Waiver of Federal Agency Responsibility under Section 110 of the National Historic Preservation Act (36 CFR § 78)	✓		
Water Resources Planning Act, PL 89-80, as amended (42 USC §§ 1962 – 1962d-20)		✓	

Table 2-2
Natural Resource Laws and Regulations and their Expected Influence on Natural Resources Management at Detachment Concord *(continued)*

Law or Regulation	Influence		
	Direct	Indirect	Not Applicable
Executive Orders			
Executive Order 11514, Protection and Enhancement of Environmental Quality, March 7, 1970 (35 Federal Register 4247), as amended by EO 11541 and EO 11991		✓	
Executive Order 11644, Use of Off-Road Vehicles on Public Lands, February 8, 1972 (37 Federal Register 2877), as amended by Executive Order 12608		✓	
Executive Order 11987, Exotic Species, May 24, 1977 (42 Federal Register 26949)	✓		
Executive Order 11988, Floodplain Management, as amended by 12148, May 24, 1977 (42 Federal Register 26951)	✓		
Executive Order 11990, Protection of Wetlands, May 24, 1977 (42 Federal Register 26961), as amended by Executive Order 12608	✓		
Executive Order 12962, Recreational Fisheries, June 7, 1995 (60 Federal Register 30769)			✓
Executive Order 13007, Indian Sacred Sites (61 Federal Register 26,771, May 29, 1996)	✓		
Executive Order 13112, Invasive Species, February 3, 1999 (64 Federal Register 6183)	✓		
Executive Order 13148, April 22, 2000, Greening the Government Through Leadership in Environmental Management (65 Federal Register 24593)		✓	
Executive Order 13186, January 10, 2001, Responsibilities of Federal Agencies To Protect Migratory Birds	✓		

Source: Modified from US Army 1997

EO 13112—Invasive Species. To the extent permitted by law, federal agencies will prevent the introduction of invasive species, will detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner, will monitor such populations accurately and reliably, will provide for restoration of native species and habitat conditions in ecosystems that have been invaded, will conduct research on invasive species, and will promote public education on invasive species and means to address them. Federal agencies, to the extent permitted by law, shall not authorize, fund, or carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species in the US or elsewhere.

EO 13148—Greening the Government. The head of each federal agency is responsible for ensuring that all necessary actions be taken to integrate environmental accountability into agency day-to-day decision-making and long-term planning processes, across all agency missions, activities, and functions. Goals under this EO

include environmental management, environmental compliance, right-to-know and pollution prevention, release reduction of toxic chemicals, ozone-depleting substances reduction, and environmentally and economically beneficial landscaping.

EO 13186—Protection of Migratory Birds. Requires that federal executive agencies implement a memorandum of understanding (MOU) with the USFWS to avoid or minimize the negative impacts of agency actions on migratory birds and to take steps to protect migratory birds and their habitats. The DoD is developing an MOU with the USFWS, but the EO provides that in the interim, federal executive agencies are "encouraged to immediately begin implementing the conservation measures" identified in the EA, "as appropriate and practicable."

2.10 DEPARTMENT OF DEFENSE AND DEPARTMENT OF NAVY GUIDANCE AND INSTRUCTIONS

2.10.1 Department of Defense Instruction 4715.3

DoD Instruction 4715.3 implements policy, assigns responsibilities, and prescribes procedures for the integrated management of natural and cultural resources on property under military control. The instruction states that "all DoD conservation programs shall work to guarantee continued access to [DoD] land, air, and water resources for realistic military training and testing while ensuring that the natural and cultural resources entrusted to DoD care are sustained in a healthy condition for scientific research, education, and other compatible uses by future generations" (DoD 1996).

DoD Instruction 4715.3 also designates DoD executive agents to lead the military services in implementing key conservation issues, including preparing, maintaining, and monitoring INRMPs on all military installations. The instruction notes that conservation management is a dynamic process, yet prescribes that a consistent conservation management approach include those systematic procedures that should be used by each DoD installation, as follows:

- Assess military mission;
- Prepare detailed inventory of resources;
- Analyze and assess risk to the resources;
- Prepare and implement management plans;
- Monitor and assess results;
- Conduct needs assessment survey;
- Reassess inventories;
- Reanalyze and reassess risk to resources; and
- Adjust program as necessary.

2.10.2 OPNAVINST 5090.1B CH-2

The Navy's Environmental Protection and Natural Resources Manual, termed OPNAVINST 5090.1B, requires each Navy installation that contains natural resources to prepare a multiple-use natural resources management plan. OPNAVINST 5090.1B, Change 2, specifically states that the conservation of natural resources and the military mission need not and shall not be mutually exclusive. Navy commands shall accomplish the following when managing natural resources on Navy lands (DoN 1999c):

- Assign specific responsibility and professionally trained personnel to the natural resources management program and provide centralized supervision and natural resources personnel with the opportunity to participate in natural resources management job training activities and professional meetings;
- Protect, conserve, and manage the watersheds, wetlands, natural landscapes, soils, forests, fish and wildlife, prime and unique farmland, and other natural resources as vital elements of an optimum natural resources program;
- Manage natural resources to provide outdoor recreation opportunities;
- Use and care for natural resources in the combination best serving the present and future needs of the US;
- Provide for the optimum use of land and water areas and access thereto while maintaining ecological integrity; and
- Interact with the surrounding community to develop positive and productive community involvement, participation, and educational opportunities.

2.10.3 NAVFAC P-73, Volume II

The Navy's Natural Resources Procedure Manual, referred to as NAVFAC P-73 Volume II, addresses all Chief of Naval Operations (CNO) natural resources program requirements, guidelines, and standards. NAVFAC P-73 Volume II states that the principles of multiple-use, ecosystem, and adaptive management shall be implemented on Navy facilities that meet the natural resources stipulations outlined in OPNAVINST 5090.1B (discussed above). The manual provides guidance to Navy environmental personnel on the purpose of and need for INRMPs by outlining that the wise use of natural resources is essential to the continuation of the military mission. NAVFAC P-73 Volume II requires that the following tasks be undertaken to meet the natural resources program objectives:

- Prepare, implement, and maintain as a current working document an INRMP for all Navy lands that have suitable habitat for conserving and managing natural resources. Each plan must adequately facilitate mission planning and decision-making to ensure compatibility of natural resources management with local, state, and federal objectives and policies.

- Implement land management practices that reduce grounds maintenance costs, use environmentally and economically beneficial landscaping practices, conserve soil and water, improve real estate values, protect coastal zones, wetlands, and floodplains, abate nonpoint sources of water pollution, control noxious weeds, and prevent erosion.
- Inventory wetlands and manage Navy land to avoid the net loss of size, function, or value of wetlands.
- Identify and protect threatened and endangered species on Navy lands, emphasizing mission requirements and interagency cooperation during consultation, species recovery planning, and management activities.
- Outlease all lands that are suitable and available for agricultural uses, consistent with operational requirements and long-term ecosystem management goals.
- Reduce the potential for bird and other animal collisions with aircraft in the airfield environment.
- Manage fish, wildlife, and plant resources within ecological limits, maintain appropriate wildlife population levels, and support optimum use of consumptive and nonconsumptive fish and wildlife resources.

3.0 NATURAL RESOURCES SETTING

3.1	**INTRODUCTION**	**3-1**
3.2	**LAND USE**	**3-2**
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SECTION 3
NATURAL RESOURCES SETTING

3.1 INTRODUCTION

This section describes the existing environmental conditions relevant to natural resources management at Detachment Concord. Environmental conditions are divided into the following major categories:

- Land use;
- Facilities;
- Climate;
- Geology;
- Soil resources;
- Water resources;
- Wetlands;
- Vegetation;
- Wildlife;
- Federally listed endangered, federally listed threatened, and other sensitive species; and
- Cultural resources.

In order to address the environmental and operational distinction between the two major geographic areas of Detachment Concord, each major category is subdivided into Inland Area and Tidal Area.

3.2 LAND USE

3.2.1 Location and Regional Land Use

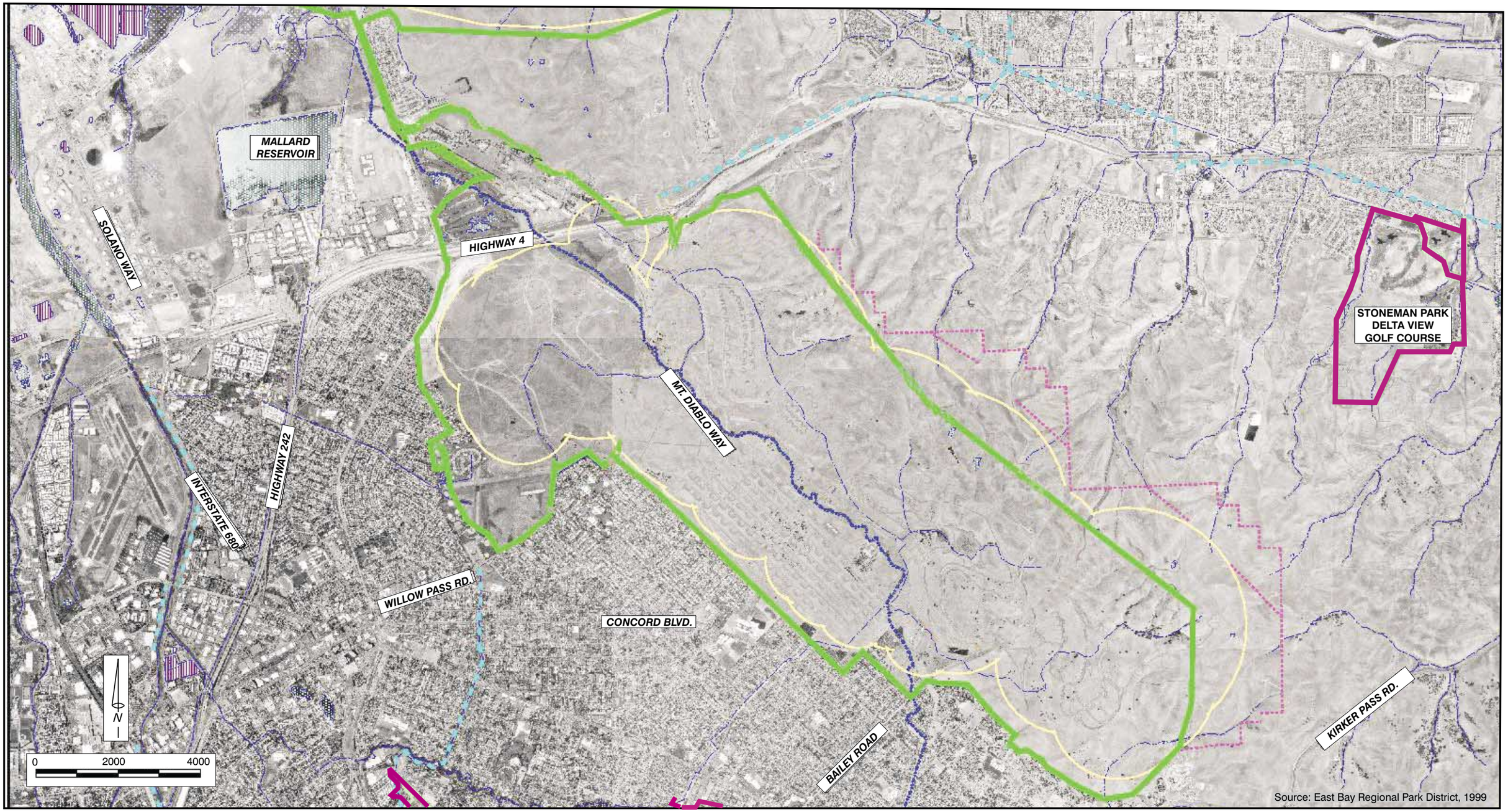
Detachment Concord encompasses 12,920 acres (5,229 ha) in north central Contra Costa County, California, and is south of Suisun Bay and just northeast of the city of Concord (Figure 1-1). Oakland is 20 miles (32 km) to the southwest, and Sacramento is 35 miles (56 km) to the northeast. Detachment Concord is approximately 15 miles (24 km) east of the city of Richmond and San Pablo Bay and two miles (three km) north of Mount Diablo. Detachment Concord has two primary areas: the Tidal Area, composed of 7,648 acres (3,095 ha), and the Inland Area, composed of 5,272 acres (2,134 ha) (Figure 1-2). Most of Detachment Concord's land area lies along a broad valley plain and southwest-facing slope. Mt. Diablo/Seal Creek flows through Detachment Concord, terminating in the tidal marshes of Suisun Bay (DoN 1989).

Land use at and around Detachment Concord is diverse and is characterized by a mixture of industrial, residential, agricultural, and open space zones (Figures 3-1 and 3-2). The Land Use Element of the *City of Concord General Plan* (City of Concord 1994) sets forth the goal of continuing and enhancing the long-standing relationship with Detachment Concord and recognizes its national security, open space, and wetlands habitat values. Existing land uses for the Tidal and Inland Areas of Detachment Concord are illustrated in Figure 3-3.

Detachment Concord is bordered on the south by residential portions of Concord that are made up of single-family medium-density housing, much of which was constructed in the mid-1950s. In addition, seven public schools and several parks are adjacent to the Detachment Concord's property line. An area of Concord consisting mostly of small business parks also borders the Inland Area to the west. The northern boundary of Detachment Concord is approximately 10 miles (16 km) west of the confluence of the Sacramento and San Joaquin Rivers and is immediately south of Suisun Bay. Steep slopes and access problems have prevented extensive development along Kirker Pass Road and in the hills northeast of Detachment Concord.

Separating the Tidal and Inland Areas are the Los Medanos Hills, which also contain an underground gas storage field. This land is privately owned and is leased to the Pacific Gas and Electric Company (PG&E) for deep-well gas injection; the land also supports cattle grazing. Fifteen miles (24 km) to the southeast of Detachment Concord is Mt. Diablo State Park and State Game Refuge. The 7,004-acre (2,835-ha) preserve contains hiking trails, campsites, and picnic facilities (Tetra Tech [Tt] EMI 1997a).

The Army operates Detachment Concord's Tidal Area under an IUP, signed in September 1999 by the Deputy Assistant Secretary of the Navy (Installations and Facilities) and the Deputy Assistant Secretary of the Army (Installations and Housing). Under this IUP, the Navy provides for the Army's use of facilities at Detachment Concord for an indefinite period, beginning on October 1, 1999, and it remains in effect until terminated by mutual agreement between the Secretary of the Navy and the



r:\new\G505\March_2002\InlandMapREV5.cdr - 3/19/02 - MMM

The Inland Area of Detachment Concord is bordered by open space to the north and east, and the City of Concord to the south and west. The City of Pittsburg lies to the northeast of the Inland Area.

Data may be dated and should be verified with appropriate natural resources office personnel.

Legend

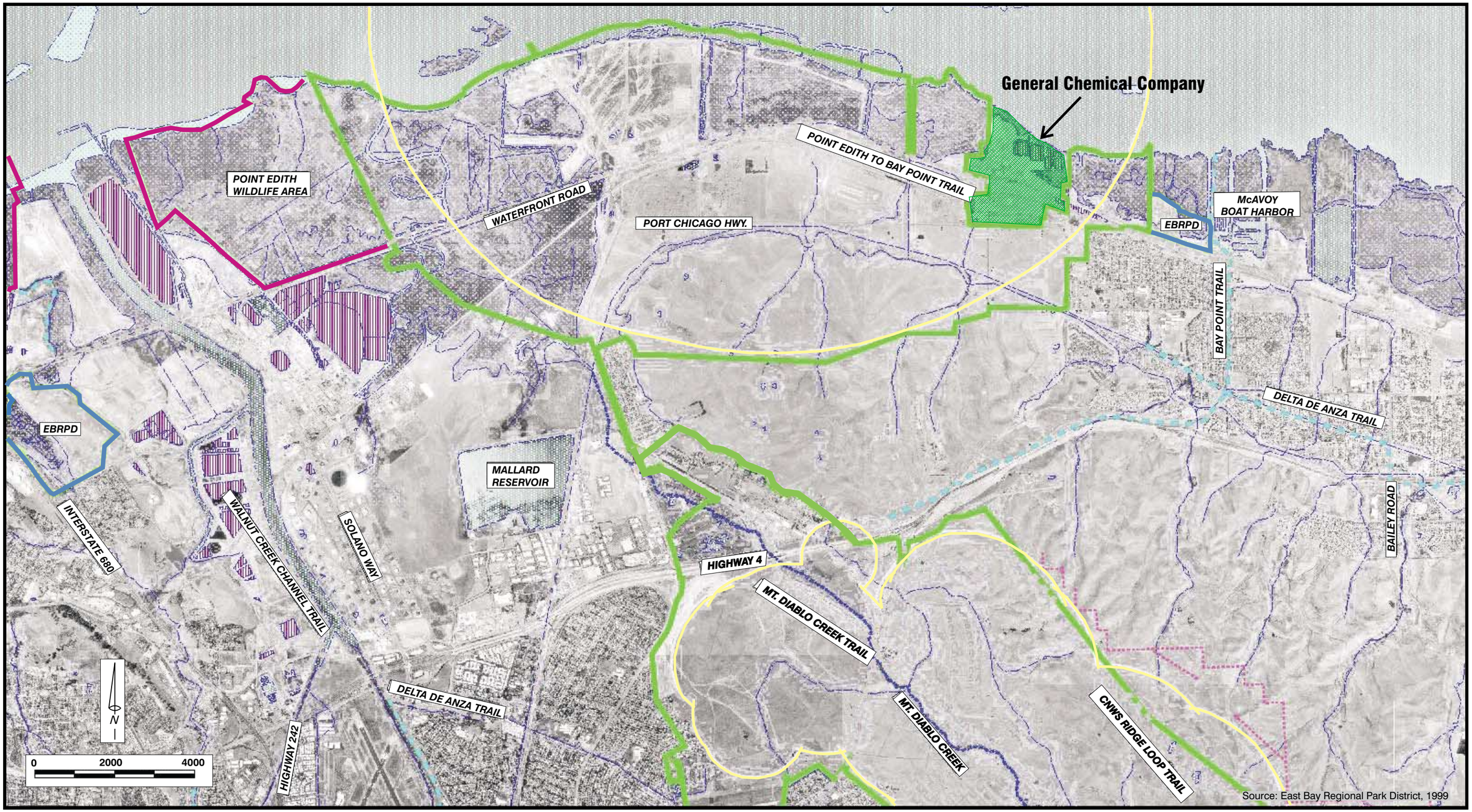
- DETACHMENT CONCORD
- OTHER OPEN SPACE LANDS
- INDUSTRIAL SITES
- DETACHMENT CONCORD EASEMENT AREAS
- CREEKS
- ESQD ARC ZONES
- EXISTING EBRPD REGIONAL TRAILS

Tetra Tech, Inc.

Surrounding Land Uses -- Inland Area

NWSSB, Detachment Concord
Concord, California

Figure 3-1



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The Tidal Area of Detachment Concord is bordered by Suisun Bay to the north, West Pittsburg to the east, and Point Edith Wildlife Area to the west. The small community of Clyde lies directly south of the Tidal Area.

Data may be dated and should be verified with appropriate natural resources office personnel.

Tetra Tech, Inc.

Legend

- DETACHMENT CONCORD
- EBRPD OPEN SPACE LANDS
- OTHER OPEN SPACE LANDS
- INDUSTRIAL SITES
- DETACHMENT CONCORD EASEMENT AREAS
- ESQD ARC ZONES
- EXISTING EBRPD REGIONAL TRAILS

Surrounding Land Uses -- Tidal Area

NWSSB, Detachment Concord
Concord, California

Figure 3-2

Figure 3-3

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

Secretary of the Army. The Army has use of that portion of Detachment Concord property known as the Tidal Area, containing 6,100 acres (2,469 ha), more or less, including Roe, Ryer, Freeman, Snag, Middle-Ground, and Seal islands, along with all facilities, buildings, and structures located thereon. However, the Navy retains access to and use of the area "Q," associated with buildings 351 and 31-41 (DoN 1999b). For details on the roles and responsibilities under the IUP, see Section 6.2. (Goals and Objectives of the Natural Resources Management Program).

3.2.2 Inland Area Land Use

As stated earlier, the primary land use of the Inland Area is to meet the military mission of the Navy at Detachment Concord. The Inland Area includes a large portion of Clayton Valley, extending from near Kirker Pass Road northwest to the small community of Clyde. The area covers 5,272 acres (2,134 ha) and includes administration buildings, residential areas, military barracks, storage magazines, maintenance facilities, and leased grazing areas. In the drier portions of the Inland Area, nonnative seasonal grasses and forbs (broad leaved flowering plants) dominate the landscape. Riparian vegetation, composed primarily of willow (*Salix* spp.), borders sections of the creek channel, while scattered stands of oak, pine, and eucalyptus (*Eucalyptus* spp.) occur at various locations. The Navy outleases approximately 4,500 acres (1,821 ha) for agricultural grazing in the Inland Area (Figure 3-4).

The Concord Municipal Golf Course occupies a triangular site of land between California State Highway (Highway) 4, the Port Chicago Highway, and Detachment Concord's administration and support complex. The golf course is on approximately 58 acres (23 ha) of city land and on 82 acres (33 ha) of Detachment Concord's land. Little League baseball currently uses a 5.86-acre (2.37-ha) parcel of Navy-owned land across Olivera Road from Detachment Concord's enlisted family housing area.

Explosives Operations

Explosives operations are separated from other Detachment Concord activities by Highway 4. To the south of Highway 4, the largest single land use is ammunition storage. Facilities in this area include five magazine areas, guided missile maintenance facilities, a warhead assembly building, and a Weapons Quality Engineering Center (WQEC). The composite ESQD arcs generated by these explosives facilities encompass about 85 percent of the Inland Area (DoN 1995).

Support Operations

Most Detachment Concord operations exclusive of explosives operations are in a corner of the Inland Area, northwest of Highway 4. These operations in the past have included Detachment Concord's administrative complex, public works, supply, personnel support activities, and bachelor and family housing. In addition, an abandoned airfield used for training forklift operators lies south of Highway 4. Currently, due to Detachment Concord's ROS, many of these facilities support very few personnel.

Figure 3-4

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

3.2.3 Tidal Area Land Use

The primary land use of the Tidal Area is to meet the military mission of the Army. The Tidal Area consists of 7,648 acres (3,095 ha) and lies on the southern edge of Suisun Bay, incorporating approximately five miles (eight km) of shoreline. Extending from the marsh's edge are the hills that form the eastern boundary of Detachment Concord, rising 600 feet (183 meters) above sea level. The Navy outleases approximately 1,500 acres (607 ha) of grassland habitat for agricultural grazing in the Tidal Area (Figure 3-4).

Located at the base of these hills are alluvial fan deposits that both interlace and underlie the bay mud along the edges of the salt marsh. Since the 1800s, the marsh areas have been extensively altered by diking, dumping, and filling. Most of the Navy's Tidal Area facilities are built on fill material that was deposited in the marsh during construction at Detachment Concord. In order to mitigate the use of dredge spoils to fill in one of the Tidal Area wetlands, a wildlife area was created there as mitigation by restoring the tidal flow to 200 acres (81 ha) of wetland habitat (DoN 1989).

The Tidal Area contains facilities for sorting returned ordnance, railroad and truck classification yards, and three ocean terminal piers, as well as wetlands and a wildlife preserve. Included in the tidal area acreage are six bay islands in Suisun Bay, directly to the north of the shipping channel: Freeman, Ryer, Snag, Roe, Middle Ground, and two Seal islands, which constitute 1,571 acres (636 ha) of the 7,648-acre (3,095-ha) tidal area. The Navy does not own the waters or aquatic habitats of Suisun Bay adjacent to Detachment Concord. In 1984, the Navy signed a MOU with the USFWS designating much of the tidal area, including all of the islands, as wetland preserve (Appendix D).

The General Chemical Company (Figure 3-3) is within the explosives safety zones on a 176-acre (71-ha) enclave.

Explosives Operations

Explosives operations within the Tidal Area are on the original property of Port Chicago. Facilities close to the waterfront include three explosives-handling piers, a 525-railcar barricaded sidings complex, an ordnance segregation complex, two ordnance-transfer facilities, three 40-ton (36,288-kg) capacity container cranes, the tug basin, two railroad holding yards, and other limited support facilities. The three explosives-handling piers generate the ESQD arcs that encompass nearly all of the Tidal Area.

Support Operations

Support operations within the Tidal Area include eight storage buildings, two World War II buildings used for storage, public works shops, and four waterfront operations facilities (DoN 1995a).

Other Operations

Portions of the PG&E power grid are on easements that cross Detachment Concord through the hills in the tidal area and follow the southern boundary of the Tidal Area. Several oil pipelines pass through the tidal area, some along Port Chicago Highway and

others north of and parallel to the Southern Pacific Railroad right-of-way. Currently, natural gas wells are operated along the southern shore of Ryer Island and include a small boat dock and elevated walkway.

3.3 FACILITIES

3.3.1 Inland Area

Transportation Systems

Contra Costa County contains several interstate and state limited-access highways by which people and goods are moved throughout the region. The major north-south interstate highways are Interstates 80 and 680 while Highways 4 and 24 run east-west. Highway 4 is a limited-access highway beginning at Interstate 80 in Hercules and extending eastward through Detachment Concord. Almost all of the heavily developed portions of the county are easily accessible from Detachment Concord by limited access highway.

Several additional secondary roads are of particular interest to Detachment Concord. Bailey and Willow Pass Roads pass through the Inland Area of Detachment Concord. Both of these two-lane roads originate within the City of Concord and extend northeastward toward the City of Pittsburg.

Water Supply Systems

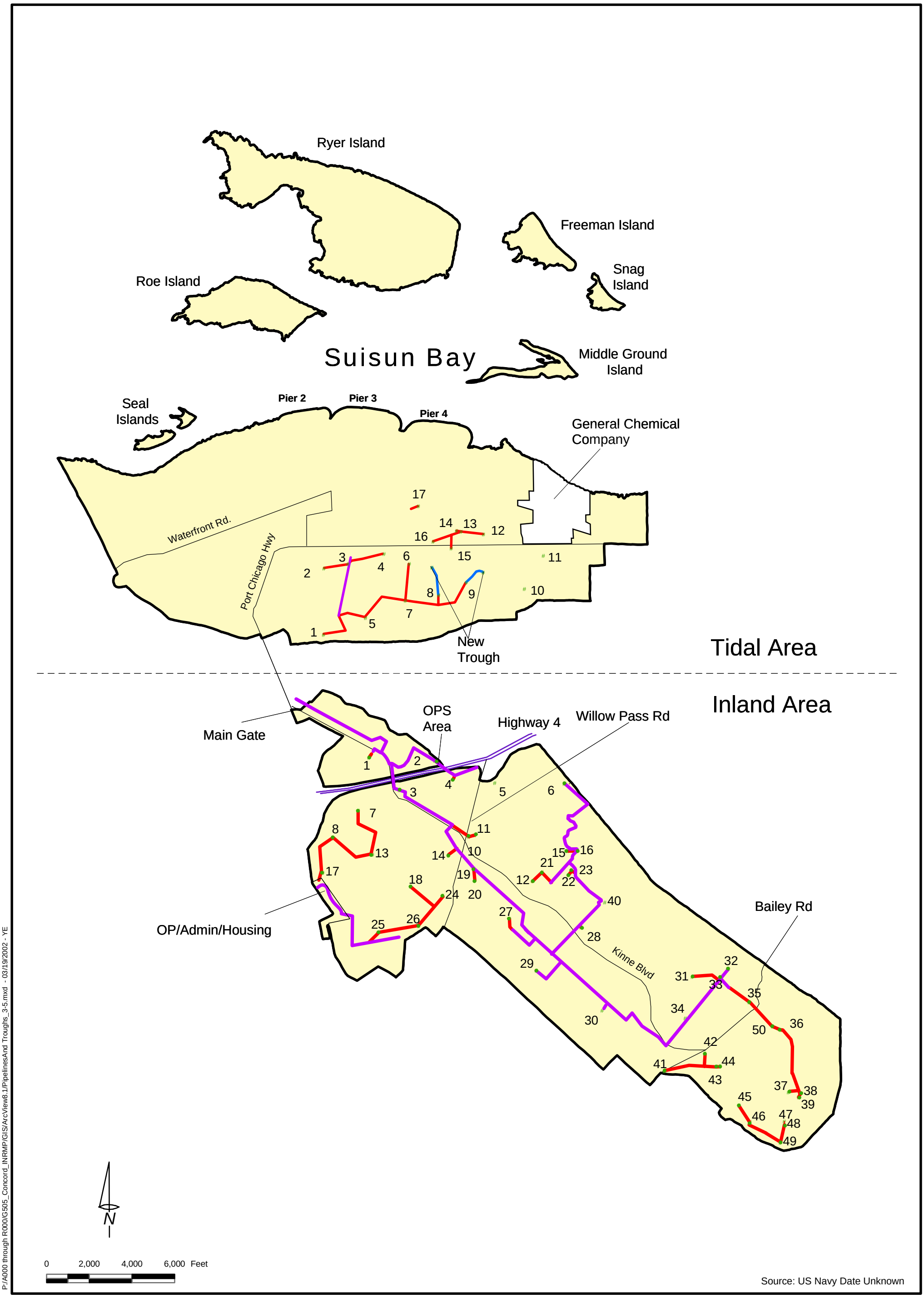
Potable water for the Inland Area is provided by the Contra Costa County Water District and then is pumped to water storage reservoirs. In the Inland Area, there are five storage tanks, with an aggregate volume of 1.7 million gallons (6.4 million liters), and five pumping stations. The Central Contra Costa Sanitary District provides sanitary sewer service to the Inland Area.

Throughout the Inland Area, a series of pipelines supply water to approximately 50 water troughs, which supply water to grazing cattle. These pipelines and water troughs are owned by the Detachment Concord (Figure 3-5).

Electrical and Natural Gas Services

Natural gas is distributed to both the Inland Area and Tidal Area by PG&E. The electrical distribution system for Detachment Concord is composed of four subsystems, referred to as Inland 4.16 kilovolts (kv), WQEC, Tidal 4.16 kv, and Tidal 12 kv.

The Inland 4.16-kv system carries the largest electrical load at Detachment Concord. It supplies most of the electrical power used on the main portion of the facility. The Inland 4.16-kv system consists of three feeders (Circuits 1, 2, and 3), which supply the administration and industrial areas and the southern portion of Detachment Concord. Circuit 3 runs out to the former airfield site and serves the training facility there, while electricity to the Enlisted Housing Area is provided by PG&E.



Grazing cattle at Detachment Concord need a reliable water supply. The system at Detachment Concord is comprised of Station and Lessee owned pipelines as well as over 65 individual water troughs.

Data may be dated and should be verified with appropriate natural resources office personnel.

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Legend
- Major Roads
- Troughs
- Lessee's Water Pipe
- Station's Water Pipe
- New Lessee's Water Pipe
- Highway 4
- Detachment Concord lands

Pipelines and Troughs

NWSSB,Detachment Concord
Concord, California

Figure 3-5

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3.3.2 Tidal Area

Transportation Systems

Waterfront Road and Port Chicago Highway pass through the Tidal Area in the vicinity of the former town of Port Chicago. Waterfront Road originates in the industrial waterfront development at Martinez and meets Port Chicago Highway in the center of the Tidal Area. Port Chicago Highway begins as a commercial street in Concord and passes through the Tidal Area toward Bay Point. Both Port Chicago Highway and Waterfront Road were closed permanently to public access on February 12, 1995.

Railway lines belonging to the Atchison, Topeka and Santa Fe, Southern Pacific, and Union Pacific railroads cross the Tidal Area of Detachment Concord. Moving ammunition by rail is a large part of the circulation pattern at Detachment Concord. All trains carrying ammunitions arrive in the Tidal Area. Railroad track belonging to Detachment Concord parallels the controlled access road between the Tidal Area and the Inland Area and, like the truck route, crosses Port Chicago Highway and runs adjacent to the inland support complex.

Water Supply Systems

The Tidal Area is supplied primarily by water from the Contra Costa Water District, which provides 35 to 40 pounds per square inch (2.4 to 2.7 kilograms per square centimeter [cm]) of water pressure. Water for the Tidal Area is supplied through approximately 7,000 feet (2,134 meters) of 18- and 14-inch (46- and 36-cm) piping tied to a 1.1-million-gallon (4.2-million-liter) storage tank to the south of Pier 3 and Port Chicago Highway. The Mokelumne Aqueduct and Contra Costa Canal cross the tidal area roughly parallel to and south of the Port Chicago Highway.

Sanitary sewer service is provided to the Tidal Area by the Delta Diablo Sanitary District. Detachment Concord's collection system is composed of 43,000 feet (13,106 meters) of sewer line. The system has a capacity of 450,000 gallons (1.7 million liters) per day, with an average flow of about 225,000 gallons (852,000 liters) per day.

There is a series of pipelines that supply water to approximately 17 water troughs in the Tidal Area, which in turn supply water to grazing cattle. The pipelines and water troughs are owned by the Detachment Concord (Figure 3-5).

Electrical and Natural Gas Services

As described above, PG&E distributes natural gas to both the Inland Area and Tidal Area. The electrical distribution system for Detachment Concord is the same as for the Tidal Area.

The WQEC is supplied by its own PG&E-owned substation and 21-kv line, which is stepped down to a 4.16-kv distribution voltage. The WQEC was supplied by Circuit 2 from the inland 4.16-kv subsystem and may still be supplied if disconnected from PG&E. There is no emergency power generation capability in the WQEC area.

Electrical power to the Tidal Area can be obtained from two sources. The Tidal Area usually is supplied with electricity purchased from the Western Area Power Administration (WAPA), which is wheeled over PG&E lines into an Inland Area 21-kv to 12-kv substation, then it is routed via Navy-owned lines to a 12-kv to 4.16-kv substation at Building 174 in the Tidal Area. Power also can be supplied directly from PG&E via a substation in the Tidal Area. Two circuits distribute the electricity throughout the Tidal Area. Electricity from PG&E supplies power to the US Coast Guard and Port Chicago School in the Tidal Area.

A small portion of the Tidal Area is supplied by a 12-kv system from PG&E. The only loads served by PG&E are the Q-Area, Building 407, and Pier 4 hotel service for ships. The 12-kv line also supplies several streetlight transformers.

3.4 CLIMATE

3.4.1 Inland Area

The climate of the Carquinez Strait region (Figure 1-1) is characterized by cool moist winters and warm dry summers. Prevailing winds blow from the west through the wind gap formed by San Francisco Bay and Carquinez Strait. As a result, the Pacific Ocean and Suisun Bay have a significant impact on the microclimate of Detachment Concord and the surrounding vicinity. The resulting westerly winds are dominant during summer and less influential from November through February.

Wind directions and speed are monitored at a PG&E power plant in nearby Bay Point, a few miles or kilometers east of Detachment Concord. The wind blows from the southwest to the east-northeast at a mean wind speed of 12 miles (19 km) per hour 65 percent of the time. Wind speeds exceeding 25 miles (40 km) per hour occur only 0.5 percent of the time (Tetra Tech EMI 1997a).

The mean annual precipitation for Detachment Concord is 14 inches (36 cm). As in most of northern California, about 84 percent of the rainfall occurs from November through March. Regionally, rainfall may vary from 13 inches (33 cm) in the eastern portion of Contra Costa County to over 30 inches (76 cm) on the upper slopes of Mt. Diablo. Snowfall is recorded occasionally on Mt. Diablo, but it lasts only a few days at most.

The Richmond Climatic Recording Station is approximately 11 miles (18 km) southwest of the Carquinez Strait. Temperature data was collected from Detachment Concord over a 30-year normal period, from 1961 through 1990. The average daily temperature range for fall and winter was between 63.1 degrees Fahrenheit (F) (17.3 degrees Celsius [C]) and 46.2 degrees F (7.9 degrees C). For April through September, the average daily temperature range was between 70.7 degrees F (21.5 degrees C) and 53.8 degrees F (12.1 degrees C) (DoN 1995). In August 1960, a high of 106 degrees F (41.1 degrees C) and a low of 17 degrees F (minus 8.3 degrees C) were recorded. During a hard freeze in December 1972, the record low was 16 degrees F (minus 8.9 degrees C). The average frost-free season is about 265 days.

3.4.2 Tidal Area

The climate in the Tidal Area is very similar to that of the Inland Area. See Inland Area description for details.

3.5 GEOLOGY

3.5.1 Physiography

Contra Costa County consists of four general physiographic regions: the highlands of the Coast Range, the intermountain valleys, the San Francisco Bay depression, and the Sacramento-San Joaquin Delta. The intercoastal highlands (the Diablo Range) are smooth rolling hills and relatively rugged mountains ranging from about 100 feet (30 meters) above mean sea level (msl) along the San Francisco Bay depression to 3,849 feet (1,173 meters) above msl at Mt. Diablo. The intermountain valleys and San Francisco Bay depression consist of flat floodplains and low terraces, with gently rolling fans and old terrace remnants adjacent to inland areas. Detachment Concord lies about ten miles (16 km) west of the confluence of the Sacramento and San Joaquin Rivers. It is this confluence that forms the delta region, which contains over 600 miles (966 km) of interconnected and meandering tidal waterways. Most of the low-lying river-delta lands have been reclaimed by protective dikes and drainage ways to form islands ranging from 30 to 7,000 acres (12 to 2,833 ha). Detachment Concord drains exclusively into Suisun Bay (Tetra Tech EMI 1997a).

3.5.2 Regional Geology

Detachment Concord has three basic landforms within its nearly 13,000 acres (5,261 ha): the steep hills of the coast range, the alluvial fans, terraces, and floodplains of the valleys, and the tidal zone. The regional geologic features are a reflection of several northwest-trending fault systems that divide Contra Costa County into large sections of rocks; up-thrown blocks form the hills, and down-thrown blocks form broad lowlands floored with thick, unconsolidated, Pleistocene-age alluvial soils eroded from the upthrown blocks. The wetlands in the northern part of the region along Suisun Bay are underlain by estuarine and fluvial deposits.

The oldest formations are Tertiary sedimentary rocks exposed in the Los Medanos Hills along the east side of Detachment Concord. In the inland portions, the rock formations are composed of interbedded units of sandstone, siltstone, and shale. Sandstone is the most resistant unit, conspicuous in outcrops, and seems to constitute more than half the rock formations. Beds are typically steeply inclined. Jointing has combined with parting along bedding planes to facilitate weathering and development of boulder blocks in residual soil. The residual soil is susceptible to landsliding (Tt EMI 1997a).

Nonmarine sedimentary rocks compose the northern slope of the Los Medanos Hills and the lowermost reaches on the Inland Area side. The upper slopes on the Inland Area side are characterized by older (mid-late Eocene) sandstones of the Markley group. Surficial deposits of sandstone are unconformably underlain by a basement complex of sedimentary, igneous, and metamorphic rocks that form most of the northern half of the coastal hills and lie beneath Suisun Bay (Tt EMI 1997a).

3.5.3 Inland Area

The Inland Area consists partially of consolidated Tertiary rock formations that are exposed along the eastern edge in Los Medanos Hills. The adjacent low-lying flatlands are covered by a veneer of younger Quaternary Alluvium overlying basement rocks at depth. Older alluvium outcrops in the middle of the Inland Area are in what has been mapped as a north-plunging anticline (Tt EMI 1997a).

3.5.4 Tidal Area

The Tidal Area is within the southern part of a structural trough that is partially occupied by Suisun Bay. The trough is partially filled with a significant thickness of unconsolidated late Pleistocene and Holocene sediments. Glacial advances and retreats during the Quaternary have caused sea level fluctuations and have resulted in changes to the depositional sedimentary environment (Tt EMI 1997b).

The southern part of the Tidal Area includes the northwest-southeast trending Los Medanos Hills, predominantly composed of folded and faulted Tertiary bedrock. The early to mid-Tertiary rocks are primarily marine in origin and consist of interbedded sandstones and mudstones.

The Tidal Area originally consisted of three distinct land formations: salt wetlands along the shore of Suisun Bay, the inland colluvial slope, and the sandstone hills farthest from the water. A large section of the wetlands area was modified by the addition of large amounts of fill material when Detachment Concord was originally constructed. Very few of the existing Navy facilities were built on these filled areas (Tt EMI 1997b).

3.5.5 Seismicity

Detachment Concord is within the geologically complex and tectonically active California Coast Range, approximately 30 miles (48 km) east of San Francisco Bay. There are several active or potentially active major faults in the vicinity of Detachment Concord. The Concord Fault is a northwest-trending, strike-slip fault, located about a mile to the southwest of the Inland Area. The fault is interpreted to be the northward extension of the Calaveras Fault, which is a major branch of the San Andreas fault system. The Clayton Fault lies within the Inland Area of Detachment Concord, near the southwestern base of Los Medanos Hills. No major earthquakes are known to have occurred on the Clayton Fault; however, this fault has been interpreted to be the northwestern extension of the Greenville Fault, which has shown geomorphic evidence of displacements and which experienced an earthquake with surface rupture in the eastern part of the Livermore Valley in January 1980. The Antioch Fault is about ten miles (16 km) to the east of Detachment Concord, but no documented significant earthquakes have occurred on this fault (Tt EMI 1997a).

3.6 SOIL RESOURCES

3.6.1 Inland Area

Both the Inland Area and Tidal Area are composed primarily of soils belonging to the Altamont Diablo-Fontana association. Figure 3-6 illustrates the various soil types located throughout Detachment Concord. These soils are found to be moderately deep to deep. They formed in material weathered from soft fine-grained sandstones and shales. This association is composed of varying degrees of Altamont clay and Fontana silty clay loam, depending on the degree of slope. Steeper slopes (50 to 70 percent) have a higher percentage of Fontana silty clay loams. On bare soils, runoff is medium to high (depending on degree of slope) and erosion hazard is moderate to high.

3.6.2 Tidal Area

The Tidal Area is composed of muck soils of the Joice-Reyes association. These soils are very deep and poorly drained and consist of silty clays and saline mucks. The soils formed in saltwater marshes from hydrophytic plant material and fine-textured mineral alluvium from mixed parent rocks. The Joice mucks form uniform wetlands that are subject to saltwater inundation, most commonly at high tide. Because these soils have poor drainage, they are also subject to freshwater flooding and ponding following heavy rainfall and surface runoff from adjacent inland areas.

3.7 WATER RESOURCES

3.7.1 Regulatory Considerations

The principal federal laws protecting water quality are the CWA (33 USC §§ 1251 - 1387) and the Safe Drinking Water Act (SDWA) (42 USC §§ 300f – 300j-26). Both laws are enforced by the EPA. The CWA protects surface water quality and preserves wetlands, and the Safe Drinking Water Act protects drinking water supplies.

At the state level, the Porter-Cologne Water Quality Control Act gives the State Water Resources Control Board (SWRCB) and nine regional water quality control boards (RWQCB) responsibility for protecting surface and groundwater quality. As such, the RWQCBs prepare water quality control plans defining the beneficial uses and standards for protecting the waters within their regions. The RWQCBs also implement provisions of the CWA delegated to states, such as the National Pollutant Discharge Elimination System (NPDES), which regulates point (industrial) and nonpoint (stormwater) sources of pollutants. Detachment Concord complies with NPDES permit requirements by obtaining construction and industrial stormwater permits and individual point-source municipal and industrial discharge permits, as needed. Copies of the Stormwater Management Plan and NPDES permits are available at the ESO.

3.7.2 Inland Area

Surface Water

Detachment Concord lies within the Mount Diablo watershed, which drains about 36 square miles (93 square km). Figure 3-7 illustrates the surface water features in the

Inland Area. Numerous intermittent and ephemeral creeks, some fed by small perennial springs, release water into Mt. Diablo/Seal Creek. This creek drains the north slope of Mt. Diablo, which runs through the center of the Inland Area, crosses under the Port Chicago Highway, and then empties into the tidal marshes. Historical records indicate that flooding occurs in the Mt. Diablo/Seal Creek watershed almost every year. Areas affected by flooding include the Detachment Concord entrance, Port Chicago Highway, and the adjacent Concord Municipal Golf Course. The floodplain extends from the golf course northward to Kinne Boulevard, bypassing the Inland Support Complex.

Nearly 6.5 miles (10.5 km) of the Contra Costa Canal pass through the Tidal and Inland Areas of Detachment Concord. The canal provides a raw water supply from an intake at Rock Slough to the Bollman Treatment Plant in Concord, as well as to other raw water customers (municipal, industrial, and landscape irrigation) in central Contra Costa County. The water treated at the Bollman plant serves approximately 230,000 residential customers and other commercial, office, and industrial needs within the cities of Concord, Walnut Creek, Pleasant Hill, Martinez, and Clayton and within the unincorporated communities of Pacheco, Clyde, and Port Costa (DoN 1995).

There are stock ponds, watering holes, and seepage ponds in nearly 20 locations at Detachment Concord. These ponds are chiefly in the hills of the Tidal and Inland Areas, where natural water sources are scarce. The water levels in most of these ponds vary widely over the year, collecting runoff in winter and gradually drying out through summer. Cistern Pond and Indian Springs (upper) in the Inland Area are the only perennial ponds at Detachment Concord, where they collect water from seasonal rains.

Cistern Pond is one of two perennial ponds at Detachment Concord.

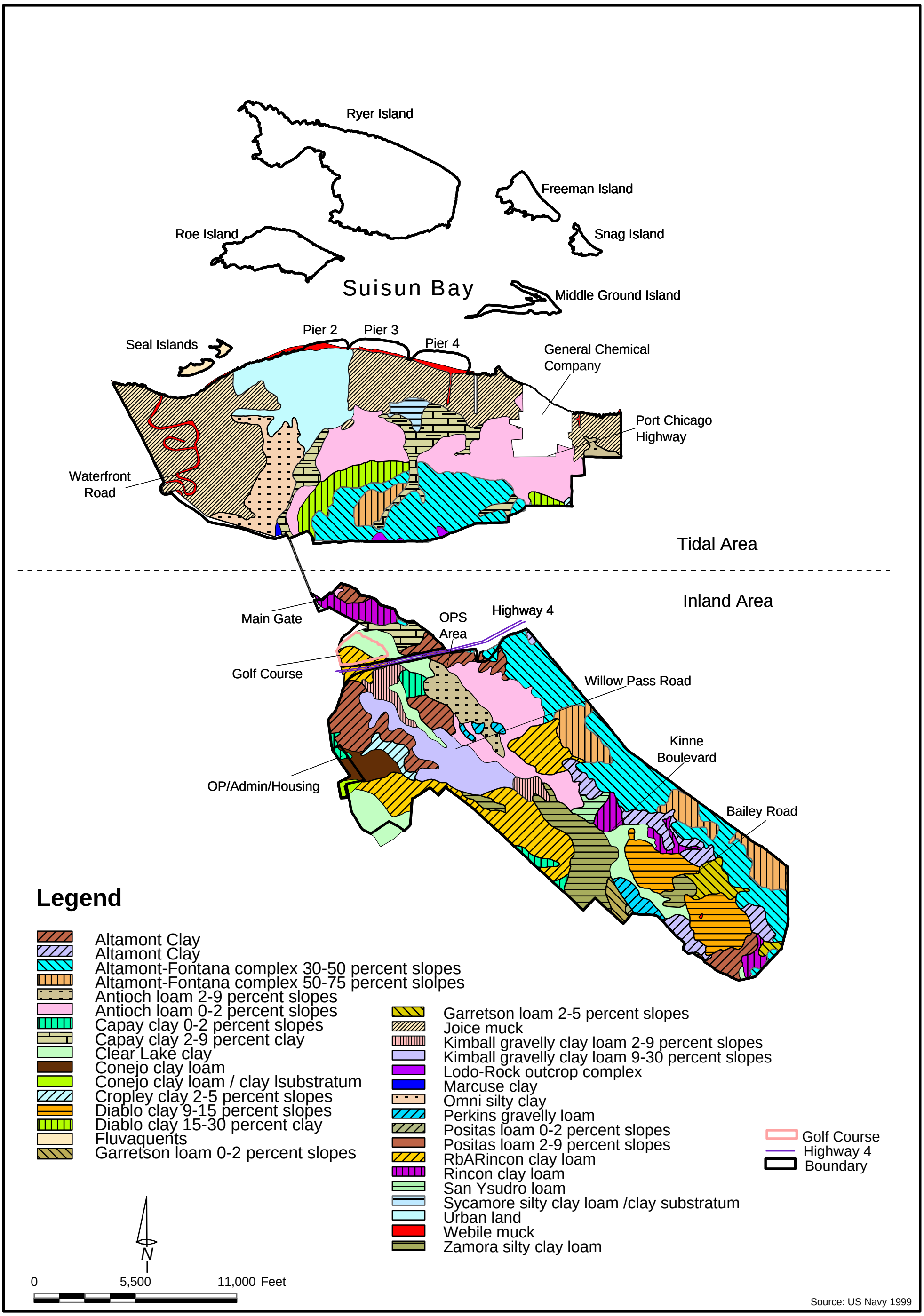
Groundwater

Moderate amounts of groundwater lie beneath the Inland Area. Groundwater quality is generally fair and total dissolved solids, hardness, chlorides, and iron concentrations in groundwater are relatively high. Satisfactory yields generally can be obtained only from drilling deep bedrock wells. High well drawdown rates can result in saltwater intrusion into localized aquifers, further reducing groundwater quality. Until the early 1960s, Detachment Concord obtained its water supply from three 500-foot (152-meter) wells. At that time the wells were shut down and water was obtained from local public utilities, as is the case today (Tt EMI 1997a).

3.7.3 Tidal Areas

Surface Water

Surface water features in the Tidal Area recharge local zones of groundwater or are a point of groundwater discharge. Figure 3-8 illustrates the water resources in the Tidal



Many of the soils in the Tidal and Inland Areas are composed of the Altamont Diablo Fontana Association. Soil information for the other 5 islands is not available.

Data may be dated and should be verified with appropriate natural resources office personnel.

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Soil Types

NWSSB, Detachment Concord
Concord, California

Figure 3-6

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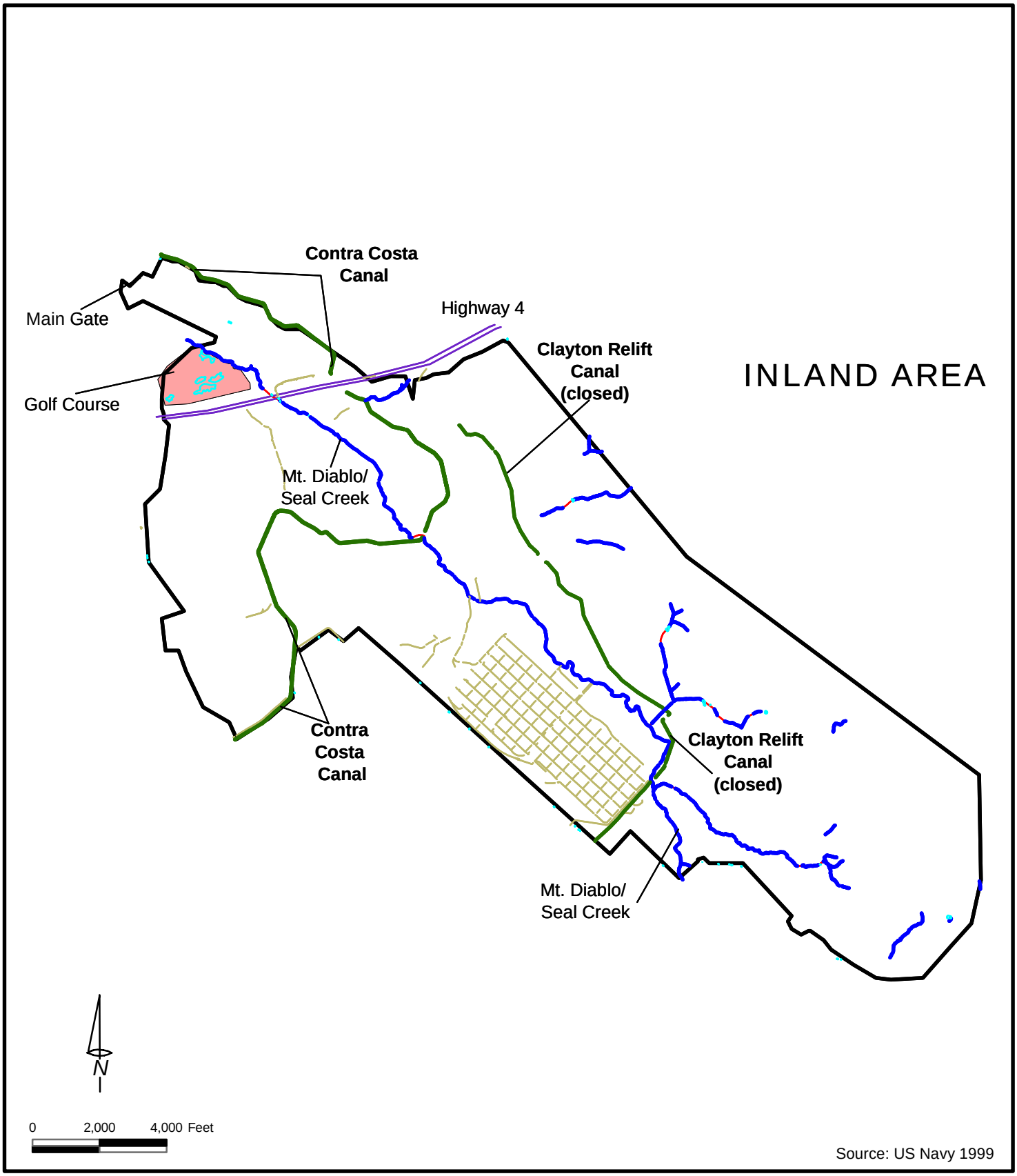

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Detachment Concord lies within the Mount Diablo-Seal Creek Watershed. The creek runs through the center of the Inland Area, where it becomes Seal Creek and empties into the Tidal Area.

Legend

- Golf Course
- Highway 4
- Boundary

Hydro

- Canals
- Ditch
- Open Body
- Creek/ Stream
- Stream Connector

Data may be dated and should be verified with appropriate natural resources office personnel.

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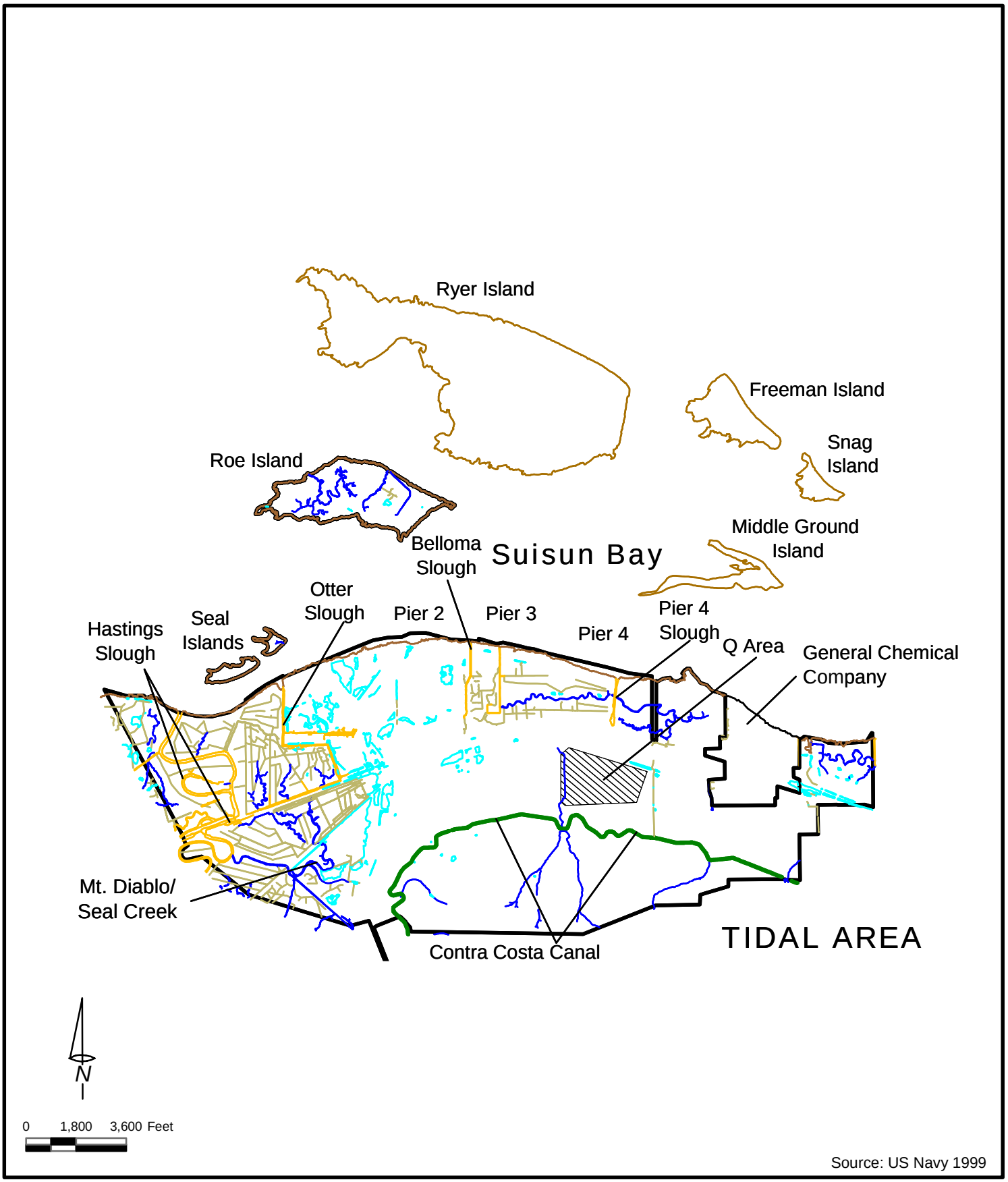
Surface Water Features-Inland Area

NWSSB, Detachment Concord
Concord, California

Figure 3-7



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Detachment Concord lies within the Mount Diablo/Seal Creek Watershed. The Creek runs through the center of the Inland Area, and empties into the Tidal Area.

Data may be dated and should be verified with appropriate natural resources office personnel.

Legend

- Q Area
- Boundary

Hydro

- Contra Costa Canal
- Coast Line
- Ditch
- Open Body
- Slough
- Streams

Surface Water Features- Tidal Area

NWSSB, Detachment Concord
Concord, California

Tetra Tech, Inc

Figure 3-8

Area. Groundwater recharge from the surrounding hills flows northward toward Suisun Bay, discharging to surface waters in the low-lying area. Surface water from the surrounding hills flows northward toward Suisun Bay, via natural creeks and artificial ditches, canals, and channelized culverts (Tt EMI 1997b).

Tidally influenced sloughs in the lowlands near Suisun Bay route bay water to and from the Tidal Area. Hastings Slough, in the western Tidal Area, extends from Suisun Bay to the Tosco Avon Refinery in Martinez. Mt. Diablo/Seal Creek joins Hastings Slough near the western boundary of the Tidal Area. Belloma and Cunningham Sloughs are smaller sloughs in the central portion and to the east of the Tidal Area. Otter Slough is an artificial channel that flows along the western and southern sides of the Tidal Area. The slough provides surface water and groundwater drainage from the R Area Disposal and Wood Hogger sites to Suisun Bay. The R Area Disposal Site is a former landfill and the Wood Hogger site is a former storage area for treated lumber near Pier #2. Both of these sites have been closed in coordination with the Department of Toxic Substances Control (DTSC) Region 2. These artificial and natural channels display significant tidal fluctuations. A past study of tidal influence has shown that groundwater elevations at Detachment Concord are locally influenced by tidal fluctuations in Otter Slough and the natural sloughs. In general, any area within the Tidal Area lower than 9.0 feet (2.7 meters) above msl is subject to tidal flooding.

Groundwater

Groundwater has been found in all soils beneath the Tidal Area. The only soils with high enough permeability to provide a preferred pathway for groundwater flow are the fluvial or estuarine sands. However, these sands are separated from shallow groundwater by an aquitard consisting of a minimum of 20 to 70 feet (6 to 21 meters) of fine-grained clays and silts (Bay Mud). The fine-grained Bay Mud is known to have very low permeability. In addition, groundwater quality in the fluvial or estuarine sands should not be affected by potential shallow contamination (such as nonpoint source pollution) because groundwater in the overlying Bay Mud, Yerba Buena Mud, and alluvial clays and silts is influenced by relatively slow groundwater flow rates, high rates of biodegradation, and natural attenuation, due to the high organic carbon content of the soil (Tt EMI 1997a).

3.8 WETLANDS

3.8.1 Functions, Values, and Definition of Wetlands

Wetlands are considered sensitive and declining resources by several regulatory agencies, including the CDFG and the USFWS. The COE considers wetlands to be important to the public interest in that they perform significant biological functions, such as providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory animal species. Wetlands also provide for the movement of water and sediments, groundwater recharge, water purification, and stormwater runoff storage. The COE defines wetlands as follows:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (COE 1987).

Wetlands generally include swamps, marshes, bogs, and similar areas. In order to fall within the jurisdiction of the COE, a wetland must possess three criteria: hydrology, soils, and vegetation, as defined by the COE Wetland Delineation Manual (Environmental Laboratory 1987).

3.8.2 Wetlands Protection

Waters of the US, including wetlands, are protected under the CWA, the Rivers and Harbors Act, and EO 11990, Protection of Wetlands. The COE regulates impacts to wetlands and other waters under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Projects that involve excavating dredged or fill material into waters of the US, including wetlands, must be reviewed and authorized by the COE and reviewed by the EPA. To determine the boundaries of jurisdictional wetlands the area must be delineated in accordance with the COE Wetlands Delineation Manual (Environmental Laboratory 1987). (See Section 3.8.3 for more detailed information on determining jurisdictional wetlands.) Areas that are not considered to be jurisdictional waters include nontidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies, such as swimming pools, and water-filled depressions (33 CFR, part 328). Jurisdictional wetland delineations have not been conducted at Detachment Concord. EO 11990 requires that federal agencies avoid construction in wetlands, unless there is no practical alternative and all practicable measures are provided to minimize harm to wetlands, including opportunities for the public to review of plans or proposals.

3.8.3 Jurisdictional Classification

In order for a wetland to be classified as jurisdictional, three criteria must be satisfied, as established by the COE and outlined in its Wetlands Delineation Manual (Environmental Laboratory 1987). Tables 3-1 and 3-2 include the degree of likelihood that wetlands at Detachment Concord are jurisdictional. Wetlands classified as "likely jurisdictional" are assumed so until field confirmation can be made. Those wetlands determined as "potentially jurisdictional" are recommended to undergo further field analysis in order to determine their status prior to any disturbance activity. Wetlands determined as "not likely" jurisdictional are categorized as needing no further field analysis. (Note that while most of Ryer Island is classified as "likely jurisdictional," there are estuarine subtidal areas on the island that may not be jurisdictional. These areas are still protected under the CWA as "other waters of the US" [COE 1987]).

Table 3-1
Detachment Concord Wetlands and Deepwater Habitats, Inland Area

Jurisdictional Likelihood	Classification Code	Classification
P	PEM1A	Palustrine Emergent Persistent Temporally Flooded
L	PEM1B	Palustrine Emergent Persistent Saturated
L	PEM1C	Palustrine Emergent Persistent Seasonally Flooded
L	PEM1Ch	Palustrine Emergent Persistent Seasonally Flooded, diked
N	PSS1A	Palustrine Scrub-Shrub Broad Leaved Deciduous Temporally Flooded
N	PSS1B	Palustrine Scrub-Shrub Broad Leaved Deciduous Saturated
N	PSS1C	Palustrine Scrub-Shrub Broad Leaved Deciduous Seasonally Flooded
N	PSS1Ch	Palustrine Scrub-Shrub Broad Leaved Deciduous Seasonally Flooded, diked
P	PUBFh	Palustrine Unconsolidated Bottom Semi-permanently Flooded, diked
N	PUBHx	Palustrine Unconsolidated Bottom Permanently Flooded, excavated
N	PUSAh	Palustrine Unconsolidated Shore Temporally Flooded, diked
N	PUSC	Palustrine Unconsolidated Shore Seasonally Flooded
P	PUSCh	Palustrine Unconsolidated Shore Seasonally Flooded, diked

Source: DoN 1999.
L= Likely jurisdictional
P= Potentially jurisdictional
N= Not likely jurisdictional

Table 3-2
Detachment Concord Wetlands and Deepwater Habitats, Tidal Area

Jurisdictional Likelihood	Classification Code	Classification
N	E1UBL	Estuarine Subtidal Unconsolidated Bottom
N	E1UBLx	Estuarine Subtidal Unconsolidated Bottom, excavated
L	E2EM1N	Estuarine Intertidal Emergent Persistent Regularly Flooded
L	E2EM1Nh	Estuarine Intertidal Emergent Persistent Regularly Flooded, diked
N	E2EM1Nx	Estuarine Intertidal Emergent Persistent Regularly Flooded, excavated
P	E2EM1P	Estuarine Intertidal Emergent Persistent Irregularly Flooded
N	E2EM1Ph	Estuarine Intertidal Emergent Persistent Irregularly Flooded, diked
P	E2SS1Ph	Estuarine Intertidal Scrub-Shrub Broad Leaved Deciduous Irregularly Flooded, diked
L	E2USM	Estuarine Intertidal Unconsolidated Shore Irregularly Exposed
L	E2USN	Estuarine Intertidal Unconsolidated Shore Regularly Flooded
P	E2USP	Estuarine Intertidal Unconsolidated Shore Irregularly Flooded
N	E2USPh	Estuarine Intertidal Unconsolidated Shore Irregularly Flooded, diked
P	PEM1A	Palustrine Emergent Persistent Temporally Flooded
L	PEM1Ah	Palustrine Emergent Persistent Temporally Flooded, diked
L	PEM1C	Palustrine Emergent Persistent Seasonally Flooded
L	PEM1Ch	Palustrine Emergent Persistent Seasonally Flooded, diked
P	PEM1Cx	Palustrine Emergent Persistent Seasonally Flooded, excavated
N	PEM1F	Palustrine Emergent Persistent Semi-permanently Flooded
P	PEM1Fh	Palustrine Emergent Persistent Semi-permanently Flooded, diked
P	PF01A	Palustrine Forested Broad Leaved Deciduous Temporally Flooded
N	PSS1A	Palustrine Scrub-Shrub Broad Leaved Deciduous Temporally Flooded
N	PSS1Ch	Palustrine Scrub-Shrub Broad Leaved Deciduous Seasonally Flooded, diked
P	PUBFh	Palustrine Unconsolidated Bottom Semi-permanently Flooded, diked
P	PUBFx	Palustrine Unconsolidated Bottom Semi-permanently Flooded, excavated
N	PUBHx	Palustrine Unconsolidated Bottom Permanently Flooded, excavated
N	PUSAh	Palustrine Unconsolidated Shore Temporally Flooded, diked
N	PUSC	Palustrine Unconsolidated Shore Seasonally Flooded
N	PUSCh	Palustrine Unconsolidated Shore Seasonally Flooded, diked
N	PUSCx	Palustrine Unconsolidated Shore Seasonally Flooded, excavated

Source: DoN 1999.
L= Likely jurisdictional
P= Potentially jurisdictional
N= Not likely jurisdictional

The following COE diagnostic environmental characteristics were used to determine the degree of jurisdictional likelihood at Detachment Concord:

Vegetation. Prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions as described above. Hydrophytic species, due to morphological, physiological, or reproductive adaptation, have the ability to grow, effectively compete, reproduce, and persist in anaerobic soil conditions.

Soil. Soils have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions.

Hydrology. The area is inundated either permanently or periodically at mean water depths of equal to 6.6 feet (2.0 meters), or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

3.8.4 Wetlands Identified in the Inland Area

Figure 3-9a illustrates the classifications of wetland habitats in the Inland Area of Detachment Concord, while Figure 3-9b represents the jurisdictional likelihood of these habitats. A small freshwater marsh is adjacent to the south runway of the Old Airport in the southwest corner of the Inland Area and is dominated by cattails (*Typha* spp.), tules (*Scirpus*), willows, and sedges (*Carex* spp.) (DoN 1999d). Table 3-1 lists classifications of Inland Area wetlands.

As noted previously, there are stock ponds, watering holes, and other seepage ponds at nearly 20 locations throughout Detachment Concord. The water levels in most of these ponds vary widely over the year, collecting runoff in winter and gradually drying through summer. Cistern Pond and Indian Springs (upper) in the Inland Area are the only perennial ponds at Detachment Concord, they collect water from seasonal rains. Several of the ponds have been fenced to exclude cattle, thereby enhancing them as wildlife habitat areas. Four of the ponds in this area provide habitat for the federally designated candidate California tiger salamander and the federally listed threatened California red-legged frog.

3.8.5 Wetlands Identified in the Tidal Area

Tidal wetlands.

There are three major classes of salt marshes at Detachment Concord: those subject to tidal action, those that are pristine or relatively pristine, and those that are subject to little or no tidal action. All three classes can be found in the Tidal Area, including the six islands in Suisun Bay (Figure 3-10a). Physically and biologically, the islands are similar to the salt marsh habitat along the shore of the main tidal wetland area of Detachment Concord. Many of the wetland areas have been altered by human activities, such as diking, filling, and dumping. The health of these wetlands is closely tied to tidal flushing. Figure 3-10b illustrates the jurisdictional likelihood of Tidal Area wetland habitats.

Figures 3-9a to 3-10b

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

The salt marsh areas south of Waterfront Road (Figure 3-10a) and enclosed in the urban/industrial area are not subject to tidal action. These marsh areas collect seasonal rains and some floodwater runoff from Mt. Diablo/Seal Creek and nearby areas, but they are mostly dry during summer. Depressions in marsh areas can sometimes hold water year-round in the form of small ponds. There also may be several freshwater seeps in the marshes south of Waterfront Road.

Brackish marsh habitats can occur wherever freshwater enters salt marsh wetlands through seeps, streams, or surface runoff. The most extensive brackish marsh area at Detachment Concord is within the southern portion of the Middle Point wetlands. Freshwater enters the Middle Point wetlands from a marsh located to the south and from subsurface seepage, also from the south. Portions of the southwest wetland in the triangular area created by the Santa Fe and Sacramento Northern railway lines received freshwater from Mt. Diablo/Seal and Inland Area runoff, creating additional brackish marsh habitat area.

There is freshwater marsh habitat at two locations at Detachment Concord. The largest of these habitats (approximately ten acres [four ha]) is between the Southern Pacific and Santa Fe mainline railroad tracks, south of Middle Point marsh (Figure 3-10a). This freshwater marsh is fed by several streams draining out of the hills of the Tidal Area and possibly by occasional overflow from the Contra Costa Canal.

Wetland Preserve

On February 1, 1984, in response to declining wetlands resources at Detachment Concord and throughout the Bay Area, the Navy signed an MOU with the USFWS designating a wetland preserve area on Detachment Concord. The MOU recognized that these wetlands were unique and valuable resources that provided valuable habitat for endangered species and other migratory, terrestrial, and aquatic wildlife. The MOU designated the six islands (mentioned above) in Suisun Bay and five Tidal Area wetlands as wetland preserves. The five tidal preserves in the Tidal Area are Hastings Marsh, Pier Marsh, MiddlePoint Marsh, East Marsh, and North Area K Marsh (Figure 3-11).

3.8.6 Wetlands Classification at Detachment Concord

Wetlands identified at Detachment Concord are classified according to the USFWS's Classification of Wetlands and Deepwater Habitats (Coward in et al. 1979). This system is used by the National Wetlands Inventory to map wetlands throughout the US. The Cowardin classification system (Cowardin et al. 1979) is a hierarchical system based on plants (hydrophytes), hydric soils, and flooding frequency. Wetlands and deepwater habitats at Detachment Concord are represented by two systems in the Cowardin system, Estuarine and Palustrine. Classifications for wetlands and deepwater habitats occurring at Detachment Concord are listed in Table 3-2, while Figures 3-9a and 3-10a illustrate their locations throughout Detachment Concord.

Figure 3-11

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

The Cowardin classification hierarchical system progresses from systems (e.g., marine, estuarine, and palustrine) and subsystems (e.g., intertidal and subtidal), to classes (e.g., unconsolidated bottom and emergent wetland). The system also includes subclasses and dominance types. Of all the systems in the hierarchy, palustrine systems are the only ones that do not contain subsystems. The two systems of wetlands found at Detachment Concord are estuarine and palustrine, and Section 3.8.7 discusses these systems and the various subsystems and classes.

3.8.7 System Classifications

Estuarine

Estuarine systems are defined by deepwater tidal habitats and adjacent tidal wetlands. These systems are usually semienclosed by land but often have partial or occasional exposure to the open ocean. In such systems, the ocean water is occasionally diluted by freshwater runoff from land, as is the case with the Suisun Bay region. Additionally, the salinity may be periodically increased above that of the open ocean by evaporation (Cowardin et al. 1979). Much of the wetlands at Detachment Concord are of the estuarine intertidal variety.

Estuarine Intertidal

The intertidal subsystem of estuarine wetlands and deepwater habitats is the largest of the subsystems found at Detachment Concord. In all, there are approximately 2,840 acres (1,149 ha) of estuarine intertidal wetlands in the Tidal Area of Detachment Concord. Intertidal wetland systems are found in areas where water levels vary from the extreme low to the extreme high, along with an associated splash zone (Cowardin et al. 1979). All six of the Suisun Bay islands and many areas along the northern and western edge of the Tidal Area are intertidal wetlands. Most of these intertidal wetlands are classified as emergent and are characterized by erect, rooted, or herbaceous plants, many of which remain standing until the beginning of the next growing season (Cowardin et al. 1979).

Several areas within these estuarine intertidal wetlands fall within the unconsolidated shore class. Such systems are defined by Cowardin as possessing three characteristics: unconsolidated substrates with less than 75 percent areal cover of stones, boulders, or bedrock; less than 30 percent areal cover of vegetation; and any of the following water regimes: irregularly exposed, regularly flooded, irregularly flooded, seasonally flooded, temporarily flooded, intermittently flooded, saturated, seasonal-tidal, temporary-tidal, or artificially flooded.

Estuarine, Subtidal

The subtidal system of estuarine wetlands and deepwater habitats is the second largest subsystem found at Detachment Concord, totaling approximately 424 acres (172 ha). These systems are mostly on Ryer Island and along the northern edge of the Tidal Area. All of the estuarine subtidal systems at Detachment Concord are of the unconsolidated bottom class. This class includes all wetlands and deepwater habitats with a cover derived from at least 25 percent of particles smaller than stones (less than two to three

inches [six to seven cm]) and that have a vegetative cover of 30 percent or less (Cowardin et al. 1979).

Palustrine

The palustrine system of wetlands includes all nontidal wetlands and often refers to marshes, bogs, fens, or prairies. Palustrine wetlands also can occur in tidal areas where salinity from ocean-derived salts is below 0.5 percent. This system also includes small, shallow, permanent, and or intermittent waterbodies called ponds. Palustrine wetlands can be found shoreward of lakes, river channels, or estuaries, on river floodplains, in isolated catch basins, or on slopes (Cowardin et al. 1979).

Palustrine, Emergent

While classifications of the palustrine systems found at Detachment Concord are numerous, the area of these systems is considerably less than that of the estuarine wetlands. In all, palustrine systems account for 93 acres (38 ha) of wetlands at Detachment Concord. The palustrine emergent systems are characterized by erect, rooted, or herbaceous plants, many of which remain standing until the beginning of the next growing season (Cowardin et al. 1979). Most of these wetlands are on the southern edge of the estuarine systems in the Tidal Area, and several have been previously diked or excavated.

Palustrine, Scrub-Shrub, Unconsolidated Bottom/Shore

Many of the wetlands found in the Inland Area of Detachment Concord fall into either the palustrine scrub-shrub or unconsolidated bottom/shore classification. There are approximately 17 acres (seven ha) of wetlands that are classified as scrub-shrub. These systems usually are dominated by woody vegetation less than 20 feet (six meters) tall and include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions (excessive wind or hardpan soils). Wetlands in this class also are further subclassified as broad-leaved deciduous because of the numerous tree varieties associated with these systems.

Wetlands of the unconsolidated bottom class account for approximately 16 acres (six ha) of wetlands at Detachment Concord. These systems include all wetlands and deepwater habitats with a cover derived from at least 25 percent of particles smaller than stones (less than two to three inches [six to seven cm]) and that have a vegetative cover of 30 percent or less (Cowardin et al. 1979). Those of the unconsolidated shore class are composed of the following three characteristics: unconsolidated substrates with less than 75 percent cover of stones, boulders, or bedrock, less than 30 percent cover of vegetation, and any of the following water regimes: irregularly exposed, regularly flooded, irregularly flooded, seasonally flooded, temporarily flooded, intermittently flooded, saturated, seasonal-tidal, temporary-tidal, or artificially flooded (Cowardin et al. 1979).

3.9 VEGETATION

This section describes the vegetation at Detachment Concord and includes vegetation communities and associated plant species and invasive weeds. Detachment Concord is

typified by open rolling grasslands and valley oaks. It is crossed by the Mt. Diablo/Seal Creek riparian corridor and supports small stock ponds and marshlands. Vegetation on Detachment Concord can be divided into six communities: grassland, urban and industrial, anthropogenic, riparian, woodland, and marshland. Table 3-3 lists approximate acreages for each vegetation community. Figure 3-12 illustrates the various vegetation classifications at Detachment Concord, as defined by its 1988 NRMP. For a complete list of confirmed and likely vegetation at Detachment Concord, refer to Appendix G.

Table 3-3
Vegetation Communities at Detachment Concord

Area	Vegetation Community	Acreage
Inland		
	Grasslands	4,815 ac (1,949 ha)
	Urban and Industrial areas	364 ac (147 ha)
	Anthropogenic areas	161 ac (65 ha)
	Riparian Areas	150 ac (61 ha)
	Valley Oak Woodland	60 ac (24 ha)
	Marshlands	4 ac (2 ha)
Tidal		
	Marshlands	3,200 ac (1,295 ha)
	Grasslands	2,090 ac (846 ha)
	Urban and Industrial	430 ac (174 ha)

Source: US Navy 1999

3.9.1 Inland Area Vegetation Communities

The Inland Area habitat is composed predominantly of grassland and developed areas. Also found in the Inland Area are riparian, remnant anthropogenic, marshland, and oak woodland habitats.

Grasslands

Valley and foothill grassland occupies approximately 4,815 acres of the Inland Area at Detachment Concord.

Valley and foothill grassland occupies approximately 4,815 acres (1,949 ha) of the Inland Area at Detachment Concord. Dominant species of vegetation are primarily nonnative grass species, such as wild oat (*Avena fatua*), ripgut grass (*Bromus diandrus*), Mediterranean barley (*Hordeum marinum*), and Italian rye grass (*Lolium multiflorum*). In addition, a nonnative forb species, yellow star thistle (*Centaurea solstitialis*), has become established on many of the disturbed grassland areas, with large concentrations near the Old Airport and Magazine areas.

The nonnative annual grasses were introduced to California during the 1700s and 1800s. The most extensive and least disturbed areas of grassland occur on steep slopes and high ridges of both the Tidal and Inland Areas. In the lowland portion of Detachment Concord, large areas are occupied by magazines and other storage and transport facilities. These operations and support facilities are dispersed for safety and are surrounded by grassland vegetation similar to that found in the surrounding foothills.

Storage bunkers are widely dispersed for safety.

Urban and Industrial Areas

Approximately 364 acres (147 ha) of the Inland Area of Detachment Concord are occupied by industrial, administrative, and residential facilities associated with Detachment Concord's function as a Navy weapons facility. Administration and residential facilities are concentrated at the northern tip of the Inland Area, while storage and railroad facilities are scattered throughout portions of Detachment Concord. Vegetation within the industrial and urban areas is a heterogeneous mixture of planted ornamental trees and shrubs, weedy herbaceous species, and grasses and forbs typical of disturbed areas. Some sites are landscaped and maintained by mowing; others are maintained mainly by application of herbicides. Grazing also is used to control vegetative growth and to reduce fire hazards.

In the Inland Area, many of the storage bunkers (magazines) are widely dispersed for safety. Intervening spaces are vegetated with introduced grasses and forbs typical of the grassland habitat described above.

Anthropogenic Areas

Approximately 161 acres (65 ha) of the Inland Area of Detachment Concord are occupied by habitat types resulting from historical activities. Several of these have survived from early homesteads established before Detachment Concord was established. A common feature among anthropogenic vegetation communities is exotic species composition and low-to-moderate tree heights.

Remnant orchards, homestead plantings of exotic shade trees, street and garden trees on the former Port Chicago townsite, and established forestry plantations are grouped in this habitat type. Several forestry plantations, composed of test plantings of various pine and eucalyptus species, are along the southern boundary of Detachment Concord, just west of Bailey Road. Approximately 90 acres (36 ha) have been planted by the US Forest Service Institute of Forest Genetics as experimental plantings.

Groves of large blue gum eucalyptus trees (*Eucalyptus globulus*) occur at nine locations at Detachment Concord. These groves apparently were planted by homesteaders as windbreaks and shade trees during the late 1800s. Many of the trees are now over 100 feet (30 meters) tall and provide a unique type of habitat. Understory vegetation is

composed of herbaceous species characteristic of surrounding grasslands. The eucalyptus groves are considered separate from orchards and homesteads because they consist of mature trees and are structurally different from those found in orchards and plantations, due to their height and age.

An abandoned rock quarry is near the Cistern Pond at the foot of the eastern hills of Detachment Concord's Inland Area. The three-acre (one-ha) site provides a complex of boulders and rock crevices not found elsewhere at Detachment Concord. Vegetation consists primarily of herbaceous species characteristic of surrounding grassland, with a few scattered shrubs.

There are stock ponds, watering holes, and other seepage ponds at nearly 20 locations throughout Detachment Concord. Many of these areas support aquatic vegetation.

Riparian Habitat

Nearly all of the 150 acres (61 ha) of riparian habitat at Detachment Concord occur along the course of Mt. Diablo/Seal Creek, between Bailey Road in the southeast and headquarters area to the northeast (Figure 3-12). The composition of vegetation species in riparian areas is extremely variable, reflecting many years of human disturbance, alterations of stream flow, cattle grazing, elk browsing, and invasion of exotic ornamental plant species from nearby residential areas. The riparian trees and shrubs at Detachment Concord include cottonwood (*Populus fremontii*), valley oaks, alderberry (*Sambucus racemosa*), willows, buckeye (*Aesculus* spp.), and mulefat (*Baccharis salicifolia*).

Valley Oak Woodland

Valley oak woodland habitat occurs at several locations within the Inland Area of Detachment Concord, occupying approximately 60 acres (24 ha). Open woodlands of valley oaks occur within the southeast near Bailey Road. Valley oaks also are scattered across several low hills, both north and south of Bailey Road. In several steep canyons at the far eastern corner of Detachment Concord, there are dense woodlands of valley oaks and California buckeyes (*Aesculus californica*). On both the low hill sites and the steep canyon sites, understory vegetation is typically limited to grasses and forbs characteristic of surrounding grassland habitats. Scattered shrubs, such as coyote bush (*Baccharis pilularis*) and poison oak (*Toxicidendron diversilobum*) also may occur within this habitat.

Marshlands

Freshwater marsh occurs at five locations throughout the Inland Area, totaling approximately four acres (two ha). One is a small freshwater marsh of about two acres (one ha) in size, adjacent to the south runway of the Old Airport. This freshwater marsh is dominated by cattails, tules, willows, and sedges. Other freshwater marshes include the Indian Springs, Old Airport, and 5AT areas (DoN 1999d).

Invasive Plant Species

Yellow star thistle is the most invasive nonnative plant species at Detachment Concord. Yellow star thistle covers many parts of the Inland Area, ranging in density from zero

to 75 percent in the affected areas. In addition, nonnative annual grasses, artichoke thistle (*Cynara cardunculus*), purple star thistle (*Centaurea calcitrapa*), tree of heaven (*Ailanthus altissima*), tobacco tree (*Nicotiana glauca*), and iceplant (*Mesembryanthemum crystallinum*) occur in various locations throughout Detachment Concord.

3.9.2 Tidal Area Habitat Types

The Tidal Area is dominated by an extensive system of tidal marshes. This area also supports nonmarsh areas consisting primarily of valley and foothill grasslands, similar to those found throughout the Inland Area of Detachment Concord. For more detail on these nonmarsh habitats, see the Inland Area vegetation descriptions in Section 3.8.1. Table 3-4 lists those plant species typical to salt marsh and brackish wetland areas, such as those found in the Tidal Area.

Marshlands

Coastal salt and brackish marsh habitat areas occupy approximately 3,200 acres (1,295 ha) in the lowland areas adjacent to Suisun Bay and along Hastings Slough. Many of the salt marsh areas have been altered extensively by human activities, such as diking, filling, and dumping, since the late 1800s and by the installation of tidal gates in the 1940s. As a result, the species composition and vegetation structure of salt marsh ranges from highly disturbed, with the invasion of inland plant species, to relatively pristine, with plant species characteristic of salt marsh habitats where tidal influence has not been disrupted.

Table 3-4
Plant Species Typical in Salt Marsh and Brackish Wetlands of Detachment Concord

Common Name	Scientific Name
Common pickleweed	*Salicornia virginica*
Gumplant	*Grindelia* spp.
Saltgrass	*Distichlis spicata*
Rabbitsfoot grass	*Polypogon monspeliensis*
Baltic rush	*Juncus balticus*
Spike-rush	*Eleocharis elliptica*
Fathen	*Atriplex patula*
Brass-buttons	*Cotula coronopifolia*
Cattails	*Typha* spp.
Tules	*Scirpus* spp.
Sedges	*Carex* spp.
California bulrush	*Scirpus californicus*
Alkali bulrush	*S. robustus*
Olney bulrush	*S. olneyi*
Seaside arrow-grass	*Triglochin maritima*
Perennial peppergrass	*Lepidium latifolium*
Coyote bush	*Baccharis pilularis*
Yarrow	*Achillea millefolium*
Dock	*Rumex* spp.
Wild pea	*Lathyrus* spp.

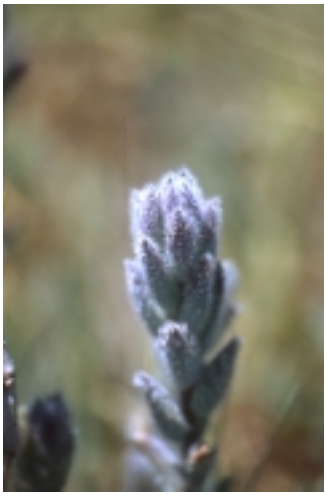
Source: DoN 1982a
Note: Although not documented in the original study, nomenclature appears to correspond to the Jepson Manual, 1993.

Figure 3-12

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

The Tidal Area supports a few plant species that the USFWS has identified as requiring special management consideration. These plant species include soft bird's beak, Mason's lilaeopsis (*Lilaeopsis masonii*), Delta tule pea, and Suisun marsh aster (*Aster chilensis* var. *lentus*) . For additional details regarding these species and the Navy's management responsibilities, refer to sections 3.11 and 6.4.9.

In 1998 and 1999, the University of Arizona's Advanced Resource Technology Group characterized plant communities at Detachment Concord for the Navy. The report detailed these plant species and their habitat as follows: soft bird's beak is federally listed endangered and state-listed as rare. This species is found in the Middle Point Marsh and west of Hastings Slough. Mason's lilaeopsis, a federally designated species of special concern and California-designated rare, is known to occur along the shoreline of Middle Point Marsh (Tt EMI 1998). Delta tule pea is a federally designated species of special concern and is California Native Plant Society- (CNPS) designated 1B (rare and endangered in California and elsewhere). It is found throughout tidal marsh areas at Detachment Concord, including Roe Island. Suisun marsh aster, a federally designated species of special concern and CNPS-designated 1B species, has been found in Middle Point Marsh, Pier Marsh, East Hastings Slough, and on Roe Island (DoN 1999a).



Soft bird's beak (*Cordylanthus mollis* sp. *mollis*), a federally endangered species, is found in the Tidal Area of Detachment Concord.

Other Vegetation Communities

The Tidal Area of Detachment Concord also supports approximately 2,090 acres (846 ha) of grasslands. These grasslands are similar in composition to those found in the Inland Area of Detachment Concord, and grazing is also used to control vegetative growth and to reduce fire hazards in this area. In addition to the grasslands, urban and industrialized areas occupy approximately 430 acres (174 ha) in the Tidal Area. Most of this acreage is associated with the facilities used for ordnance loading and storage. Refer to sections 3.2 and 3.3 for greater detail on the grassland and urban and developed resources within the Tidal Area.

Invasive Plant Species

Invasive plant species include ice plant on the sides of the earthen blast berms in the Tidal Area, as well as sporadic clumps of artichoke thistle (*Cynara cardunculus*) and infestations of fennel (*Foeniculum* spp.). Yellow star thistle is also present in the upland habitats of the Tidal Area.

3.10 FISH AND WILDLIFE

This section describes the general fish and wildlife resources of Detachment Concord. It is divided into four subsections: General Fish and Wildlife Resources, Inland Area Wildlife Habitats, Tidal Area Wildlife Habitats, and Unique Fish and Wildlife

Resources, which includes essential fish habitat, tule elk, bald and golden eagles, and marine mammals.

3.10.1 General Fish and Wildlife Resources

Fish and wildlife habitats at Detachment Concord are diverse and include a tule elk (*Cervus elaphus nannodes*) range, eagle nesting area, riparian areas, several sensitive amphibian habitat areas, and an extensive tidal marsh. Additionally, the American Bird Conservancy has determined that Detachment Concord qualifies as a Nationally Important Bird Area. Specifically, Detachment Concord provides habitat for more than one percent of the population of California black rail (*Laterallus jamaicensis coturniculus*), Suisun song sparrow (*Melospiza melodia maxillaris*), and a qualifying number of greater scaup (*Aythya marila*), which occur occasionally in Suisun Bay (American Bird Conservancy 1998).

The University of Arizona conducted wildlife surveys at Detachment Concord between July 1998 and September 1999. The purpose of the surveys was to identify and describe the seasonal presence, distribution, and abundance of wildlife (DoN 1999a). For specific methodologies used to collect the wildlife data, refer to Appendix E.

Table 3-5 was prepared using University of Arizona survey results, along with data from previous Jones and Stokes wildlife surveys and the California Natural Diversity Database (CNDDB). In all, there are approximately 200 species of wildlife known to inhabit or expected to inhabit Detachment Concord (Table 3-5).

The wildlife communities at Detachment Concord are influenced by the availability of wildlife habitat. The following section looks at the wildlife habitat types found in the Tidal and Inland Areas.

3.10.2 Inland Area Wildlife Habitats

Urban and Industrial Areas

As stated previously, this category includes Detachment Concord's industrial, administrative, and residential facilities associated with its current and previous function as a weapons station. The area consists of approximately 364 acres (147 ha). Wildlife in these areas is typical of species that live in close proximity to humans and include house mouse (*Mus musculus*), house cat (*Felis domesticus*), and California ground squirrel (*Spermophilus beecheyi*). A bat survey was conducted in 1994 by Kuenzi and Morrison, but no bats were observed or captured. Surveys conducted between July 1998 and August 1999 detected bat activity at five locations within the Inland Area, but no bats were captured. Bat species whose distributions and general environments overlap Detachment Concord, thus having the potential to occur there, include California myotis (*Myotis californicus*), long-legged myotis (*M. volans*), long-eared myotis (*M. evotis*), Yuma myotis (*M. yumanensis*), hoary bat (*Lasiurus cinereus*), red bat (*L. borealis*), big brown bat (*Eptesicus fuscus*), western pipistrelle (*Pipistrellus hesperus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and the Brazilian free-tailed bat (*Tadaria brasiliensis*) (DoN 1999d).

Table 3-5
Wildlife Species Known to Inhabit or Expected to Inhabit Detachment Concord

Common Name	Scientific Name
Amphibians	
California tiger salamander	*Ambystoma californiense*
California slender salamander	*Batrachoseps attenuatus*
Arboreal salamander	*Aneides lugubris*
Western (California) toad	*Bufo boreas halophilus*
Pacific chorus frog	*Pseudacris regilla*
Red-legged frog	*Rana aurora draytonii*
Bullfrog	*R. catesbeiana*
Reptiles	
Southern alligator lizard	*Elgaria multicarinatus*
Western fence lizard	*Sceloporus occidentalis*
Ringneck snake	*Diadophis punctatus*
Western whiptail	*Cnemidophorus tigris*
California whipsnake	*Masticophus lateralis*
Pacific gopher snake	*Pituophis catenifer*
California red-sided garter snake	*Thamnophis sirtalis concinnus*
Valley garter snake	*T. sirtalis fitchi*
Common kingsnake	*Lampropeltis getulua*
Northern Pacific rattlesnake	*Crotalus viridus oreganus*
Western yellow-bellied racer	*Coluber constrictor mormon*
Western skink	*Eumeces skiltonianus*
Gilbert skink	*E. gilberti*
Western pond turtle	*Clemmys marmorata*
Pond slider	*Pseudemys scripta*
Birds	
Horned grebe	*Podiceps auritus*
Eared grebe	*P. nigricollis*
Pied-billed grebe	*Podilymbus podiceps*
Western grebe	*Aechmophorus occidentalis*
American white pelican	*Pelicanus erythorhynchos*
Double-crested cormorant	*Phalacrocorax auritus*
American bittern	*Botaurus lentiginosus*
Black-crowned night heron	*Nycticorax nycticorax*
Green heron	*Butorides virescens*
Snowy egret	*Egretta thula*
Great egret	*Casmerodius albus*
Great blue heron	*Ardea herodius*
Mute swan	*Cygnus olor*
Canada goose	*Branta canadensis*
Mallard	*Anas platyrhynchos*
Gadwall	*A. strepera*
Green-winged teal	*A. crecca*
American widgeon	*A. Americana*
Northern pintail	*A. acuta*
Northern shoveler	*A. clypeata*
Blue-winged teal	*A. discors*
Cinnamon teal	*A. cyanoptera*

Table 3-5
Wildlife Species Known to Inhabit or Expected to Inhabit Detachment Concord *(continued)*

Common Name	Scientific Name
Ruddy duck	*Oxyura jamaicensis*
Wood duck	*Aix sponsa*
Canvasback	*Aythya valisineria*
Ring-necked duck	*A. collaris*
Lesser scaup	*A. affinis*
Common goldeneye	*Bucephala clangula*
Bufflehead	*B. albeola*
Red-breasted merganser	*Mergus serrator*
California clapper rail	*Rallus longirostris obsoletus*
Virginia rail	*R. limicola*
Sora	*Porzana Carolina*
California black rail	*Laterallus jamaicensis coturniculus*
Common moorhen	*Gallinula chloropus*
American coot	*Fulica Americana*
American avocet	*Recurvirostra americana*
Black-necked stilt	*Himantopus mexicanus*
Killdeer	*Charadrius vociferus*
Long-billed curlew	*Numenius americanus*
Willet	*Catoptrophorus semipalmatus*
Greater yellowlegs	*Tringa melanoleuca*
Spotted sandpiper	*Actitus macularia*
Marbled godwit	*Limosa fedoa*
Long-billed dowitcher	*Limnodromus scolopaceus*
Common snipe	*Gallinago gallinago*
Dunlin	*Calidris alpina*
Least sandpiper	*C. minutilla*
Western sandpiper	*C. mauri*
Bonaparte's gull	*Larus philadelphia*
Ring-billed gull	*L. delawarensis*
Herring gull	*L. argentatus*
California gull	*L. californicus*
Western gull	*L. occidentalis*
Forster's tern	*Sterna forsteri*
Caspian tern	*S. caspia*
Turkey vulture	*Cathartes aura*
Golden eagle	*Aquila chrysaetos*
White-tailed kite	*Elanus leucurus*
Northern harrier	*Circus cyaneus*
Sharp-shinned hawk	*Accipiter striatus*
Cooper's hawk	*A. cooperii*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*B. jamaicensis*
Rough-legged hawk	*B. lagopus*
Ferruginous hawk	*B. regalis*
Osprey	*Pandion haliaetus*
American kestrel	*Falco sparverius*
Merlin	*F. columbarius*
Prairie falcon	*F. mexicanus*
California quail	*Callipepla californica*
Ring-necked pheasant	*Phasianus colchicus*
Rock dove	*Columba livia*
Mourning dove	*Zenaida macroura*

Table 3-5
Wildlife Species Known to Inhabit or Expected to Inhabit Detachment Concord *(continued)*

Common Name	Scientific Name
Barn owl	*Tyto alba*
Great horned owl	*Bubo virginianus*
Short-eared owl	*Asio flammeus*
Burrowing owl	*Athene cunicularia*
White-throated swift	*Aeronautes saxatalis*
Black-chinned hummingbird	*Archilochus alexandri*
Anna's hummingbird	*Calypte anna*
Rufous hummingbird	*Selasphorus rufus*
Allen's hummingbird	*S. sasin*
Belted kingfisher	*Ceryle alcyon*
Acorn woodpecker	*Melanerpes formicivorus*
Northern flicker	*Colaptes auratus*
Red-breasted sapsucker	*Sphyrapicus ruber*
Downy woodpecker	*Picoides pubescens*
Nuttall's woodpecker	*P. nuttallii*
Western wood-pewee	*Contopus sordidulus*
Western kingbird	*Tyrannus verticalis*
Ash-throated flycatcher	*Myiarchus cinerascens*
Black phoebe	*Sayornis nigricans*
Say's phoebe	*S. saya*
Pacific-slope flycatcher	*Empidonax difficilis*
California horned lark	*Eremophila alpestris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*T. thalassina*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Cliff swallow	*Petrochelidon pyrrhonota*
Barn swallow	*Hirundo rustica*
Western scrub-jay	*Aphelocoma californica*
Steller's jay	*Cyanocitta stelleri*
American crow	*Corvus brachyrhynchos*
Common raven	*C. corvax*
Oak titmouse	*Baeolophus inornatus*
Chestnut-backed chickadee	*Poecile rufescens*
Wrentit	*Chamaea fasciata*
Bushtit	*Psaltriparus minimus*
White-breasted nuthatch	*Sitta carolinensis*
House wren	*Troglodytes aedon*
Bewick's wren	*Thryomanes bewickii*
Marsh wren	*Cistothorus palustris*
Rock wren	*Salpinctes obsoletus*
Golden-crowned kinglet	*Regulus satrapa*
Ruby-crowned kinglet	*R. calendula*
Western bluebird	*Sialia mexicana*
Swainson's thrush	*Catharus ustulatus*
Hermit thrush	*C. guttatus*
Varied thrush	*Ixoreus naevius*
American robin	*Turdus migratorius*
Loggerhead shrike	*Lanius ludovicianus*
Warbling vireo	*Vireo gilvus*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Cedar waxwing	*Bombycilla cedrorum*

Table 3-5
Wildlife Species Known to Inhabit or Expected to Inhabit Detachment Concord *(continued)*

Common Name	Scientific Name
Orange-crowned warbler	*Vermivora celata*
Yellow-rumped warbler	*Dendroica coronata*
Townsend's warbler	*D. townsendi*
Yellow warbler	*D. petechia*
Wilson's warbler	*Wilsonia pusilla*
Common yellowthroat	*Geothlypis trichas*
Western tanager	*Piranga ludoviciana*
Black-headed grosbeak	*Pheucticus melanocephalus*
Lazuli bunting	*Passerina amoena*
Spotted towhee	*Pipilo maculates*
California towhee	*P. crissalis*
Song sparrow	*Melospiza melodia*
Suisun song sparrow	*Melospiza melodia maxillaris*
Savannah sparrow	*Passerculus sandwichensis*
Dark-eyed junco	*Junco hyemalis*
Lark sparrow	*Chondestes grammacus*
White-crowned sparrow	*Zonotrichia leucophrys*
Fox sparrow	*Passerell iliaca*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Lincoln's sparrow	*Melospiza lincolnii*
Western meadowlark	*Sternella neglecta*
Red-winged blackbird	*Agelaius phoeniceus*
Tri-colored blackbird	*A. tricolor*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown-headed cowbird	*Molothrus ater*
Bullock's oriole	*Icterus bullockii*
House sparrow	*Passer domesticus*
American goldfinch	*Carduelis tristis*
Lesser goldfinch	*C. psaltria*
House finch	*Carpodacus mexicanus*
Mammals	
California myotis	*Myotis californicus*
Long-legged myotis	*M. volans*
Long-eared myotis	*M. evotis*
Yuma myotis	*M. yumanensis*
Hoary bat	*Lasiurus cinereus*
Red bat	*L. borealis*
Big brown bat	*Eptesicus fuscus*
Western pipistrelle	*Pipistrellus hesperus*
Pallid bat	*Antrozous pallidus*
Townsend's big-eared bat	*Corynorhinus townsendii*
Brazilian free-tailed bat	*Tadaria brasiliensis*
Ornate shrew	*Sorex ornatus*
Salt marsh harvest mouse	*Reithrodontomys raviventris*
Western harvest mouse	*R. megalotis*
Brush mouse	*Peromyscus boylii*
Deer mouse	*P. maniculatis*
House mouse	*Mus musculus*
California vole	*Microtus californicus*
Norway rat	*Rattus norvegicus*
Opossum	*Didelphis marsupialis*

Table 3-5
Wildlife Species Known to Inhabit or Expected to Inhabit Detachment Concord *(continued)*

Common Name	Scientific Name
California ground squirrel	*Spermophilus beecheyi*
Fox squirrel	*Sciurus niger*
Beaver	*Castor canadensis*
Black-tailed jackrabbit	*Lepus californicus*
Muskrat	*Ondatra zibethica*
Red fox	*Vulpes vulpes*
Gray fox	*Urocyon cinereoargenteus*
Coyote	*Canis latrans*
Raccoon	*Procyon lotor*
Long-tailed weasel	*Mustela frenata*
Badger	*Taxidea taxus*
Striped skunk	*Mephitis mephitis*
River otter	*Lutra Canadensis*
Tule elk	*Cervus elaphus nannodes*

Source: DoN 1982a, 1999a.

Note: Although not documented in the original study, nomenclature appears to correspond to *Mammals of the World; A taxonomic and Geographic Reference* by D. E. Wilson; *Annotated Checklist of the Amphibians and Reptiles of California*, by Jennings (1987); and *Checklist of North American Birds*, (AOU 1996).

Bird species in this area include mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), barn swallow (*Hirundo rustica*), and Brewer's blackbird (*Euphagus cyanocephalus*) (DoN 1999d).

Valley and Foothill Grasslands

Valley and foothill grasslands occupy approximately 6,900 acres (2,792 ha) of the Inland Area. The most extensive and least disturbed areas of grassland occur on steep slopes and high ridges of both the Inland and Tidal Areas. In the lowlands, large areas are occupied by magazines and other storage and transport facilities. Typical species using annual grassland habitats are described below.

Tule elk (*Cervus elaphus nannodes*) inhabit the valley and foothill grasslands of Detachment Concord.

Mammals associated with this habitat type at Detachment Concord include black-tailed jackrabbit (*Lepus californicus*), coyote, striped skunk (*Mephitis* spp.), opossum (*Didelphis marsupialis*), bobcat (*Felis rufus*), Columbian black-tailed deer (*Odoocoileus hemionus columbianus*), tule elk, gray fox (*Canis cinereoargenteus*), California vole (*Microtus californicus*), and a number of rodents, such as ground squirrel, deer mouse (*Peromyscus californicus*), and the western harvest mouse (*Reithrodontomys megalotis*). Reptiles and amphibians associated with this habitat type include the federally designated candidate California tiger salamander, western whiptail (*Cnemidophorus tigris*), and the Pacific gopher snake (*Pituophis melanoleucus catemofer*). Common bird species include loggerhead shrike (*Lanius ludovicianus*), western meadowlark (*Starnella neglecta*), red-tailed hawk (*Buteo jamaicensis*),

savannah sparrow (*Passerculus sandwichensis*), barn swallow, and the black phoebe (*Sayorinis nigricans*).

Valley Oak Woodland

Valley oak woodland habitat occurs at several locations on Detachment Concord, occupying approximately 60 acres (24 ha). These woodlands occur in the southeast near Bailey Road (Figure 3-12). Valley oaks also are scattered across several low hills both north and south of Bailey Road. Birds common to these areas include the western meadowlark (*Stunella neglecta*), yellow-rumped warbler (*Dendroica coronata),* red-winged blackbird (*Agelaius phoniceus*), house finch, and Nutall's woodpecker (*Picoides nuttallii*). Mammals common to oak woodlands are coyote, deer mouse (*Peromyscus californicus*), and house mouse.

Marshland/Ponds

Freshwater marsh occupies only about 12 acres (five ha) of the Inland Area at Detachment Concord, occurring at five locations throughout the area. The most prominent marsh area is at Cistern Pond, with others located at Indian Springs, Old Airport, and the 5AT Area. Bird species common to freshwater marshes include red-winged blackbird, marsh wren (*Cistothorus palustris*), killdeer (*Charadrius vocieferus*), cliff swallow (*Hirundo pyrrhonota*), Suisun song sparrow, white-crowned sparrow (*Zonotrichia leucophrys*), Brewer's blackbird (*Euphagus cyanocephalus*), and the northern flicker (*Colaptes auratus*). Mammals often found in these habitats include black-tailed jackrabbit, bobcat, California vole (*Microtus californicus*), coyote, raccoon (*Procyon lotor*), and red fox (*Vulpes fulva*). Amphibians include the federally designated candidate species, California tiger salamander and the federally listed threatened California red-legged frog.

Riparian Habitat

Mixed riparian habitat borders the larger streamcourses on Detachment Concord, occupying approximately 154 acres (62 ha) of the Inland Area, occurring mostly along stretches of Diablo Creek. Bird species found in the area are numerous and include dark-eyed junco (*Junco hyemalis*), American goldfinch (*Carduelis tristis*), mourning dove, western scrub-jay (*Aphelocoma coerulenscens*), barn swallow, yellow-rumped warbler (*Dendroica coronata*), ruby-crowned kinglet (*Regulus calendula*), and Anna's hummingbird (*Calypte anna*). Observed mammals include the California ground squirrel, California vole, raccoon, striped skunk, tule elk, and the opossum.

3.10.3 Tidal Area Fish and Wildlife Habitats

Marshlands

The Tidal Area encompasses 3,200 acres (1,295 ha) of tidal wetlands, both brackish and salt marsh, and includes the six islands in Suisun Bay. Although the Navy does not own the aquatic habitat of Suisun Bay, due to its proximity the bay habitats that border the mainland and surround the islands of Detachment Concord are considered in this section. Bird species common to wetland habitats include snowy egret (*Egretta thula*), American coot (*Fulica americana*), red-winged blackbird, marsh wren, mallard (*Anas platyrhynchos*), common yellowthroat (*Geothlypis trichas*), killdeer, cliff swallow, Suisun

song sparrow, and American coot (*Fulica americana*). Mammals include salt marsh harvest mouse, western harvest mouse, deer mouse, California vole, Norway rat (*Rattus norvegicus*), coyote, red fox, and ornate shrew (*Sorex ornatus).* Common reptile and amphibian species include bullfrog (*Rana catesbeiana*) and common kingsnake (*Lampropeltis getulua*).

Suisun Bay

As stated previously, Detachment Concord is bordered by Suisun Bay. Although the Navy does not own the waters of Suisun Bay, it must consider the aquatic habitats, fish, and wildlife resources when implementing actions that could affect Suisun Bay. The aquatic habitats of Suisun Bay surrounding Detachment Concord consist of mudflats, shallow water habitats, and a deep water shipping channel. The natural resources setting applicable to this INRMP includes the aquatic habitats immediately surrounding the docks, which may be affected by maintenance dock repair and dredging operations. Fish species present in these aquatic habitats may include both residential and migratory species. Fish species potentially occurring in Suisun Bay may include staghorn sculpin (*Leptocottus armatus*), chameleon goby (*Tridentiger trigonocephalus*) starry flounder (*Platichthys stellatus*), and largemouth bass (*Micropterus salmoides*) (USFWS 1996). In addition a few marine mammals may occasionally occur in the aquatic habitats of Suisun Bay, including the harbor seal (*Phoca vitulina*) and the California sea lion (*Zalophus californianus*).

Other Wildlife Habitats

In addition to the above habitat types, the Tidal Area also supports valley and foothill grassland habitats and various developed areas. These other habitat types are similar to those found throughout the Inland Area of Detachment Concord. For more detail on these nonmarsh wildlife habitats, see the Inland Area wildlife habitat descriptions in Section 3.10.2.

3.10.4 Unique Fish and Wildlife Resources

Essential Fish Habitat

The adjacent Suisun Bay aquatic habitat includes areas determined to be EFH, as defined by the NMFS and corresponding FMPs. As stated in Section 2.5, EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (Congressional Research Service 1996). The adjacent Suisun Bay aquatic habitats have been identified as EFH in three FMPs. These FMPs and their associated fish species are:

- Pacific Coast Salmon FMP, chinook salmon (*Oncorhynchus tshawytscha*), and Central Valley steelhead;
- West Coast Ground Fish FMP, starry flounder (*Platichthys stellatus*) and English sole (*Parophrys vetulus*); and
- Coastal Pelagic FMP, northern anchovy (*Engraulis mordax*).

Tule Elk

Tule elk range throughout the Inland Area of Detachment Concord, their range encompassing the areas between Highway 4 to the north and Bailey Road to the south. Although tule elk are native to California, habitat loss due to agriculture as well as hunting pressure reduced their population to about 500 animals by 1970. The Tule Elk Preservation Act (PL 94-389) was approved in August of 1976 and directed a federal/state cooperative program for preservation and enhancement of tule elk in California. In October 1976, the Navy offered the use of selected lands at Detachment Concord to CDFG as a tule elk preserve, whereafter in January 1977, seven tule elk were captured at the Tupman Tule Elk Preserve and relocated to Detachment Concord (DoN 1982b). In the proceeding years CDFG and Detachment Concord, through a cooperative management agreement (Appendix I), have worked to maintain the tule elk herd at approximately 40 to 60 animals, relocating surplus animals on an as needed basis.

As of November 1999, the elk herd numbered approximately 40 to 45 and included approximately 13 females, 2 calves, and approximately 25 yearlings and adult bulls (CDFG 2000). See Section 4.3.2 for further information on Detachment Concord's tule elk management program. In 2000, the elk herd was composed of 19 mature bulls, 5 young bulls, 16 yearlings and cows, and 4 calves, for a total of 44 elk. The National Park Service relocated three elk from Detachment Concord to the Point Reyes National Seashore. Mortality rates since 1999 have been one elk annually.

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) are known to pass through Detachment Concord between nesting and wintering grounds, but there is no suitable habitat for bald eagle nesting. Golden eagles (*Aquila chrysaetos*) nest periodically at Detachment Concord, along the ridge tops in the inland area.

Marine Mammals

Due to its proximity to the Richmond and San Pablo Bay, it is possible though unlikely that an occasional individual marine mammal may wander up the channel. There is a precedent set with the well-known humpback whale (*Megaptera novaeangliae*) named "Humphrey". In both 1985 and 1990 this same individual whale was sighted in unusual habitat. In 1985, Humphrey was found as far as 60 miles (97 km) up the Sacramento River. In 1990 he was trapped deep in the mud of San Francisco Bay. However, this event was exceptional and quite rare in occurrence. Humpback whales are protected under the MMPA and are federally listed endangered species.

Other marine mammals that may be found in the project area include regionally frequent pinniped (seal) species, such as the harbor seal *(Phoca vitulina)* and the California sea lion *(Zalophus californianus)*. Both of these species are protected under the MMPA. It is possible though highly unlikely they California sea lion would ever occur in this area. They have not been sighted on any aerial survey done since 1993 (Fluharty 1999). The harbor seal does occur, though in low numbers. Individuals have been known to stray up the Sacramento or San Joaquin Rivers (Bybee 2001). It is possible

that they may stray into the area in pursuit of a prey item such as the various salmon species that occur in the river. In 1993, ten harbor seals were sighted in the Suisun Bay near Ryer Island (Fluharty 1999). In 1994, seventeen individuals were sighted; in 1995, twelve; and in 2001, six individuals were seen (Fluharty 1999). Thus, these animals do occur with some regularity albeit in low numbers.

3.11 FEDERALLY LISTED ENDANGERED, FEDERALLY LISTED THREATENED, AND OTHER SENSITIVE SPECIES

3.11.1 Species Potentially Present at Detachment Concord

Table 3-6 lists the status and presence at Detachment Concord of federally listed endangered and threatened species and other sensitive species. Table 3-6 was prepared using University of Arizona survey results, along with data from previous Jones and Stokes wildlife surveys and the CNDDB. Approximately 20 species have been identified as requiring management consideration by the coordinating agencies (Table 3-6). For this INRMP, the following terminology will be used to define species that have been identified as requiring management consideration by the cooperating agencies:

- *Federally listed endangered and federally listed threatened species* are those protected under the ESA.
- *Sensitive species* is the term used to describe all other species that have been identified by the cooperating agencies (USFWS, NMFS and CDFG) as requiring management consideration. This category includes all other federally and state-designated species including federally designated candidate, federally designated species of special concern, California-listed threatened, California-listed endangered, California fully protected species, California special concern species, California-designated rare, and CNPS-designated species. As stated in Section 1.6.3, Detachment Concord is federal property and therefore is not legally required to comply with state fish and wildlife regulations, including the California State Endangered Species Act.

Status and presence information were gathered from the USFWS, a search of the CNDDB, and surveys conducted by the University of Arizona. The CNDDB report was generated for this INRMP using species information from four US Geological Survey quads: Vine Hill, Walnut Creek, Honker Bay, and Clayton (Appendix H). Figures 3-13a through 3-13c represent areas throughout Detachment Concord where special status wildlife and plant species were observed during surveys conducted between 1998 and 1999. No special status plants were found in the Inland Area.

During natural resource surveys conducted between 1998 and 1999 by the University of Arizona, federally listed endangered, federally designated threatened, other sensitive species were documented at Detachment Concord (Table 3-6). Among the species

Table 3-6
Federally Listed Endangered, Federally Listed Threatened, and other Sensitive Species Inhabiting or Potentially Inhabiting the Vicinity of Detachment Concord

Scientific Name	Common Name	Federal/State/ CNPS Status	Present on Detachment Concord
FEDERALLY LISTED ENDANGERED AND FEDERALLY LISTED THREATENED SPECIES			
Plants			
Suaeda Californica	California sea blite*	E/-/1B	P
Cordylanthus mollis	Soft bird's beak	E/SR/-	C
Fish			
Hypomesus transpacificus	Delta smelt	T/-/-	P
Pogonichthys macrolepidotus	Sacramento splittail	T/-/-	P
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	T/-/-	M
O. tshawytscha	Sacramento winter-run chinook salmon	E/-/-	M
O. mykiss	Central Valley steelhead	T/-/-	M
Amphibians			
Rana aurora draytoni	California red-legged frog	T/-/-	C
Birds			
Haliaeetus leucocephalus	Bald eagle	T/-/-	UM
Rallus longirostris	California clapper rail	E/SE,SFP**/-	C
Sterna antillarum browni	California least tern	E/SE/-	P
Mammals			
Reithrodontomys raviventris halicoetes	Salt marsh harvest mouse	E/SE,SFP**/-	C
Megaptera novaeangliae	Humpback whale	E/-/-	UM
OTHER SENSITIVE SPECIES			
Plants			
Lathyrus jepsonii jepsonii	Delta tule pea	SC/-/1B	C
Lilaeopsis masonii	Mason's lilaeopsis	SC/SR/1B	C
Aster chilensis var. *lentus*	Suisun marsh aster	SC/-/1B	C
Fish			
Oncorhynchus tshawytscha	Central Valley fall-run chinook salmon	C/-/-	M
Amphibians			
Ambystoma californiense	California tiger salamander	C/CSC/-	C
Reptiles			
Clemmys marmorata marmorata	Northwestern pond turtle	SC/CSC/-	C
Birds			
Athene cunicularia	Burrowing owl	-/CSC/-	C
Lanius ludovicianus	Loggerhead shrike	SC/CSC/-	C
Melospiza melodia maxillaris	Suisun song sparrow	SC/CSC/-	C
Laterallus jamaicensis	California black rail	-/ST,SFP**/-	C
Mammals			
Sorex vagrans halicoetes	Salt marsh wandering shrew*	SC/CSC/-	U

Source: CDFG 2000; DoN 1995b; DoN 2000.
Although not documented in the original study, nomenclature appears to correspond to *Mammals of the World; A Taxonomic and Geographic Reference*, by D. E. Wilson; *Annotated Checklist of the Amphibians and Reptiles of California* by Jennings (1987); American Ornithologists Union *Checklist of North American Birds* (AOU 1996); and Jepson Manual (1993) for plants.

*No confirmed sightings of this species during surveys.
** State fully protected species may not be taken or possessed at any time.

Notes:

Federal Status	State/CDFG Status	CNPS Status	Present?
E = Endangered	SE = Endangered	1B = Rare and endangered in California and elsewhere	C = Confirmed
T = Threatened	ST = Threatened	3 = Plants about which more information is needed	P = Possible
SC= Species of special concern	SR = Rare	4 = Limited distribution	U = Unlikely
C = Candidate	CSC = California special concern species		M= Migrant
	SFP = fully protected		

Figures 3-13a to 3-13c

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

documented in the survey, four are federally listed endangered or threatened species, and one is a California-listed threatened species. The four federally listed species included soft bird's beak, California clapper rail, salt marsh harvest mouse, and the California red-legged frog. The California-listed threatened California black rail was also observed during the survey (DoN 1999d). The federally listed endangered California sea blite (*Suaeda Californica*) is thought to possibly exist at Detachment Concord but was not observed during the surveys. Five fish species potentially occurring in the waters of Suisun Bay bordering Detachment Concord include the federally listed threatened delta smelt, Central Valley spring-run chinook salmon, Central Valley steelhead, and Sacramento splittail, and the federally listed endangered Sacramento winter-run chinook salmon. Critical habitat for these fish species occurs in the waters of Suisun Bay bordering Detachment Concord. As stated previously, although the Navy does not own the aquatic habitats of Suisun Bay, it must consider the critical habitat and individual federally protected fish species when implementing actions that could affect Suisun Bay.

3.11.2 Species Information

The following text provides brief descriptions of the species shown in Table 3-6 and their preferred habitat at or in the vicinity of Detachment Concord.

Federally Listed Endangered or Threatened Species

California sea blite *(Suaeda californica).* This federally listed endangered plant is typically found in the upper marsh zones of coastal salt marsh communities and is associated with gum-plant (*Grundelia spp.)* and marsh rosemary *(Limonium californicum).* The foliage is gray-green smooth (like a small iceplant); flowers are yellow-green blobs that resemble clusters of pollen and are followed by fruit that appears like welts on the stem.

Soft bird's beak *(Cordylanthus mollis).* Habitat for the federally listed endangered soft bird's beak is coastal salt marsh, such as that found in the Tidal Area of Detachment Concord. Five small populations of this plant were observed at various locations within the Tidal Area during general surveys conducted in 1998 and was found in the Middle Point Marsh and west of Hastings Slough. Soft bird's beak is an annual herb of the snapdragon family that grows from ten to 16 inches (25 to 40 cm) tall. It is sparingly branched from the middle and above, with grayish-green hairy foliage. A floral bract with two to three pairs of lobes occurs below each white or yellowish-white flower (see Section 3.9.2 for a photo).

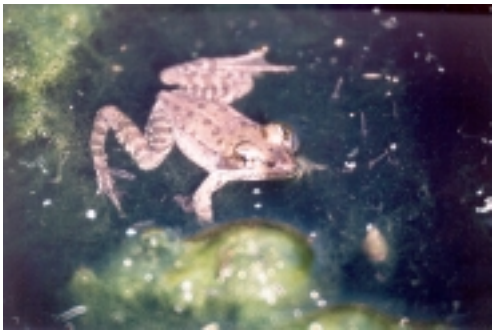
Delta smelt *(Hypomesus transpacificus).* This federally listed threatened fish species is found in the mixing zone of the Sacramento-San Joaquin River Delta, where it spends most of its adult life (Thelander et al. 1994). The delta smelt is a slender, silvery, shallow water fish usually found in schools. The dorsal fin is short, and there is an adipose (composed of fat) fin. It has a small mouth, and the upper jaw ends before the middle of the eye. It can have a faint, speckled side stripe.

Sacramento splittail *(Pogonichthys macrolepidotus).* This federally listed threatened fish species was historically found in the Sacramento River as far north as Redding, in the San Joaquin River as far south as Fresno, and as far-west as the Petaluma River. Presently this species is restricted to Sacramento-San Joaquin River Delta, Suisun Bay, and the Suisun and Napa marshes (NANFA 2001). The splittail is a native freshwater fish of California, formerly common in the lakes and rivers of the Central Valley. It is the only large member of the Cyprinidae family that is endemic to California's Central Valley, where they were once widely distributed. During the spawning season, males bear breeding nodules and exhibit brilliant orange-red coloration in their pectoral fins.

Central Valley spring-run chinook salmon *(Oncorhynchus. tshawytscha).* Critical habitat is designated to include all river reaches accessible to this federally listed threatened chinook salmon in the Sacramento River and its tributaries in California. Also included are adjacent riparian zones, as well as river reaches and estuarine areas of the Sacramento-San Joaquin Delta. Fish migrate up to approximately 1,500 feet (457 meters) elevation (Yoshiyama et al. 1998). This is the largest of the salmon species of California, with specimens sometimes weighing over 30 pounds (14 kg). The upper back and all of the posterior fins have irregular black spots. The gums are black at the base of the teeth. They can appear bluish to greenish blue to gray or black above and silvery below. Maturing specimens are very dark.

Sacramento winter-run chinook salmon *(O. tshawytscha).* This federally listed endangered fish historically spawned in Sacramento River and two tributaries, the McCloud and Lower Pit Rivers. Spawning is now confined to gravel beds in Sacramento River between Keswick Dam in Redding to Red Bluff. Migration extends from mid-December to mid-August, with most migration happening from March to May (Thelander et al., 1994). This species is similar in appearance to the Central Valley spring-run chinook salmon, described above.

Central Valley steelhead *(O. mykiss).* A federally listed threatened anadromous species, the Central Valley steelhead generally spawns from December through April in small streams and tributaries where cool, well-oxygenated water is available year round (Napa County 2000). Central Valley steelhead migrate past Detachment Concord on the way to and from spawning areas. In the sea these appear bluish above and silvery below. They have small black spots on the back and on most fins. There is sometimes a red to pink side stripe. This fish has a short head, with the diameter of the eye about equal to the length of the snout.



The California red-legged frog (*Rana aurora draytoni*), a federally threatened species, is found at Cistern Pond on Detachment Concord. Photo by John Keibel

California red-legged frog *(Rana aurora draytoni).* Habitat associations for this federally listed threatened species include lowlands and foothills, in or near permanent sources of deep water with dense shrubby

or emergent riparian vegetation (CNDDB 2000). The California red-legged frog is found at Cistern Pond and other freshwater ponds within the Inland Area. It was introduced in a cooperative effort between the Navy and the USFWS in the early 1980s. While the California red-legged frog inhabits areas of permanent freshwater, it may travel several hundred meters (over a thousand feet) to seek shelter if none is available near the water source. A moderate-sized brown, reddish brown to greenish gray frog with marked folds on the back and sides and a back pattern of small, irregular dark brown to black spots or small dark spots with light centers. It has a distinct but irregular pattern of contrasting light and dark markings in the groin, with some red coloration, variable in intensity and extent, on undersurfaces (See adjacent photo).

Bald Eagle *(Haliaeetus leucocephalus).* As stated previously, this federally listed threatened species is known to pass through Detachment Concord between nesting and wintering grounds, but there is no suitable habitat for bald eagle nesting. The bald eagle is a large, dark brown bird of prey, the adult of which has a white head and tail. Adults have a blackish-brown back and breast, a white head, neck, and tail, and yellow feet and bill. Juvenile bald eagles are a mixture of brown and white, with black bills. The adult plumage develops when the bird is sexually mature, at about 4 or 5 years of age. The female bald eagle is 35 to 37 inches (89 to 94 cm), slightly larger than the male. With a wingspan which varies from 79 to 90 inches (200 to 230 cm). The male bald eagle has a body length from 30 to 34 inches (76 to 86 cm). The wingspan ranges from 72 to 85 inches (183 to 216 cm). Bald eagles weigh from ten to fourteen pounds (four-and-a-half to six kg). Northern birds are significantly larger than their southern relatives.

California clapper rail *(Rallus longirostris).* This federally listed endangered species is most often associated with salt water and brackish marshes and tidal sloughs in and around the San Francisco Bay. It is also associated with abundant growths of pickleweed (*Salicornica Virginica*) but tends to feed away from direct cover on invertebrates (CNDDB 2000). Small populations of California clapper rail have been confirmed to reside in the salt marshes of Detachment Concord's Tidal Area (DoN 1999d). The California clapper rail is the size of a coot and is slightly larger and grayer than the two southern California subspecies of the clapper rail. The California clapper rail, as is true of all clapper rails, generally is gray-brown above and buffy-cinnamon below. Its cheeks are brownish-gray, and the flanks are barred with black and white. The somewhat orange bill is long and slightly down-curved.

California least tern *(Sterna antillarum browni).* This federally listed endangered species has been observed foraging and nesting on property adjacent to Detachment Concord. This species may use the Tidal Area of Detachment Concord for foraging. The California least tern is about nine inches (23 cm) long, with a 20-inch (51 cm) wingspan. It is mostly white and pale gray, and wingtips are black. The head of the adult has a black cap and white forehead, and the yellow beak is black tipped.

Salt marsh harvest mouse *(Reithrodontomys raviventris halicoetes).* This federally listed endangered species is found only in the saline emergent wetlands of San Francisco Bay and its tributaries. The primary habitat for the salt marsh harvest mouse

is pickleweed, but it also requires higher areas to escape periods of flooding (CNDDB 2000). The salt marsh harvest mouse has been confirmed to reside at Detachment Concord by surveys conducted at Middle Point Marsh. The salt marsh harvest mouse is seven to seven-and-a-half inches (69 to 76 mm) long. It has a bi-colored tail, which is as long or longer than the body of the mouse. This animal has a dark brown back, with pinkish-cinnamon or tawny belly or sides. It has a grooved upper incisor, which distinguishes it from the house mouse.

Humpback whale *(Megaptera novaeangliae).* This federally listed endangered marine mammal is very unlikely to occur in the aquatic habitats of Suisun Bay. However, an individual of this species was sighted in the area, once in 1985 and again in 1990. The humpback whale is black or gray baleen (not toothed) whale that can reach a length of 35 to 48 feet (11 to 15 meters) long and weigh up to 65 tons (59 metric tons). The female is larger than the male, and both have a white grooved underbelly. This whale is known for its large front flippers, which can reach a length of 15 feet (four-and-a-half meters). This whale has a stout body. The head is rounded and flat, apart from the raised lumps, which are found on the lower jaw. The dorsal fin varies in size and shape from individual to individual, and tail flukes are large and almost wing-shaped. The humpback whale is black to blue-black, with pale to white undersides that can show black markings that vary according to the individual. It is with these markings that individual whales can be identified.

Other Sensitive Species

Delta tule pea *(Lathyrus jepsonii jepsonii).* This plant is a federally designated species of special concern and is CNPS-designated 1B. It is a perennial twining vine occurring in both riparian and marsh habitats. Associated species include salt grass (*Distichlis spicata),* pickleweed, cattails, Himalayan blackberry (*Rubus discolor),* and phragmites *(Phragmites sp.).* The Delta tule pea is a small native perennial, resembling vetch or sweet pea. It is a climbing plant that generally grows up and spreads over the top of other vegetation. In the spring it is identified by pink to pink-purple flowers. It is most often identified by the large wings on the branches, the number of leaflets, and the lack of hairs on the stems or leaflets.

Mason's lilaeopsis *(Lilaeopsis masonii).* This plant is a federally designated species of special concern, California-listed rare, and CNPS-designated 1B. It is found in riparian scrub, freshwater and brackish marsh, within the tidal zone in muddy or silty soils, and dunes. It is often found in low marsh zone, especially eroding shores or earthen levees associated with bulrush (*Scirpus* sp.*)* and cattail. Mason's lilaeopsis is a minute, turf-forming, perennial plant in the carrot family. It spreads by rhizomes and produces narrow jointed leaves. This species is semiaquatic and is usually found on saturated clay soils that are regularly inundated by waves and tidal action.

Suisun marsh aster *(Aster chilensis* var. *lentus).* This plant is a federally designated species of special concern and is CNPS-designated 1B. Habitat for this species is normally found along sloughs near bulrushes, cattails, and Himalayan blackberry. At Detachment Concord, Suisun marsh aster has been found in Middle Point Marsh, Pier

Marsh, East Hastings Slough, and on Roe Island (DoN 1999d). Suisun marsh aster is a dicot in the family Asteraceae and is a perennial herb native to California. In the spring it can be easily identified by its large daisy-like purple flowers with yellow centers.

Central Valley fall-run chinook salmon *(Oncorhynchus tshawytscha).* This federally designated candidate fish species migrates past Detachment Concord on its way to and from spawning areas. This species spawns in the mainstems and tributaries of Sacramento and San Joaquin Rivers, up to approximately 1,000 feet (305 meters) in elevation (Yoshiyama et al. 1998). This species is similar in description to the Central Valley spring-run chinook salmon described previously.

California tiger salamander *(Ambystoma californiense).* This federally designated candidate species and California special concern species resides in the Inland Area of Detachment Concord. The salamanders use four primary breeding ponds in the Inland Area: two cattle ponds in the upper hills above the spring and two ponds in the lower area, one along T Street and one across Bailey Road in the 5AT Magazine Area. Ivette Loredo, a USFWS biologist with the San Francisco Bay National Wildlife Refuge Complex wrote her masters thesis, *Reproductive Ecology, Microhabitat Use, and Migration Behavior of the California Tiger Salamander*, 1990 based on two studies at Detachment Concord. This document is available at the Detachment Concord ESO and abstracts for the two studies are included in Appendix F. In 1993, Morrison (DoN 1999d) noted four California tiger salamander breeding areas. A large terrestrial salamander with several white or pale yellow spots or bars on a jet-black field. Its undersurfaces are highly variable in pattern, ranging from nearly uniform white or pale yellow to variegated white or pale yellow and black. They are relatively small and have protruding eyes with black irises.

Northwestern pond turtle *(Clemmys marmorata marmorata).* This federally designated species of special concern and California special concern species is associated with permanent or nearly permanent water in a wide variety of habitats. It requires rocks, logs, or exposed soil for basking sites and may nest up to 0.3-mile (0.5-km) away from water (CNDDB 2000). A moderate-sized, drab brown or khaki-colored turtle, lacking prominent markings on its carapace. Males frequently develop a light unmottled throat and lower facial area as they become sexually mature, markings that become even more prominent with increasing age; females typically retain the mottled or darker-colored throat and facial area that juveniles possess into adulthood.

Burrowing owl *(Athene cunicularia).* A California special concern species, the burrowing owl is a yearlong resident of open, dry grassland, and desert habitats. They prefer low-growing vegetation and presence of existing ground-squirrel burrows. These two characteristics occur in several Inland Area locations of Detachment Concord (DoN 1999d). In 1993, Morrison (DoN 1999d) noted nine burrowing owl sites at six locations. The burrowing owl has long, almost bare, legs and a stubby tail. It is a plump small owl, similar in size to the American robin, with a total length of about ten inches (24 cm). Female burrowing owls are slightly smaller than males, but the sexes have similar coloring, although males often appear faded. Adults are a rich sandy-brown,

thickly spotted with whites and buffs on the underparts, which are whitish and barred with brown. They have a rounded head without ear tufts, yellow eyes, white eyebrows, and a white throat with a dark brown half collar. Juveniles have buffy underparts without bars during the first few weeks after emergence from the burrow.

Loggerhead shrike *(Lanius ludovicianus).* A federally designated species of special concern and a California special concern species, the loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. Habitat needs include open areas with scattered shrubs, trees, posts, fences, utility lines, or other perches. Sometimes the species uses edges of denser habitats (Zeiner et al., 1990b). It has been confirmed observed in the grasslands at Detachment Concord during a 1999 survey (DoN 1999d). This bird is about nine inches (23 cm) long, with a gray top and back of the head. It has white underparts, a black mask, wings, and tail. There is also a white patch on the wings and white on the edges of the outer tail feathers. The bill is small and black, with a hook at the end of the upper mandible.

Suisun song sparrow *(Melospiza melodia maxillaris).* This species is a federally designated species of special concern and a California special concern species. It is usually found in intermixed stands of bulrush, cattail, and other emergent vegetation. It is endemic to marshes bordering San Francisco and San Pablo Bays. This species was reported observed in the inner tidal marsh areas during a 1999 survey (DoN 1999d). The Suisun song sparrow is a small chunky perching bird with a rounded outline, large feet, conical bill, rounded wingtips, slender tail, and streaked whitish underparts. Coloration between the black feather shafts and back is the best feature distinguishing the Suisun song sparrow from similar subspecies endemic to marshes bordering the San Francisco and San Pablo bays. The Suisun song sparrow is also unique in its larger bill depth. Like all other subspecies, the Suisun song sparrow has a long rounded tail, which is pumped during flight. Eyebrows are grayish, and a broad dark stripe borders the whitish throat. Streaking occurs on upper parts and sides of the breast, and legs and feet are pinkish.

California black rail *(Laterallus jamaicensis).* This California-listed threatened species prefers to inhabit low-lying salt marshes and adjacent bays that are heavily populated with pickleweed. The California black rail also can be found in freshwater and brackish marshes. Presence of the California black rail has been confirmed in low-disturbance areas of the Tidal Area at Detachment Concord (CNDDB 2000). The adult black rails have blackish upperparts, with white speckling and a chestnut nape. The underparts are dark grayish-black, with narrow white barring on the flanks. It has a short black bill with blackish legs. The length of this bird is six inches (15 cm). Males and females are similar in size and weight.

Salt marsh wandering shrew *(Sorex vagrans halicoetes).* This is a federally designated species of special concern and a California special concern species. The salt marsh wandering shrew was historically found along streams, in grasslands, and marshy areas of San Francisco Bay. Currently this species is restricted to marshy areas of the bay. Habitat for the shrews is strongly overlapped with that of two federally listed

species, the salt marsh harvest mouse and the California clapper rail (Department of Interior 1995), with a mid-marsh habitat consisting primarily of pickleweed. There have been no confirmed sightings of the salt marsh wandering shrew at Detachment Concord. This shrew is a highly active, aggressive, squirrel-like animal. It primarily lives in trees, though it does hunt on the ground for insects and lizards. It is a tiny mammal with beadlike eyes and a long pointed nose. The upper parts of this shrew have a salt-and-pepper pattern of buffy brown and black, with the black predominating. The sides are buffy brown, and the underparts are gray. The relatively short tail darkens toward its end.

3.12 CULTURAL RESOURCES

3.12.1 Definition of Resource

Cultural resources include prehistoric resources, traditional cultural properties, and historic resources. Prehistoric resources are physical properties resulting from human activities that pre-date written records and that are generally identified as isolated finds or sites. Prehistoric resources can include village sites, temporary camps, lithic scatters, roasting pits and hearths, milling features, petroglyphs, rock features, and burials.

Traditional cultural properties are sites, locations, or features that are eligible for inclusion in the National Register of Historic Places (NRHP) because of their association with cultural practices or beliefs of a living community that are rooted in that community's history and that are important in maintaining the cultural identity of the community. Examples include the following:

- A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- A neighborhood that is the traditional home of a particular cultural group and that reflects its beliefs and practices;
- A location where Native American religious practitioners have historically gone and are known or thought to go today to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historical identity (Parker and King 1990).

Historic resources consist of physical properties, structures, or built items resulting from human activities that post-date written records. Historic resources can include archaeological remains and architectural structures. Historic archaeological site types include townsites, homesteads, agricultural or ranching features, mining-related features, refuse concentrations, and features or artifacts associated with early military use of the land. Historic architectural resources can include houses, cabins, barns, lighthouses, local structures (such as churches, post offices, and meeting halls), and early military structures (such as hangars, administration buildings, barracks, officers quarters, warehouses, and guardhouses).

Additional cultural resources may include some properties that are less than 50 years old that may be listed on the NRHP if they are of exceptional importance in our nation's history or if they are integral parts of districts that are eligible for the NRHP. On DoD facilities, these resources typically include properties associated with the Cold War.

3.12.2 Regulatory Considerations

Cultural resources are protected primarily through the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations (36 CFR 800), the Archaeological and Historic Preservation Act of 1974 (16 USC §§ 469 - 469c), and the Archaeological Resources Protection Act of 1979 (16 USC §§ 470aa - 470mm). Section 106 of the NHPA requires federal agencies to consider the effects of their actions on properties listed on or eligible for listing on the NRHP. Criteria for inclusion on the NRHP are provided in 36 CFR §§ 60.4 and are summarized as follows:

- Association with events that have made a significant contribution to the broad patterns of our history;
- Association with the lives of persons significant in our past;
- Resources that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master or that possess high artistic values or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Resources that have yielded or may be likely to yield information important in prehistory or history.

In addition to historic significance, a property must have integrity to be eligible for the NRHP. Integrity is the property's ability to convey its demonstrated historical significance. Seven individual elements compose integrity—location, design, setting, materials, workmanship, feeling, and association.

3.12.3 Historical Overview for Detachment Concord

Far Western Anthropological Research Group, Inc. (Far Western), recently completed a comprehensive ICRMP for Detachment Concord, which provides detailed information on its prehistory, ethnography, and history. The following sections are based on this report, which is incorporated by reference into this INRMP (DoN 2000a).

Cultural History and Diversity

Until recently, nothing was known about cultures living in Contra Costa County prior to about 4,000 years ago as no sites predating this time had ever been identified. This changed when work conducted at Los Vaqueros resulted in the discovery of archaeological components dating back as much as 9,000 years. The discovery of such old material in a relatively marginal habitat implies that other more resource-rich environments of the county should hold equally old material (DoN 2000a).

Because the work at Los Vaqueros has shown that early material is probably deeply buried, locating older archaeological sites in other areas of Contra Costa County will require a concerted sampling effort. Several areas at Detachment Concord could contain deeply buried material predating 4,000 years old (DoN 2000a).

Recent research in central California has highlighted the extreme cultural diversity that has prevailed throughout the region for at least the last 5,000 years. There are suggestions that culturally distinct groups may have been living side-by-side for centuries, as did the Pueblo and Apache peoples of the Southwest.

Detachment Concord falls between two reasonably well-documented cultural areas, one in the San Francisco Bay Area (Berkeley Pattern) and the other in the Sacramento-San Joaquin Delta (Windmiller Pattern). These separate cultures coexisted as early as 5,000 years ago, but the nature of their relationship and extent of territorial distributions have never been fully explored or defined.

It appears that by 2,000 years ago, Meganos people from the Central Valley moved into the Bay Area through Contra Costa County. It has been inferred that the Meganos culture should have controlled the lands of Detachment Concord between 1,900 and 1,300 years ago. Very few sites attributed to the Meganos Culture have been investigated or fully reported using modern methods; consequently, little is known about the impetus and nature of this cultural replacement (DoN 2000a).

3.12.4 Summary of Known Resources in the Inland Area

One prehistoric archaeological site (CA-CCo-680) and one historical corral/holding pen (P-07-000-485) have been recorded in the Inland Area. CA-CCo-680 consists of a sparse yet diverse deposit of Native American artifacts (e.g., mortars and pestles, an antler wedge, a stone “chopper,” and other flaked stone tools and debris) and dietary remains (e.g., mammal bone and marine and freshwater shellfish). A possible hearth feature and several pieces of human bone also were identified as the result of a small test excavation (DoN 2000a). A preliminary assessment concluded that CA-Cco-680 may qualify for listing on the NRHP, although the site was not formally evaluated (DoN 2000a).

A prehistoric isolate also has been located at Detachment Concord. The site consists of a single, lanceolate, obsidian biface (stone tool) found near a spring in the northeastern Inland Area.

Two historic architectural studies evaluated all of the standing buildings and structures within Detachment Concord and found that none met the current criteria for listing on the NRHP (JRP Historical Consulting Services 1998, as referenced in DoN 2000a).

3.12.5 Summary of Known Resources in the Tidal Area

Two historical archaeological sites were confirmed and recorded in the Tidal Area by Far Western. These consisted of a concrete walkway and other remnants associated with the site of the Nichols school house, constructed in 1913, and a mixed deposit of

building debris and other material found at the former site of the Getty Oil Company facility. The Getty facility operated between 1930 and 1970. These two sites are considered ineligible for listing on the NRHP.

Port Chicago Navy Magazine National Memorial

In 1992, Congress established the Port Chicago Navy Magazine National Memorial to commemorate the most severe stateside disaster of World War II. An explosion on July 17, 1944, destroyed two ships and a loading pier, killing 320 people and injuring 390 people. Among the dead were both military personnel and Port Chicago civilians. The blast occurred while the *S.S.E.A. Bryan* and the *S.S. Quinault Victory* were in the process of being loaded. The force of the explosion damaged the Port Chicago Navy Magazine and many of the homes and buildings in the area and broke glass in buildings as far away as San Francisco (DoN 1994a). In coordination with the National Park Service, a permanent memorial was erected in 1994, the 50th anniversary of the disaster. The memorial, located near the explosion site, replaced a more simple design installed several years earlier in the Tidal Area, near the site of the explosion. Due to safety concerns, the memorial is not open to the public on a daily basis. On the anniversary of the explosion, the memorial is open to the public in honor of those who were killed or injured.

3.12.6 Archaeological Potential at Detachment Concord

Recent research by Far Western evaluated the areas of archaeological potential within Detachment Concord. Far Western took into consideration the regional settlement patterns and the possibility of buried archaeological sites. These areas with archaeological potential were classified as high potential, moderate potential, or low potential. Areas of historical interest are considered to have a high potential.

While there are differences in environment and topography at Detachment Concord, no original landforms should be excluded from consideration for prehistoric cultural resources. Most of the major prehistoric habitation sites in Contra Costa County occur in proximity to a freshwater source, including the bayshore shell mounds that tend to be located where freshwater streams enter the bay (Lightfoot 1997, 136, as referenced by DoN 2000a). Virtually all of these environmental and topographic settings can be found within the boundaries of Detachment Concord (DoN 2000a).

High and Moderate Archaeological Potential

Several factors were used to determine areas of high and moderate archaeological potential at Detachment Concord, including soil type, topography, and proximity to a freshwater source. Areas with the highest potential for prehistoric surface sites occur near the modern and historic marsh boundaries in the Inland and Tidal Areas and along the modern and historic routes of Mt. Diablo/Seal Creek. Additional areas with high to moderate potential exist adjacent to natural springs in the upper portions of the Inland and Tidal Areas and along seasonal tributaries to Mt. Diablo/Seal Creek (DoN 2000a).

Areas with moderate potential for surface sites most often occur in the lowlands, near intermittent water sources or in areas with suitable topography or resource abundance

to have attracted human occupation and use. Areas with the highest potential for buried archaeological sites occur where Holocene-age sediments exist.

Low Archaeological Potential

Areas of Detachment Concord where archaeological surveys previously have been conducted and that have yielded negative results are considered to have a low potential for surface sites. These areas would require no further surface work (DoN 2000a).

Most of the steep slopes in the inland portions of the Inland and Tidal Areas are considered to have a low archaeological potential. However, because of specific environmental and topographic configurations, small areas within these zones have a higher likelihood of containing archaeological features or materials.

A large section of marshland in the Tidal Area was filled when Detachment Concord was constructed in 1942. Nearly all of the existing facilities within the Tidal Area were built on this imported material. Consequently, the area of introduced fill has a low potential for surface and buried archaeological material and should be exempt from further cultural resources surveys and review (DoN 2000a).

4.0 EXISTING MANAGEMENT PROGRAMS AND INITIATIVES

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SECTION 4
EXISTING MANAGEMENT PROGRAMS AND INITIATIVES

4.1 INTRODUCTION

This section provides a brief overview of existing management plans and programs currently in place at Detachment Concord. Applicable components of these plans have been integrated into this INRMP and support the goals, objectives, and management strategies presented in Section 6.

4.2 NATURAL RESOURCES MANAGEMENT

Natural resources at Detachment Concord have been managed under the *Natural Resources Management Plan Concord Naval Weapons Station Concord, California* (DoN 1988). The purpose of the NRMP was to furnish basic criteria for the proper development, maintenance, and rehabilitation of Detachment Concord's lands and natural resources within the constraints of Detachment Concord's military mission. The NRMP's management focus included forests, fish, sensitive species, outdoor recreation, wetlands and floodplains, off-road vehicles, and natural, cultural, and historic areas. In addition, the NRMP sought to protect Detachment Concord's real estate from depreciation, exploitation, and depletion.

While the 1988 NRMP provided a much-needed foundation for natural resources management at Detachment Concord, it did not provide long-term, integrated management objectives for Detachment Concord's diverse resources. This INRMP is intended to help guide natural resources management activities at Detachment Concord from 2002 through 2006.

Detachment Concord's Tidal Area is operated by the Army under an IUP. Under this IUP (Appendix C), the Navy provides for the Army's use of facilities at the Detachment Concord for an indefinite period that began on October 1, 1999 and continues until terminated by mutual agreement.

Natural resources management programs in the Inland and Tidal Areas of Detachment Concord that are either ongoing or that are specified as stewardship activities will be

implemented or maintained by the Navy. As noted within the IUP, "The Army acknowledges that the Navy and USFWS, under an MOU (Appendix D) signed in 1984, jointly designated portions of the Tidal Area as a Wetland Preserve."

4.3 FISH AND WILDLIFE MANAGEMENT

4.3.1 Fisheries Management

There is no formal fisheries management program at Detachment Concord. The adjacent Suisun Bay aquatic habitat includes areas determined to be EFH, as described in Section 3.10.2. Currently, projects requiring work in the aquatic habitats of Suisun Bay such as pier maintenance or dredging are evaluated on a project by project basis for impacts to EFH. There are no fishery resources in the Inland Area of Detachment Concord.

4.3.2 Tule Elk Management

Public Law 94-389 provides for federal participation in preserving the tule elk population in California. The objectives of *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b) and being revised in 2001 by CDFG include the overall health and management of the herd, maintenance and improvement of tule elk habitat, managing disturbance to critical use areas, and increasing public awareness of the tule elk herd at Detachment Concord. In order to realize these objectives, numerous guidelines have been established and include the following:

- Maintaining and enhancing riparian habitat associated with Mt. Diablo/Seal Creek, in part by planting native tree species;
- Maintaining herd limits by removing and transplanting excess animals to new sites;
- Maintaining herd size through contraception and implants;
- Monitoring to incorporate general population censuses;
- Tracking and preventing mortality;
- Minimizing disturbances from development and other nearby sources; and
- Increasing tule elk public awareness and education among employees at Detachment Concord and residents of the city of Concord.

Tule elk range throughout much of the Inland Area of Detachment Concord, a range that encompasses the areas between Highway 4 to the north and Bailey Road to the south. As of November 1999, the elk herd numbered approximately 40 to 45 and included approximately 15 cows and calves and approximately 25 yearlings and adult bulls (Fischer/CDFG 1999). In 2000, the elk herd was composed of 19 mature bulls, 5 young bulls, 16 yearlings and cows, and 4 calves, for a total of 44 elk. The National Park Service relocated three elk from Detachment Concord to the Point Reyes National Seashore. Mortality rates since 1999 have been one elk annually. The CDFG with the Navy's assistance will work to further maintain the elk population at Detachment

Concord. The elk herd is to eventually consist primarily of males to reduce the reproduction rate and subsequent relocation of the elk.

4.3.3 Hunting Management

There is no hunting allowed on Detachment Concord.

4.4 VEGETATION MANAGEMENT

Vegetation is managed using strategies identified in the NRMP (DoN 1988). Management of these areas focuses mainly on maintaining the integrity of existing vegetation communities by controlling invasive plant species and physically conserving those vegetation communities that are known to support sensitive and/or endangered plant and animal species. Existing vegetation management includes the control of nonnative plant species where feasible to promote native grassland habitat.

4.5 LAND MANAGEMENT

Land management at Detachment Concord is guided by the *Master Plan: Naval Weapons Station Concord* (DoN 1989), which is intended to guide site development decisions. The Master Plan provides information on mission, operations and requirements, development activities on and surrounding the base, and the constraints to and the potential for development. The master plan is flexible enough to respond to adjustments in Detachment Concord's mission, operations, and priorities. While emphasis often is placed on expanding a functional area, the plan is also useful in evaluating repair, maintenance, additions, and alterations to Detachment Concord (DoN 1989).

4.6 FLOOD AND EROSION CONTROL MANAGEMENT

In 1989 the US Department of Agriculture (USDA), Soil Conservation Service developed the *Mount Diablo Creek Flood Control and Stream Stabilization Plan, Concord Naval Weapons Station, Concord, California*. This document was prepared by USDA River Basin Planning Staff Soil Conservation Service, Davis, California. The pertinent strategies developed in this plan have been incorporated into the management strategies of this INRMP.

4.7 FORESTRY MANAGEMENT

While there is no formal forestry management program at Detachment Concord, there are several forestry plantations. These plantations are composed of test plantings of various pine (*Pinus* spp.) and eucalyptus (*Eucalyptus* spp.) species located along the southern boundary of Detachment Concord, just west of Bailey Road. Approximately 90 acres (36 ha) were planted by the US Forest Service Institute of Forest Genetics as experimental plantings.

4.8 GRAZING OUTLEASE PROGRAM

Detachment Concord operates two year-round livestock grazing outleases. The program supports a total maximum allowable head count of 5,420 cattle on approximately 6,000 acres (2,428 ha) in both the Tidal and Inland Areas of Detachment Concord. This maximum allowable head count was determined through the Natural

Resource Conservation Service guidelines for vegetation productivity on soils of Contra Costa County. Because forage availability varies annually, the allowable head count of 5,420 is often not achieved. The leases are managed based on available forage and not solely on allowable head count. Therefore, the Navy may reduce the allowable head count in any given year. The primary purpose of the leasing program is to help control noxious weeds and to lessen the probability of wildfires by decreasing fuel loads in the grassland areas of Detachment Concord. In addition, proceeds from the grazing outlease program help fund natural resources management programs at Detachment Concord.

4.9 INSTALLATION RESTORATION PROGRAM

The Navy began its environmental investigation of Detachment Concord under the Navy Assessment and Control of Installation Pollutants (NACIP) Program. The NACIP Program was subsequently renamed the Installation Restoration Program and was developed to identify and control environmental contamination from past hazardous materials use and disposal. The program is similar to the EPA's Superfund program. For detailed information on the Installation Restoration Program (IRP) at Detachment Concord, see Public Health and Safety, Appendix A, Section A.4.15.

The installation recognizes that adverse impacts to natural resources may result from the release of hazardous substances, pollutants, and contaminants into the environment. The Department of the Navy Installation Restoration Program (IRP) identifies CERCLA releases, considers risks, and assesses impacts to human health and the environment (including impacts to endangered species, migratory birds, and biotic communities). The Navy's IRP also develops and selects response actions when it is likely that a release could result in an unacceptable risk to human health and the environment.

When appropriate, the regional or installation natural resource management staff will assist the IRP's Remedial Project Manager (RPM) to identify potential impacts to natural resources caused by the release of these contaminants.

Regional or installation natural resources staff will also participate, as appropriate, in the IRP decision-making process by communicating natural resource issues on the installation to the RPM, by attending Restoration Advisory Board meetings, by reviewing and commenting on IRP documents (e.g., remedial investigations and ecological risk assessments), and by ensuring that response actions, to the extent practicable, minimize impacts to be natural resources on the installation.

4.10 OUTDOOR RECREATION PROGRAMS

Outdoor recreation at Detachment Concord is guided by the outdoor recreation component of the NRMP (DoN 1994a). This plan, which is depicted in Figure 4-1 and was developed by the National Park Service, identifies areas of established and potential resource use and recommends strategies for using and protecting outdoor and recreational resources at Detachment Concord. The plan identifies high, medium, and low priority actions and seeks to identify resources where use is already established, to

indicate areas of potential recreation resource development, and to recommend strategies for using and protecting natural and outdoor recreation resources (DoN 1994a). Because of the ESQD arcs at Detachment Concord, hunting and fishing are not permitted.

4.11 CULTURAL RESOURCES

The ICRMP guides identification and management of significant historical properties and documents, archaeological properties, and sites of traditional cultural importance at Detachment Concord (DoN 2000a). The purpose of the ICRMP is to ensure that historic and archaeological resource management is an integral part of overall planning procedures in support of Detachment Concord's mission (DoN 2000a). The ICRMP also provides an overview of current knowledge, establishes a data repository, documents the job description of the Cultural Resources Coordinator at Detachment Concord, provides standard operating procedures, and provides documentation to the California State Historic Preservation Officer (SHPO) and other concerned parties.

4.12 FEDERALLY LISTED ENDANGERED, FEDERALLY LISTED THREATENED, AND OTHER SENSITIVE SPECIES

Detachment Concord manages for federally listed endangered, federally listed threatened, and other sensitive species according to the goals and objectives described in the NRMP. The NRMP focuses on complying with the requirements of the ESA. Species addressed under the existing management program are those presented in Table 3-5. Proposed projects are evaluated on an individual basis for potential impact to federally listed endangered, federally listed threatened, and other sensitive species.

In addition to the management strategies described in the NRMP, the Navy has implemented the 1984 MOU with USFWS that established a wetlands preserve in the Tidal Area and included all the area in the outlying six islands. This MOU initially set aside over 3,100 acres (1,255 ha) of upland and tidal habitat for wildlife management. The Navy has also helped establish and manages habitat for a California red-legged frog population (*Rana aurora draytoni)* at Detachment Concord.

To further enhance sensitive species and wildlife habitat management at Detachment Concord, the University of Arizona conducted extensive surveys of the animal and plant communities at Detachment Concord between 1998 and 1999. The results of these surveys, which included the development of a GIS database that integrates Detachment Concord's water resources, plant associations, and wildlife survey data, will aid natural resource managers in decisions that affect the future health of the sensitive species and their habitats at Detachment Concord.

Figure 4-1

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

4.13 PEST MANAGEMENT

The purpose of the pest management program is to mechanically or chemically control noxious and invasive weeds, rodents, insects, and other pests on Detachment Concord. This program includes annually monitoring pesticide/herbicide applications on all leased lands and subsequently reviewing pest management plans from individual agriculture lessees. The annual review and subsequent approval of pesticide use is conducted by the Environmental Site Manager at Detachment Concord. This is to reduce the use of chemical means of pest control, per DoD (DoD Directive 4150.7) and Navy (OPNAVINST 6250.4b) pest management programs.

As mentioned above, Detachment Concord has implemented grazing outleases. The purpose of these outleases is to lessen the probability of wildfires on an ordnance storage facility and by reducing the growth of invasive weeds, such as artichoke thistle and purple-star thistle. Recently, efforts to control yellow star thistle also have begun, with limited success. In addition to reducing the chance of wildfire, the livestock grazing program helps implement fire breaks and grading of all fire trails and generates income for natural resources management programs.

4.14 ENVIRONMENTAL AWARENESS

Detachment Concord does not currently have a plan specific to environmental awareness. However, there are currently a number of plans and programs that increase environmental awareness including the NRMP, ICRMP, and IRP. In addition, a local resident developed a slide presentation on the natural resources of Detachment Concord with funds provided by a National Audubon Society grant. Each year the Navy allows access to Detachment Concord for a Christmas bird count.

4.15 STORMWATER POLLUTION PREVENTION PLAN

Detachment Concord implemented a stormwater pollution prevention plan (SWPPP) in August 2001. The SWPPP helps identify, correct, and monitor the sources of pollution that affect the quality of stormwater discharges and authorized non-stormwater associated with industrial activities; establishes policy, responsibilities, and procedures for the SWPPP; and provides technical guidance on preventing unauthorized non-stormwater discharges to the stormwater drainage system and of polluting stormwater and authorized non-stormwater discharges associated with industrial activities.

The main objective of the SWPPP is to provide information as to how the Navy intends to control the discharge of pollutants from Detachment Concord stormwater and to provide practical guidance to assist in implementing the SWPPP. The SWPPP is available at Detachment Concord.

5.0 ENVIRONMENTAL PLANNING TOOLS

5.1 INTRODUCTION **5-1**

5.2 LAND MANAGEMENT ZONES **5-1**

5.3 LAND USE PLANNING **5-8**

SECTION 5
ENVIRONMENTAL PLANNING TOOLS

5.1 INTRODUCTION

This section provides a land use management tool to facilitate planning at Detachment Concord. This tool is a land management zoning map that categorizes the facility into three management zones, based on natural resource regulatory concerns and land use patterns. Use of this map will allow for planning analysis of potential impacts to natural resources from a given proposed action, including development, military mission expansion, and land use changes. Additionally, it will help notify natural resources personnel of necessary regulatory procedures in evaluating environmental impacts, management alternatives, and mitigation measures expected to result from a proposed action. A major impetus for developing the land management zones is to facilitate compliance with all applicable environmental and natural resources regulations, including NEPA, ESA, Clean Air Act (CAA), CWA, SDWA, Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act, and the Emergency Planning and Community Right-To-Know Act of 1986, PL 99-499 (42 USC § 11001 *et seq.*).

Section 6 of the INRMP outlines the management goals, objectives, and strategies that the Navy would implement between 2002 and 2006. The use of the land management zoning map builds on this foundation by adding a user-friendly spatial element. Laypersons unfamiliar with technical environmental processes and management techniques will find the illustrated presentation of the land management zoning map easy to interpret. More importantly, this tool will facilitate coordinated management planning and natural and biological resources management at the facility. The use of this spatial management tool allows for efficient prioritizing of management activities and techniques, resulting in more informed decisions.

5.2 LAND MANAGEMENT ZONES

The purpose and intent of developing the land management zones are to assist the Navy in identifying areas within Detachment Concord with regulatory constraints that could curtail development or inhibit certain uses. The land management zones were

identified to support future planning efforts and to assist planners in assessing projects for environmental compliance related to natural resource issues. The land management zone maps (Figures 5-1 and 5-2) were developed by incorporating the environmental conditions described in Section 3, GIS of land uses and location of land features, and the jurisdictional likelihood of Detachment Concord wetlands.

These data were correlated against regulatory concerns, such as the presence of a federally listed endangered or threatened species or wetlands, and were grouped into three zones by habitat value. Table 5-1 lists wildlife habitat types, their location, resources of concern, and corresponding regulatory constraints within each management zone. The land management zoning map can be seen as zoning boundaries based on natural resource and land use patterns.

Table 5-1
Land Management Zones Correlation to Habitat Values and Types

Land Management Zone	Wildlife Habitat Area	Resources of Concern	Habitat Value	Potential Regulatory Constraints
1	Wetland Preserves	Wetland habitat, federally listed endangered or threatened species	High	Jurisdictional wetlands, ESA protected species issues, 1984 MOU with USFWS
1	Other jurisdictional wetlands	Wetland habitat, federally listed endangered or threatened species	High	Jurisdictional wetlands, ESA protected species issues, 1984 MOU with USFWS
1	Other waters of the US protected under the CWA	Aquatic habitats of Suisun Bay, potentially federally listed endangered and threatened species; other sensitive species	High	Other waters of the US protected under the CWA, potentially federally listed endangered and threatened species issues
2	Nonjurisdictional wetlands, including stock ponds, watering holes, and seepage ponds	Wetland habitat, potentially federally listed endangered and threatened species; other sensitive species	Medium	Potentially federally listed endangered and threatened species issues
2	Riparian areas along Mt. Diablo/Seal Creek	Wildlife habitat	Medium	Potentially federally listed endangered and threatened species issues
3	Operations, Administration and Housing areas and Q Area	None	Low	Offers little wildlife habitat, so surveys are not likely to be required
3	Grasslands covered by the grazing outlease program	Wildlife habitat and grasslands	Low	Limited federally listed endangered and threatened species survey update recommended
3	Golf course	None	Low	Offers little wildlife habitat, so surveys are not likely to be required

Figures 5-1 & 5-2

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

Zone 1: Restrictive Land Use. Lands categorized as Zone 1 are known to have regulatory constraints, such as federally listed endangered or threatened species or wetlands with a high likelihood of being jurisdictional under the CWA. A January 2001 Supreme Court ruling found that the CWA does not protect hydrologically isolated wetlands (*Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, No. 99-1178, January 9, 2001). Robert M. Andersen, Chief Counsel with Lance D. Wood, as point of contact for the COE, wrote a letter about the "statutory and constitutional challenges to the assertion of CWA jurisdiction over isolated, non-navigable, intrastate waters used as habitat by migratory birds." Mr. Anderson wrote ". . . the Court's holding was strictly limited to waters that are 'nonnavigable, isolated, [and] instrastate.' All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce . . . . With respect to waters that are isolated, intrastate, and nonnavigable—jurisdiction may be possible if their use, degradation, or destruction could affect other 'waters of the United States,' thus establishing a significant nexus between the water in question and other 'waters of the United States'." Some wetlands listed in this INRMP may be hydrologically isolated and could lose their regulatory protection under this new ruling. However, many of these wetlands are afforded protection under EO 11990, no net loss of wetlands. Any development or land disturbance in Zone 1 areas would require surveys for federally listed endangered and threatened species, consultation with the proper regulatory agencies, and potentially mitigation.

Detachment Concord would follow a mitigation priority process of avoidance, minimization, and compensation for impacts to biological resources. These lands tend to have the highest priority for conservation actions. Resources within the Zone 1 lands include tidal and freshwater wetlands, including the wetland preserve areas.

Zone 2: Possible Restrictive Use. Lands categorized as Zone 2 could have regulatory constraints or could provide significant value to wildlife. Any development or land disturbance likely would require surveys to determine if protected resources are present. If so, Detachment Concord would consult with the proper regulatory agency and might have to implement mitigation measures. Resources within the Zone 2 lands include the following:

- Potentially jurisdictional and nonjurisdictional wetlands, such as seepage ponds and springs located in the Inland Area. These areas provide good habitat for federally listed endangered and threatened species, as well as waterfowl. Any areas determined to be nonjurisdictional are not subject to regulation under the CWA but may be regulated under the ESA. While no surveys or consultation under the CWA would be required for activities that could affect nonjurisdictional wetlands, consultation may be required under the ESA. Therefore, these areas are included in Zone 2 for their potential habitat value.

- Potentially jurisdictional wetlands in the Tidal Area. Such areas are in close proximity to likely jurisdictional wetlands and may support sensitive wildlife and plant species.
- Riparian areas along Mt. Diablo/Seal Creek provide foraging habitat for various animal species and cover for wildlife. These areas also may support migratory bird habitat and should be inspected prior to any disturbance activities to insure compliance with the MBTA.

Zone 3: Limited Resource Value. Lands within Zone 3 likely have no regulatory constraints and are of a limited conservation priority due to their overall lack of biological integrity. Most of the lands in Zone 3 are used to support the military mission or are outleased for agricultural purposes. Management actions or development activities within Zone 3 likely would not require survey work for federally listed endangered and threatened species. Consultation with outside agencies almost certainly would not be necessary. Lands located within the Inland Area's Zone 3 include the Operations, Administration and Housing areas, all grasslands lands covered by the grazing outlease program, and the golf course. Lands located within the Tidal Area's Zone 3 include grasslands covered by the grazing outlease program and the Operations Area, including the Q Area.

5.3 LAND USE PLANNING

Most construction projects conducted at Detachment Concord require coordination with EFA West; this is often necessary to determine the type and level of regulatory agency coordination and permitting needed for a given action. The following general requirements are provided to assist EFA West personnel in implementing the land use management zones and reflect the Navy's strategy to take site-specific measures to conserve sensitive resources in coordination with the military mission:

- Actions with the potential to affect the environment or natural resources on Detachment Concord require NEPA compliance.
- During planning to locate new facilities or concentrated military operations in or adjacent to sensitive biological resources, the effects of such actions on those resources must be evaluated. Consultation with the USFWS, in accordance with Section 7 of the ESA, could be necessary. Coordination with all regulatory agencies will be through EFA West.
- Site approval from EFA West is required for all facilities and activities. Activities include, but are not limited to, development, reconstruction, repairs, utilities, leases, and easements.
- EFA West must approve any actions that could introduce hazardous materials or waste to an uncontaminated area.
- The Army will consult with and will receive approval from the Navy before initiating any action in the Tidal Area that may affect natural resources. The US Navy, Detachment Concord Environmental Services

Office is responsible for reviewing and approving of proposed Army actions that may affect natural resources. This approval process is coordinated through the US Navy, Detachment Concord Environmental Site Manager.

The guidance provided in this section applies to the planning process behind a proposed action. Special allowances for emergency situations are allowed by NEPA, ESA, and other federal regulations. The definition of emergency, however, is narrowly defined in most instances and is written to address actions that could not be planned for or that require immediate response. This guidance might not apply and should not be expected to apply to all cases of unplanned and unauthorized activities where there was no prior regulatory consultation and permitting. This would include adverse impacts to federally listed endangered and threatened species, their habitats, migratory corridors, or delineated wetlands where these resources were overlooked during planning or where failure to conduct activities properly resulted in damage to the resources. Unplanned or unauthorized damage to biological resources regulated by federal law could cause substantial project delays or cancellation while supplemental authorization and permitting is obtained.

If this guidance is used to address proposed actions at Detachment Concord, natural resources personnel should be able to minimize unexpected planning and implementation costs and delays, while conserving the resources they manage. The land management zone model should be used at the earliest stages of the planning process to assure that adequate funding, resources, and commitment are available to comply with federal, state, and Navy regulations. Although the INRMP has been prepared in coordination with the USFWS and other public agencies, adhering to the land use management zones does not supercede required regulatory consultation and permitting. However, using the land management zones map should greatly facilitate the planning process and ensure adequate resource protection.

6.0 ECOSYSTEM-BASED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

6.1	**ECOSYSTEM MANAGEMENT APPROACH**	**6-1**
6.2	**GOALS AND OBJECTIVES OF THE NATURAL RESOURCES MANAGEMENT PROGRAM**	**6-2**
6.3	**INLAND RESOURCE AREAS**	**6-4**
6.4	**TIDAL RESOURCE AREAS**	**6-18**

SECTION 6
ECOSYSTEM-BASED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

6.1 ECOSYSTEM MANAGEMENT APPROACH

This INRMP was developed on the ecosystem approach, in accordance with DoD and Navy policy. An ecosystem approach is the paradigm being applied to managing military lands and is to provide for sustained military readiness, sound environmental stewardship, and planned economic development. As defined by the DoD, the goal of ecosystem management is to:

> "Ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations" (DoD 1996).

The ecosystem management approach focuses on the ecological system instead of a single species or single resource. Thus, a natural resource is not viewed as a thing or an object but as a function that a thing or an object may perform or as an operation in which it may take part within the system (Zimmerman 1951). The art of ecosystem management is managing the system to maximize the functions of resources for predetermined desired conditions. Before one can implement ecosystem management, two inherent rules must be understood. First, natural ecosystems are incredibly complex and our understanding of them is limited (Leslie et al. 1996). Second, unlike tangible objects (for example, trees), resources (for example, timber) change in response to ecological, social, and institutional events, including the following:

- Societal tastes and values;
- Knowledge;

- Technology;
- Laws and institutions; and
- The ecosystem (Salazar and Lee 1990).

Thus, the greatest hurdle to overcome in effective ecosystem management is uncertainty. To mitigate uncertainty, Detachment Concord will use adaptive management.

Adaptive management recognizes that there is incomplete data when dealing with natural resources and that through continued research and monitoring of the effects of management practices, new information will be developed. This information can be reevaluated and incorporated into the management plan, and practices can be adjusted accordingly. Thus, adaptive management is the "process of implementing policy decisions as scientifically driven management experiments that test predictions and assumptions in management plans and that use the resulting information to improve plans" (Noss and Cooperider 1994). The adaptive management process is illustrated in Figure 6-1.

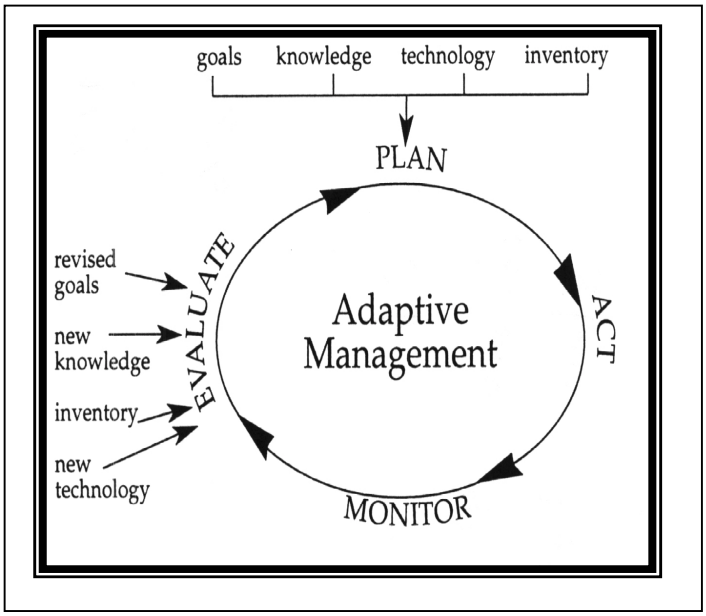

Figure 6-1: Adaptive Management Strategy

6.2 GOALS AND OBJECTIVES OF THE NATURAL RESOURCES MANAGEMENT PROGRAM

The overall goal of the INRMP is to provide a means for managing the natural resources at Detachment Concord to sustain military readiness and to comply with applicable federal law and regulation. Both Navy and Army environmental personnel assigned to Detachment Concord have identified the following general objectives to achieve this goal:

- Ensure no net loss in the capability of the land and natural resources at Detachment Concord to support the current and future military missions of the Navy and Army;
- Ensure compliance with applicable federal laws and regulations as they pertain to natural resources;
- Maintain and enhance the level of biodiversity within the constraints of the military mission;
- Outlease lands that are suitable and available for livestock grazing consistent with the military mission;
- Implement adaptive management techniques to provide flexible and responsive management strategies based upon scientific data gathered from monitoring programs, literature, and resource experts;
- Conserve the quality of habitat for federally endangered and threatened species;
- Maintain sufficient natural resources support personnel to implement, manage, and monitor the management strategies of the INRMP; and
- Provide for an institutional memory that may be used as a framework for future resources personnel on which to base management decisions.

Resource-specific management goals and objectives are provided in this section, followed by management tools (termed strategies) for obtaining the desired outcomes. The management strategies have been further divided into compliance-based strategies and stewardship-based strategies, defined as follows:

- **Compliance-based strategies**—those that are required to meet the legal regulations governing the management of Navy lands and the needs of the military mission.
- **Stewardship-based strategies**—those that are designed to meet ecosystem-based conservation practices but that are not legally required.

Detachment Concord is a federal facility and, as such, is required to comply with applicable federal law and regulation. In general, strategies designed to comply only with state and local law and regulation do not qualify as compliance-based strategies. In some instances, federal law may require compliance with state law. In these instances, the strategies are compliance-based. However, the ecosystem management approach of this INRMP recognizes the value of including stewardship-based management strategies designed to meet the goals of state and local natural resource law and regulation. Additionally, informal consultation with CDFG on natural resources concerns is recommended.

The resource-specific goals, objectives, and strategies, unless otherwise noted, are expected to be implemented during the five-year tenure of the INRMP. Because the

INRMP has been developed as an adaptive management program, modifications to the resource-specific management elements are anticipated and encouraged, as additional information becomes available. Any requirement for the obligation of funds for projects in this INRMP will be subject to the availability of funds appropriated by Congress, and none of the proposed projects will be interpreted to require obligation or payment of funds in violation of any applicable federal law, including the Anti-Deficiency Act, 31 USC Section 1341, et seq.

As described in Section 1.6.1, the Navy occupies and maintains the Inland Area while the Army occupies and maintains the Tidal Area in accordance with the IUP. However, because the Navy maintains ownership of the entire Detachment Concord it is necessary for the Navy and Army to coordinate management of the Tidal Area. The US Navy, Detachment Concord Environmental Services Office is responsible for reviewing and approving proposed Army actions that may affect natural resources. This approval process is coordinated through the US Navy, Detachment Concord Environmental Site Manager. The following resource-specific goals and objectives for this INRMP are divided between the Inland and Tidal Areas in order to clarify the management differences. Management goals, objectives, and strategies are further divided into individual resource categories. Many of the management strategies are the same for the Inland and Tidal Areas. In order to facilitate the implementation of these strategies, they have been repeated in each area and resource category to which they apply.

6.3 INLAND RESOURCE AREAS

6.3.1 Soil Management (Inland)

The primary goals of soil resources management at Detachment Concord are to protect soil resources, to identify areas prone to soil erosion, and to prevent soil erosion and its subsequent impact on military facilities, water, and wildlife habitat quality. Because of the topography of Detachment Concord, soil resources are susceptible to erosion from hydraulic forces, particularly during the winter rainy season. In addition, there are several stormwater conduits, including Mt. Diablo/Seal Creek, that have the potential for soil erosion and flooding during high-flow periods.

Management Measures

Goal: To protect the soil resources of Detachment Concord from erosion, while maintaining the military mission and sustainable grazing practices.

- **Objective 1:** Manage Mt. Diablo/Seal Creek and other stormwater conduits to prevent bank cutting and flooding in operational areas.

  Compliance Strategies:

  - Continue to implement erosion control and vegetation clearing measures along Mt. Diablo/Seal Creek and other stormwater conduits to ensure unobstructed flow through operational areas. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water**

Resource Council's Principles and Standards Act, PL 89-80; EO 11990, Protection of Wetlands)

- As outlined in the *Mt. Diablo Creek Flood Control and Stream Stabilization Plan* (US Department of Agriculture [USDA]/Soil Conservation Service [SCS] 1989), perform an annual inspection of all road and railroad crossings of Mt. Diablo/Seal Creek for blockages and excessive vegetation growth. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water Resource Council's Principles and Standards Act, PL 89-80; EO 11990, Protection of Wetlands**)
- Provide for annual debris removal from Mt. Diablo/Seal Creek. (**Watershed Protection and Flood Prevention Act, PL 92-419)**
- Remove noxious plants that are intrusive to Mt. Diablo/Seal Creek, such as bamboo and other invasive species that may appear. (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms**)
- Initiate action to correct erosion being caused from outfalls of Highway 4 and small water storage tank adjacent to Highway 4. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water Resource Council's Principles and Standards Act, PL 89-80; EO 11990, Protection of Wetlands, CWA, PL 92-500**)

- **Objective 2:** Reduce likelihood of sedimentation of ponds and wetlands from existing or future erosion problem areas.

  Compliance Strategies:
  - Implement applicable strategies as outlined in Section 6.3.3, Grazing Outlease Management. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)
  - Continue to annually inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning (recommended in the 1989 *Mt. Diablo/Seal Creek Flood Control and Stream Stabilization Plan*).

  Stewardship Strategies:
  - Continue to implement annual erosion control measures at areas frequented by grazing cattle.
  - Protect floodwater impact zones of Mt. Diablo/Seal Creek with riprap or other similar protection measures to stabilize banks.
  - Ensure proper revegetation measures are implemented on construction projects to stabilize soils and prevent soil from migrating off site.

6.3.2 Water Resources Management (Inland)

The Inland Area of Detachment Concord receives its water from the Contra Costa Water District. The industrial/administration area accounts for approximately 90 percent of the consumption from this supply. Maintaining high water quality standards for all waterbodies on Detachment Concord is a priority of the ESO and is reinforced

by several state and federal water quality regulations. The primary goals and objectives of water resources management at Detachment Concord are to protect the quality of waterbodies by identifying and managing aquatic habitats, reducing pollutant loading from nonpoint sources, and promoting water conservation measures.

Management Measures

Goal: To efficiently use and conserve water resources presently available to Detachment Concord to support the military mission and natural resources.

- **Objective:** Proactively manage the conservation and use of water supplies and opportunistic waters (flood waters and drain waters) to support natural resources management goals. Maintain water supplies to support the grazing leases and benefits derived therefrom.

  Compliance Strategies:
  - Maintain a limited water distribution system to support grazing leases. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
  - Monitor and adaptively manage stockwater ponds to maintain the quality of aquatic habitats. (**Fish and Wildlife Coordination Act, PL 85-624**)
  - Ensure stockwater ponds maintain their function as an open body of water and upon sedimentation and choking of wetland vegetation, initiate corrective action and coordinate with regulatory agencies. (**EO 11990, Protection of Wetlands; ESA, PL 93-205)**

  Stewardship Strategies:
  - Manage riparian areas in accordance with strategies described in Section 6.3.6.
  - Limit channelization and vegetation clearing activities in storm drains and Mt. Diablo/Seal Creek to those areas necessary to protect the facilities from flooding.
  - Initiate an effort to work with NRCS and EBRPD to cooperatively manage the watershed.

6.3.3 Grazing Outlease Management (Inland)

The major nonmilitary land use at Detachment Concord is cattle grazing through Detachment Concord's outlease program. Revenue generated through the program is used to pay for the administrative costs of the program and to fund Navy conservation measures associated with the natural resources management program. In addition, grazing plays a major role in fire prevention by reducing the amount of potential fuel. The goal and objective of the program are outlined below and have been developed to maintain a sustainable grazing program, to sustain military readiness, and to conserve the integrity of natural resources.

Management Measures

Goal: To maintain sustainable grazing practices to the maximum extent possible compatible with the military mission and ecological constraints in accordance with Public Law 97-321, Agricultural Leasing.

- **Objective 1:** Manage current and future grazing lease agreements to reduce negative ecological impacts from grazing activities.

  Compliance Strategies:
  - Reduce grazing in fields in lease 4B04 (Figure 3-4) that include areas of Mt. Diablo/Seal Creek to be only holding areas for bulls. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Complete fencing on three small areas of lease 4B01 to prevent livestock from grazing along Mt. Diablo/Seal Creek. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Continue to provide water via troughs system fed by the water system to assist with grazing rotation and livestock distribution. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Maintain water trough float valves to ensure conservation of water. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Maintain cattle exclusion fencing around stockwater ponds and other sensitive aquatic habitats. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Monitor grazing herd capacity to prevent overgrazing. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Maintain existing cattle exclusion fencing surrounding riparian areas of Mt. Diablo/Seal Creek and other designated wildlife areas. **(PL 97-321, Agricultural Leasing; Grazing lease)**

6.3.4 Terrestrial Habitat Management (Inland)

The goal of the terrestrial habitat management program at Detachment Concord is to maintain terrestrial land conditions compatible with the military mission and, where feasible, to conserve habitats for the benefit of native flora and fauna. Terrestrial habitat includes all upland nonaquatic habitat, excluding riparian areas.

Management Measures

Goal: To maintain and enhance upland resources and vegetation for the benefit of water quality, native vegetation, and wildlife resources.

- **Objective 1:** Manage upland habitats for the benefit of upland wildlife species.

  Compliance Strategy:
  - Maintain fences surrounding stockwater ponds to enable native vegetation to continue to grow unimpeded by cattle grazing. (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms**)

Stewardship Strategies:

- Continue coordination with the US Forest Service to manage the eucalyptus and pine plantings.
- Should trees be cut, place the slash into brush piles on the harvest site or another site for appropriate wildlife cover and schedule cutting so as not to adversely affect breeding activities of migratory birds.

- **Objective 2:** As native oaks and other trees are planted, protect them by fencing to ensure establishment.

Stewardship Strategies:

- Encourage research by public universities and agencies on oak reproduction to develop management strategies for enhancing oak woodlands on Detachment Concord.
- Identify potential oak woodland revegetation sites and implement revegetation strategies where feasible.
- Continue to work with the CCC and request forestry reserve funds for the propagation and planting of native trees.

6.3.5 Wetlands Management (Inland)

Wetlands provide essential breeding, spawning, nesting, and wintering grounds for numerous wildlife species. Wetlands also enhance the quality of surface waters by impeding erosive forces of moving water and trapping waterborne sediment and associated pollutants. This is accomplished by providing a gradual release of stored floodwaters and groundwater, and by providing a natural means of flood control and storm damage protection by absorbing and storing water during high-runoff events.

Executive Order 11990, Protection of Wetlands, requires that federal agencies minimize any significant action that contributes to the loss or degradation of wetlands and that the action should be initiated to enhance their natural value. It is Navy policy to avoid adverse impacts on existing aquatic resources and to offset those adverse impacts that are unavoidable (DoN 1989). Additionally, COE permits are required under Section 404 of the CWA to discharge dredge or fill material into waters of the US, including wetlands.

As described in Section 3.8, there are few wetland resources in the inland portion of Detachment Concord. Those wetlands that do exist in the Inland Area consist primarily of Mt. Diablo/Seal Creek, Cistern Pond, Indian Springs, stockwater ponds, and several drainages.

Management Measures

Goal: To protect and enhance the wetland resources at Detachment Concord.

- **Objective 1:** Manage wetlands on Detachment Concord in compliance with federal laws and EOs.

Compliance Strategies:

- Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by Executive Order 11990, Protection of Wetlands. Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-9b as likely jurisdictional or potentially jurisdictional wetlands. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)
- Prohibit the alteration or destruction of any designated jurisdictional wetlands. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)

- **Objective 2:** Maintain water quality in aquatic habitats that support sensitive plant or wildlife species.

  Compliance Strategy:
  - Control access by cattle to aquatic areas by maintaining fencing around stockwater ponds and other sensitive water habitats in the Inland Area. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-624; Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)

  Stewardship Strategy:
  - Enhance vegetation along the banks of stockwater ponds to provide cover and reduce sediment input; use native species as much as possible.

- **Objective 3:** Maintain the water quality and historic integrity of the Cistern Pond by restoring the windmill to an operative condition at the existing well site. Once operative, the windmill can be used to provide additional groundwater to Cistern Pond. This groundwater may be needed during times of drought and/or to assist with seasonal flushing of this pond.

  Compliance Strategy:
  - Keep noxious and invasive plants from establishing at Cistern Pond, including artichoke thistle, yellow star thistle, purple star thistle, and bull thistle. (**EO 13112, Invasive Species)**

6.3.6 Riparian Habitat Management (Inland)

The primary goal of the riparian management program is to preserve the integrity of existing riparian areas and to enhance and increase riparian habitat, as feasible. The only true riparian area at Detachment Concord is located along portions of Mt. Diablo/Seal Creek in the Inland Area. There are also a few hillside drainages that support some seasonal wetland vegetation.

Management Measures

Goal: Protect and conserve riparian habitat while maintaining the military mission and sustainable grazing practices.

- **Objective 1:** Manage grazing activities to reduce negative ecological impacts on riparian habitat and associated wildlife.

Stewardship Strategies:

- With assistance from the CCC, plant willow cuttings in areas where bank cutting has occurred, causing a potential threat to base facilities.
- In areas where bank cutting does not endanger base facilities, maintain existing meandering zone for Mt. Diablo/Seal Creek, where no attempt will be made to prevent natural channel realignment, bank cutting, or vegetative succession.
- Identify potential oak woodland revegetation sites within the riparian corridor, and implement revegetation strategies where feasible. CCC can assist with native tree propagations and plantings through continuing requests for forestry reserve account funds.
- Where feasible for protection from cattle grazing, fence hillside drainages that support wetland vegetation or aquatic habitats.

6.3.7 Wildlife Management (Inland)

The primary goals of the wildlife management program are to protect, promote, and conserve the game and nongame wildlife species on Detachment Concord, within the confines of the military mission. Achieving these goals requires objectives that allow for healthy, sustainable wildlife populations that use an array of structurally and biologically diverse habitat niches.

The ESQD arcs at Detachment Concord are compatible with long-term wildlife conservation programs. Because this land remains protected by the ESQD arc requirements, it provides the Navy with the opportunity for wildlife management.

Management Measures

Goal: Protect and conserve the wildlife resources in the Inland Area of Detachment Concord.

- **Objective 1:** Protect wildlife habitat areas from adverse grazing and human-induced impacts.

  Compliance Strategies:

  - Control nonnative plant species where feasible in order to promote native grassland habitats (see strategies in Section 6.3.10, Objective 4 for details). (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms; EO 13112, Invasive Species**)
  - Maintain fences surrounding stockwater ponds, as outlined in Section 6.3.5, Objective 2. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-624; Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
  - Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.

Stewardship Strategy:

- Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated checklist of the amphibians and reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California* (Hickman 1993).

- **Objective 2:** Support biodiversity at Detachment Concord by enhancing specific wildlife habitat areas, when and where appropriate.

  Stewardship Strategies:

  - Coordinate with CCC, local colleges, and universities to restore wildlife habitat, when feasible.
  - Continue to develop the GIS for bio-diversity advancement and monitoring purposes.
  - Work with local and state resource agencies to maintain or increase wildlife biodiversity.
  - Work with the city of Concord to make the golf course National Audubon Society certified.

- **Objective 3:** Manage the tule elk herd in accordance with the management measures identified in the 1982 Agreement for the Cooperative Management of Tule Elk (DoN 1982c) (Appendix I). Recent discussions with the CDFG and the Navy have resulted in the following strategies:

  Compliance Strategies:

  - Provide CDFG with access necessary to manage the herd of tule elk. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**
  - Notify CDFG when there are obviously sick/diseased elk within the herd and determine appropriate action. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**
  - Notify CDFG of all mortalities that are suitable for necropsy and analysis. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**
  - Assist in carrying out *The Management Plan for the Concord Tule Elk Herd*, by:
    1. Conducting censuses;
    2. Coordinating research activities; and
    3. Coordinating public awareness and education activities. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**
  - Assist CDFG with:
    1. Laboratory/field necropsies of tule elk;

2. Surplus animal removal operation; and
3. Site surveys, investigations, project plans formulation, and contract procurement, if funds are available. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**

- Maintain the existing tule elk holding facilities and holding chute, within the limits of available funding. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**
- Complete the Tule Elk Management Plan revisions (2001) currently ongoing with CDFG. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c]**)

Stewardship Strategies:

- Install a means of escape within the Contra Costa Canal at select points, to enable tule elk that fall into the canal to escape. This strategy is to be coordinated with the Contra Costa Water District Engineering Department.
- Maintain the riparian habitat associated with Mt. Diablo/Seal Creek to provide foraging habitat for tule elk.
- Protect tule elk calving and rutting areas from development and unnecessary disturbances. Continue to work with CDFG and assist with funding, if available, to reduce the herd size further and to establish a predominantly male herd with few cows, thus reducing the need to relocate elk as frequently.
- Provide for tule elk viewing areas equipped with spotting scopes at prime sites.

- **Objective 4:** Manage habitats for continuing use by avian species and in compliance with the MBTA and Migratory Bird Conservation Act.

Compliance Strategies:

- Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds. **(MBTA, PL 186; EO 13186, Protection of Migratory Birds**)
- Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord. (**Migratory Bird Conservation Act, PL Chapter 257**)
- Avoid removing and trimming trees with known nests, when feasible. If it is necessary, remove trees outside of the breeding season. **(MBTA, PL 186; EO 13186, Protection of Migratory Birds**)
- Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas. (**MBTA, PL 186**)

- Prohibit loud or lengthy disturbance within 0.5-mile (0.8-km) of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance. (**MBTA, PL 186**)
- Provide notice to the USFWS in advance of conducting any action that is intended to take migratory birds and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes, evaluate the effects of actions and plans on migratory birds. (**MBTA, EO 13186**)
- Integrate migratory bird conservation principles, measures, and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats. (**MBTA, EO 13186**)
- Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations. (**MBTA, EO 13186**)
- Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements. (**MBTA, EO 13186**)

Stewardship Strategies:

- Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.
- Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.
- Develop a bird checklist.

6.3.8 Fisheries Management (Inland)

The Inland Area of Detachment Concord lacks aquatic habitat for sustainable fisheries resources. This includes EFH, as defined by the MFCMA, and critical habitat, as defined under the ESA. Therefore, no fisheries management measures are proposed for the Inland Area.

6.3.9 Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species (Inland)

The goals and objectives of Detachment Concord's federally threatened, endangered, and sensitive species management program are to conserve sensitive species populations in accordance with all federal and Navy regulations. Any action that may affect (positively or negatively) the continued existence of a federally listed threatened or endangered species must undergo Section 7 consultation with USFWS. For further details on the Section 7 process, see Section 2.3. Management programs, including the goals and objectives outlined below, will continue to be coordinated with the USFWS as appropriate and required.

Detachment Concord, with assistance from the University of Arizona, conducted a wildlife survey in 1998 and 1999 to document the presence of federally threatened, endangered, and sensitive species. The report helped to identify existing (and

periodically or indirectly utilized) habitat for those species. Of the federally listed threatened or endangered species confirmed in the survey, only the federally listed threatened California red-legged frog resides in the Inland Area of Detachment Concord. This area also includes habitat for the California tiger salamander, a federally designated candidate species that has been confirmed to inhabit the Inland Area.

Management Measures

Goal: To conserve the habitat and populations of federally listed threatened, federally listed endangered, and other sensitive species (plant and animal) known to grow, reside at, or migrate through the Inland Area of Detachment Concord.

- **Objective 1:** Continue to conserve habitat for the federally listed threatened California red-legged frog.

  Compliance Strategies:

  - Discourage construction and military training activities in the aquatic habitats known to support the California red-legged frog. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)
  - Conduct surveys in aquatic habitats potentially supporting the California red-legged frog prior to implementing actions that may affect the habitat quality or quantity. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)
  - Inspect and maintain existing fencing around the stockwater ponds known to contain populations of California red-legged frog in order to exclude cattle and to encourage growth of native vegetation. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)
  - Discourage pesticide application in areas that may support the California red-legged frog. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**; **Federal Insecticide, Fungicide, and Rodenticide Act [FIFRA], PL 92-516**)
  - Conduct California red-legged frog surveys prior to revision of this INRMP. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)

- **Objective 2:** Continue to conserve habitat for the federally designated candidate California tiger salamander.

  Compliance Strategy:

  - Conduct surveys to assess sensitive and endangered species habitat health in Inland Area of Detachment Concord, prior to revisions of this INRMP.

  Stewardship Strategies:

  - Discourage construction and military training activities in the aquatic habitats known to support the California tiger salamander. (potential future **ESA, PL 93-205)**

- Discourage pesticide use for ground squirrel control in areas where the California tiger salamander may occur. (potential future **ESA, PL 93-205)**
- Provide information and education programs for base personnel and the public regarding sensitive species at Detachment Concord.
- Conduct population consensus and habitat evaluation surveys for the California tiger salamander. (potential future **ESA, PL 93-205)**

6.3.10 Pest Management (Inland)

The Detachment Concord pest management program operated by the ESO supports IPM. This method involves three primary control strategies—mechanical and physical control (physical removal or exclusion of pests), cultural control (altering the environment to make it less suitable or attractive to pests), and chemical control (use of pesticides). It should be noted that the federally threatened California red-legged frog is present on Detachment Concord lands and all pest management shall consider this species prior to any chemical control activities.

Management Measures

Goal: Use IPM methods to control noxious and undesirable plants, rodents, insects, and other pests found in the Inland Area of Detachment Concord and to reduce the dependence on chemical means of control, as stated in DoD Directive 1450.7 and Navy Directive 6250.4b.

- **Objective 1:** Monitor pesticide/herbicide applications in the Inland Area used by grazing lessees.

  Compliance Strategies:
  - Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications. (**FIFRA, PL 92-516**)
  - The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually.
  - Ensure pesticide/herbicide applications will not negatively affect red-legged frog populations. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264; FIFRA, PL 92-516**)
- **Objective 2:** Assist lessees to reduce reliance on chemical means of pest control, per DoD Directive 4150.7 and Navy Directive 6250.4b.

  Compliance Strategy:
  - Maintain cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae in aquatic areas. (**FIFRA, PL 92-516**)

- **Objective 3:** Continue to monitor ground squirrel and coyote populations.

  Compliance Strategy:
  - Maintain cooperative relationship with grazing lessees to monitor and report increased ground squirrel populations. (**Animal Damage Control Act, 7 USC 426-426c**)

- **Objective 4:** To control by IPM methods all noxious weeds, undesirable plants, and invasive plant species.

  Compliance Strategies:
  - Develop and implement an IPM plan to manage invasive and noxious weed populations. (**EO 11987, Exotic Organisms; EO 13112, Invasive Species**)
  - Maintain cooperative relationship with grazing lessees to monitor, report, and treat invasive and noxious weed populations. (**Federal Noxious Weed Act, PL 93-269)**
  - Conduct surveys to detect new invasive and noxious weed populations and to monitor existing invasive and noxious weed populations. (**EO 11987, Exotic Organisms; EO 13112, Invasive Species**)

6.3.11 Cultural Resources Management (Inland)

The primary goal and objective of the cultural resources management program of the ESO is to implement this INRMP so as to conserve significant cultural resources at Detachment Concord. A draft of the ICRMP for Detachment Concord is available from the ESO. Before any soil is disturbed or any structures are modified, these documents should be consulted to determine the probability of disturbing any archaeological sites or historic artifacts that may be considered of significance to federally recognized Native American tribes or groups. The ESO complies with the NHPA, the Archaeological Resources Protect Act, and the Native American Graves Protection and Repatriation Act when managing Detachment Concord's cultural resources.

Management Measures

Goal: To maintain and preserve the cultural resources at Detachment Concord.

- **Objective:** Preserve the physical and ecological integrity of known Inland Area sites that contain high to moderate archaeological potential.

  Compliance Strategies:
  - In areas of high to moderate archaeological potential, limit military training and public access. (**Archeological Resources Protection Act of 1979, PL 96-95; Protection of Archeological Resources: DoD Uniform Regulations**)
  - Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources. (**EO 11593, Protection and Enhancement of the**

Cultural Environment; Preservation of Historical and Archeological Data Act of 1974, PL 93-291; NHPA, PL 89-665)

- Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP. (**EO 11593, Protection and Enhancement of the Cultural Environment**)

6.3.12 Outdoor Recreation Management (Inland)

Detachment Concord's recreation management program is designed to provide military personnel and their families with outdoor recreation opportunities. Because of the military mission at Detachment Concord, the associated ESQD arcs, and various sensitive habitats in the Inland Area, public access and recreational opportunities are limited.

Management Measures

Goal: To support public access as approved by the Navy and where it does not conflict or interfere with Detachment Concord's military mission.

- **Objective:** Manage access to the Inland Area.

  Stewardship Strategies:

  - Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.
  - Maintain agreement with the city of Concord for use of the baseball diamond located near Olivera Road and Detachment Concord's enlisted family housing area.
  - Support local nature education programs, when feasible.
  - Host wildlife viewing tours and install spotting scopes at tule elk viewing areas.

6.3.13 Fire Management (Inland)

The mission of Detachment Concord is shipping, receiving, and storing munitions, and this highlights the importance of fire safety at Detachment Concord. Livestock grazing and the maintenance of extensive fire trails greatly reduce the potential for serious wildfires. The primary goal of the fire management program in the Inland Area of Detachment Concord is to reduce grassland fuel loads. This can be accomplished by allowing livestock to graze and by maintaining fire breaks and fire trails. Fire breaks are disced to be free of combustible materials, and fire trails are graded.

Management Measures

Goal: Reduce likelihood of wildfires in Inland Area of Detachment Concord.

- **Objective:** Manage Inland Area grasslands in a way that is compatible with the military mission and its natural resources.

Compliance Strategies:

- Continue grazing outlease program and annually monitor fuel accumulation. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
- Continue having fire breaks disced and all fire trails graded annually. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
- Coordinate any controlled burning activities with regulatory agencies for potential impacts to federally listed species (California red-legged frog) and for air quality concerns. (**ESA, PL 93-205; Air quality regulations)**

Stewardship Strategy*:*

- Remove dead/dying trees and excess understory vegetation from abandoned orchards and eucalyptus and pine plantings; ensure compliance with the MBTA prior to removal.

6.4 TIDAL RESOURCE AREAS

As a result of the IUP, the Army shall have use of the Tidal Area of Detachment Concord, with exception of Area Q, which is retained by the Navy. Under this IUP, the Navy remains principal landowner and oversees all land management and natural resources management. In the event an Army action affects one of the resource areas described below, the Army will incur any costs associated with that action.

6.4.1 Soil Management (Tidal)

The primary goals of soil resources management in the Tidal Area of Detachment Concord are to protect soil resources, to identify areas prone to soil erosion, and to prevent soil erosion and its subsequent impact on water and wildlife habitat quality. Many of these goals can be realized by maintaining proper grazing practices, thus insuring quality vegetative cover, resulting in minimized soil particle movement originating from overland flows.

Management Measures

Goal: To protect the soil resources of Detachment Concord from erosion, while maintaining the military mission and sustainable grazing practices.

- **Objective 1:** Reduce likelihood of sedimentation of tidal wetlands from existing or future erosion problem areas.

Compliance Strategies:

- Correct the gully action taking place within the Alpha area. (**CWA, PL 92-500)**
- Initiate action to correct the 1.0-million-gallon (3.8-million-liter) tank outlet that discharges into an adjacent natural drainage and that is causing excessive soil erosion and slope instability.
- Ensure that proper revegetation measures and/or other erosion control techniques are implemented on construction projects to stabilize soils and prevent soil from migrating off site.

Stewardship Strategy:

- Continue to inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning. (recommended in the 1989 *Mt. Diablo/Seal Creek Flood Control and Stream Stabilization Plan* [USDA/SCS 1989])

6.4.2 Water Resources Management (Tidal)

Many surface water features in the Tidal Area recharge local zones of groundwater. Tidally influenced sloughs in the lowlands near Suisun Bay route bay water to and from the Tidal Area. Because of the strong tidal influence on surface and ground waters in the Tidal Area of Detachment Concord, the area receives its potable water from the Contra Costa Water District. The primary goal and objective of water resources management in the Tidal Area of Detachment Concord is to protect the quality of waterbodies by preserving and managing aquatic habitats, while reducing the likelihood of nonpoint source pollution.

Goal: To protect water resources needed for present and future military missions and natural resources management goals.

- **Objective:** Proactively manage conservation and use of potable water supplies.

Compliance Strategies:

- Continue routine maintenance of landscape irrigation systems to maintain efficiency and to conserve water. (**EO 13148, Greening the Government Through Leadership in Environmental Management; Water Resources Planning Act and Water Resource Council's Principals and Standards Act of 1965, PL 89-80**)
- Conduct routine surveys of water distribution systems to ensure float valves on all livestock water troughs are operating properly to avoid unnecessary water loss. (**EO 13148, Greening the Government Through Leadership in Environmental Management; Water Resources Planning Act and Water Resource Council's Principals and Standards Act of 1965, PL 89-80**)

6.4.3 Grazing Outleases Management (Tidal)

The major nonmilitary land use at Detachment Concord is cattle grazing through the Detachment Concord's outlease program. Revenue generated through the grazing outlease program is used to pay for administrative costs of the program and to fund conservation measures with the natural resources management program. In addition, grazing plays a major role in fire prevention by reducing the amount of potential fuel. The goal and objective of Detachment Concord's program have been developed to maintain a sustainable grazing program, to sustain military readiness, and to conserve the integrity of natural resources.

Management Measures

Goal: To maintain sustainable grazing practices to the maximum extent compatible with the military mission and ecological constraints, in accordance with Public Law 97-321, Agricultural Leasing.

- **Objective:** Manage current and future grazing lease agreements to prevent negative ecological impacts from grazing activities.

  Compliance Strategies:

  - Work cooperatively with grazing lessees to ensure proper grazing measures are followed to avoid overgrazing and unnecessary soil erosion. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Ensure proper grazing measures are followed to avoid introduction of additional invasive plant species. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Ensure grazing lessees comply with removal of noxious and invasive plants, such as artichoke thistle and purple star thistle. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Maintain cattle exclusion fencing around stockwater ponds and other sensitive habitats. **(PL 97-321, Agricultural Leasing; Grazing lease)**
  - Ensure that cattle do not graze new pastures adjacent to the Contra Costa Water District canal from November 1 through April 15 each year to reduce risk of water contamination. **(PL 97-321, Agricultural Leasing; Grazing lease)**

6.4.4 Terrestrial Habitat Management (Tidal)

The goal of the terrestrial habitat management program at Detachment Concord is to maintain terrestrial land conditions compatible with the military mission and, where feasible, to conserve habitats for the benefit of native flora and fauna. Terrestrial habitat includes all upland nonaquatic habitat, excluding riparian areas.

Management Measures

Goal: To maintain and enhance Tidal Area upland resources and vegetation for the benefit of water quality, native vegetation, and wildlife resources.

- **Objective 1:** Initiate program to plant wildlife windrows to benefit native species through assistance by the CCC.

  Stewardship Strategies:

  - Should trees be cut, place the slash into brushpiles on the harvest site or another site for appropriate wildlife cover, and schedule cutting so as not to adversely affect breeding activities of migratory birds
  - Complete a wildlife survey prior to implementation of a revised INRMP in 2007.

6.4.5 Wetlands Management (Tidal)

Wetlands provide essential breeding, spawning, nesting, and wintering grounds for numerous wildlife and migratory waterfowl species. Wetlands also enhance the quality of surface waters by impeding erosive forces of moving water and trapping waterborne

sediment and associated pollutants, providing a gradual release of stored flood waters and groundwater. This is accomplished by providing a natural means of flood control and storm damage protection through the absorption and storage of water during high-runoff events.

Waters of the US, including wetlands, are protected under the CWA, the Rivers and Harbors Act, and Executive Order 11990, Protection of Wetlands. The COE regulates impacts to wetlands and other waters under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Projects that involve excavating dredged or fill material into waters of the US, including wetlands, must be reviewed and authorized by the COE and reviewed by the EPA. To determine the boundaries of jurisdictional wetlands the area must be delineated in accordance with the COE Wetlands Delineation Manual (Environmental Laboratory 1987). Areas that are not considered to be jurisdictional waters include nontidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial waterbodies, such as swimming pools, and water-filled depressions (33 CFR, part 328). Jurisdictional wetland delineations have not been conducted at Detachment Concord.

Executive Order 11990, Protection of Wetlands, requires that federal agencies avoid construction in wetlands, unless there is no practical alternative and all practicable measures are provided to minimize harm to wetlands, including opportunities for the public to review plans or proposals.

The dominant wetlands of the Tidal Area are the extensive tidal marshes both on the mainland and the islands. On February 1, 1984, the Navy and USFWS signed a MOU relating to the designation of wetland preserve at Detachment Concord (Appendix D). The extent of these preserve areas is described in Section 3.8. This agreement identified several strategies for managing these areas, which will be included below. The following items of agreement were included in this MOU and are critical to maintaining the military mission at Detachment Concord:

- The paramount use of the preserve is for the purposes of Detachment Concord in consonance with its use and activity on adjacent property, and
- Compliance with this MOU is subject to the availability of funds and personnel.

Management Measures

Goal 1: To comply with the February 1, 1984, MOU between the Navy and USFWS relating to Designation of Wetland Preserve in the Tidal Area of Detachment Concord (1984 MOU [DoN 1984]).

- **Objective:** Implement the management strategies identified in the 1984 MOU, as feasible.

Compliance Strategies:

- Maintain wetland preserve designation status for Roe Island, Ryer Island, Freeman Island, Snag Island, Middle Ground Island and Seal Islands, and Hastings Marsh, Pier Marsh, Middle Ground Marsh, East Marsh, and North Area K Marsh (Figure 3-11). (**EO 11990, Protection of Wetlands; CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; EO 13186, Protection of Migratory Birds**)
- Conduct studies, surveys, and other research, as determined by availability of funds and personnel, on the fish and wildlife resources of the preserve, and coordinate such activities with USFWS. (**1984 MOU [DoN 1984]; Fish and Wildlife Coordination Act, PL 85-264)**
- Give priority to protecting and managing the preserve and prevent, as far as feasible, any military activity that could adversely affect or otherwise be detrimental to the wetland resources of the preserve. (**EO 11990, Protection of Wetlands; CWA, PL 92-500; Fish and Wildlife Coordination Act, PL 85-264**)
- Continue to uphold the Navy's obligations regarding conservation of wetlands, migratory birds, and endangered species, as required by the ESA, the MBTA, the Migratory Bird Conservation Act, Executive Order 11990, Protection of Wetlands, and other obligations regarding the conservation and management of natural resources of the preserve.
- As specified in the 1984 MOU, allow access to USFWS personnel responsible for carrying out the purposes of the 1984 MOU. (**Fish and Wildlife Coordination Act, PL 85-264; EO 13186, Protection of Migratory Birds**)
- Allow the Navy to enter into agreements with educational, research, scientific, and government organizations in carrying out Navy responsibilities under the 1984 MOU, provided that the Navy agrees to coordinate such activities with USFWS to ensure the activities contribute to proper management and protection of the preserve. (**Fish and Wildlife Coordination Act, PL 85-264; EO 13186, Protection of Migratory Birds**)
- Perform a complete survey of Tidal Area wetlands for the federally endangered salt marsh bird's beak. (**ESA, PL 93-205**)

Stewardship Strategy:

- Initiate a meeting with the San Francisco Bay National Wildlife Complex office to discuss the MOU.

Goal 2: To protect and enhance the wetland resources in the Tidal Area of Detachment Concord.

- **Objective 1:** Manage wetlands in the Tidal Area in compliance with federal and state laws and EOs.

Compliance Strategies:

- Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by EO 11990. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)

- Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-10b as likely jurisdictional wetlands or wetlands requiring further investigation. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)

- **Objective 2:** Protect water quality of wetland areas.

  Compliance Strategy:

  - Maintain facilities management procedures to prevent nonpoint source pollution and stormwater runoff from negatively affecting wetland resources from upland sources. (**CWA, PL 92-500; EO 11990, Protection of Wetlands**)

6.4.6 Riparian Habitat Management (Tidal)

The Tidal Area of Detachment Concord lacks riparian habitat. Mt. Diablo/Seal Creek and other water courses become tidal wetlands upon entering the Tidal Area and will be managed as such. Therefore, no riparian habitat management measures are proposed for the Tidal Area.

6.4.7 Wildlife Management (Tidal)

The primary goals of the wildlife management program are to protect, promote, and conserve the game and nongame wildlife species on Detachment Concord within the confines of the military mission. Achieving these goals requires objectives that allow for healthy, sustainable wildlife populations that use an array of structurally and biologically diverse habitat niches.

The ESQD arcs at Detachment Concord are compatible with wildlife conservation programs. Because this land remains protected by the ESQD arc requirements, it provides the Navy with the opportunity for wildlife management.

Management Measures

Goal: Protect and conserve the wildlife resources that inhabit the Tidal Area of Detachment Concord.

- **Objective 1:** Protect and conserve the wildlife resources that reside in the Tidal Area of Detachment Concord.

  Compliance Strategies:

  - Continue to manage wetlands in the Tidal Area as wetlands preserve, as agreed upon in the 1984 MOU. (**EO 11990, Protection of Wetlands; CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; EO 13186, Protection of Migratory Birds**)

- Control nonnative plant species where feasible to promote native grassland habitat, as outlined by strategies in Section 6.4.10. (**EO 11990, Protection of Wetlands; EO 13112, Invasive Species**)
- Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.

Stewardship Strategy:

- Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated checklist of the amphibians and reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California* (Hickman 1993).

- **Objective 2:** Encourage biodiversity at Detachment Concord by enhancing specific wildlife habitat areas, when and where appropriate.

Stewardship Strategies:

- Coordinate with local colleges, universities, and CCC to restore wildlife habitat when feasible.
- Continue to advance the GIS for biodiversity advancement and monitoring purposes.
- Work with local and state resource agencies, as well as CCC, to maintain and increase wildlife biodiversity in the Tidal Area.

- **Objective 3:** Manage habitats for continuing use by avian species and in compliance with the MBTA and Migratory Bird Conservation Act.

Compliance Strategies:

- Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds. **(MBTA, PL 186; EO 13186, Protection of Migratory Birds**)
- Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord. (**Migratory Bird Conservation Act, PL Chapter 257**)
- Avoid removing and trimming trees with known nests when feasible. If it is necessary, remove trees outside of the breeding season. **(MBTA, PL 186; EO 13186, Protection of Migratory Birds**)
- Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas. (**MBTA, PL 186**)

- Prohibit loud or lengthy disturbance within half a mile (eight-tenths km) of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance. (**MBTA, PL 186**)
- Notify the USFWS in advance of any action that is intended to take migratory birds and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes, evaluate the effects of actions and plans on migratory birds. (**MBTA, EO 13186**)
- Integrate migratory bird conservation principles, measures and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats. (**MBTA, EO 13186**)
- Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations. (**MBTA, EO 13186**)
- Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements. (**MBTA, EO 13186**)

Stewardship Strategies:

- Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.
- Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.
- Develop a bird checklist.

6.4.8 Fisheries Resource Management (Tidal)

The primary goals of the fisheries resource management program are to protect, promote, and conserve fisheries resources at Detachment Concord, within the confines of the military mission.

Goal: To protect the habitat and population of fish species at Detachment Concord.

- **Objective:** Manage fisheries to conserve EFH as described under the MFCMA.

Compliance Strategies:

- Review pier maintenance, dredging, and development projects to ensure the conservation of EFH. (**CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; Migratory Marine Game-Fish Act, PL 86-358**)
- Consult with NMFS regarding projects that may affect essential fish habitat (see sections 3.10.2 and 3.11 for specific species). (**Coastal Zone Management Act, PL 92-583; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)
- Manage the designated wetland preserve areas in coordination with USFWS, according to the 1984 MOU (**EO 13186, Protection of Migratory Birds; EO 11990, Protection of Wetlands; CWA, PL 92-500**)

6.4.9 Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species (Tidal)

The goals and objectives of Detachment Concord's federally listed endangered, federally listed threatened, and other sensitive species management program are to conserve sensitive species populations in accordance with all federal and Navy regulations. Any action that could affect (positively or negatively) the continued existence of a federally listed endangered or threatened species must undergo consultation with USFWS.

Management programs, including the goals and objectives outlined below, shall continue to be coordinated with USFWS, as appropriate and required. EFA West undertakes informal consultation on a case-by-case basis.

Management Measures

Goal: To conserve the habitat and populations of federally listed endangered, federally listed threatened, and other sensitive species (plant and animal) known to grow, reside at, or migrate through the Tidal Area of Detachment Concord.

- **Objective 1:** Continue to conserve habitat for the federally listed endangered salt marsh harvest mouse, California clapper rail, and soft bird's beak.

  Compliance Strategies:
  - Restrict access to tidal marsh habitats to reduce the potential for human-induced impacts to sensitive species. (**ESA, PL 93-205**)
  - Continue to maintain the tidal marsh area in accordance with the 1984 MOU (individual strategies are included in Section 6.4.5). (**ESA, PL 93-205**)
  - Continue to monitor populations of federally listed endangered and threatened species to assess effectiveness of natural resources management goals. The specific species to be monitored are the California sea blite, soft bird's beak, California red-legged frog, California clapper rail, and Salt marsh harvest mouse. (**ESA, PL 93-205**)
  - *Conduct surveys to assess sensitive and endangered species habitat health in the Tidal Area* of Detachment Concord.
  - Discourage development and military training in areas known to contain habitat for sensitive species. (**ESA, PL 93-205**)

- **Objective 2:** Minimize noise disturbance to California clapper rail.

  Compliance Strategy:
  - When conducting pier construction or major maintenance activities, coordinate with USFWS to determine appropriate noise mitigation measures. (**ESA, PL 93-205**)

- **Objective 3:** Continue to conserve habitat for the federally listed endangered soft bird's beak and the federally designated species of concern delta tule pea.

  Compliance Strategies:
  - Review proposed military activities and development to ensure the conservation of these species. (**ESA, PL 93-205**)
  - Prohibit access to areas known to contain these species for purposes other than approved research. (**ESA, PL 93-205**)
  - Perform a complete survey of Tidal Area wetlands for the federally listed endangered soft bird's beak. (**ESA, PL 93-205**)
  - Monitor species populations in the Tidal Area to determine population trends. (**ESA, PL 93-205**)

- **Objective 4:** Avoid adverse impacts to delta smelt, Sacramento splittail, Central Valley steelhead, Central Valley spring-run chinook salmon, and Sacramento winter-run chinook salmon and their associated critical habitat.

  Compliance Strategies:
  - Consult with USFWS prior to conducting activities in Suisun Bay that may affect delta smelt or Sacramento splittail habitat. (**ESA, PL 93-205; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)
  - Consult with NMFS prior to conducting activities in Suisun bay that may affect Central Valley steelhead, Central Valley spring-run chinook salmon, and Sacramento winter-run chinook salmon and their associated critical habitat (**ESA, PL 93-205; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)
  - When conducting pier construction, major maintenance, or dredging activities in Suisun bay or estuary, coordinate with NMFS to determine appropriate seasonal timing to avoid impacts to migrating sensitive salmonid species. (**Salmon and Steelhead Conservation and Enhancement Act, PL 96-561; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)

- **Objective 5:** Determine the presence or absence of California red-legged frog in the Tidal Area.

  Compliance Strategies:
  - Conduct surveys to investigate the possible presence of California red-legged frog in Tidal Area. (**ESA, PL 93-205**)
  - Should California red-legged frog be identified in the Tidal Area, implement management strategies to conserve identified populations. Management strategies would be similar to those described for the Inland Area in Section 6.3.9. (**ESA, PL 93-205**)

6.4.10 Pest Management (Tidal)

The Detachment Concord pest management program operated by the ESO supports IPM. This method involves three primary control strategies—mechanical and physical

control (physical removal or exclusion of pests), cultural control (altering the environment to make it less suitable or attractive to pests), and chemical control (use of pesticides).

Management Measures

Goal: To control by IPM methods all noxious and undesirable weeds, rodents, insects, and other pests found in the Tidal Area of Detachment Concord and to reduce the dependence on chemical means of control as stated in DoD Directive 1450.7 and Navy Directive 6250.4b.

- **Objective:** Protect Tidal Area resources from effects of pesticide/herbicide applications.

  Compliance Strategies:

  - Maintain a cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae where necessary.
  - Develop and implement an IPM plan to manage invasive and noxious weed populations, such as yellow star thistle. (**EO 13112, Invasive Species; EO 13148, Greening the Government Through Leadership in Environmental Management**)
  - Encourage the use of native killifish (*Fundulus paruipennis*) as opposed to nonnative mosquitofish (*Gambusia* spp.) as a means of biological control. (**EO 13112, Invasive Species; EO 13148, Greening the Government Through Leadership in Environmental Management**)
  - Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications. (**FIFRA, PL 92-516**)
  - The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually. (**FIFRA, PL 92-516**)
  - Continue to require that lessees control purple star and artichoke thistle. (**Federal Noxious Weed Act, PL 93-629**)
  - Conduct surveys to monitor existing, and to discover new invasive plant and noxious weed populations. (**EO 13112, Invasive Species)**
  - Remove ice plant from natural areas and seed with a mixture of native grasses and forbs. (**EO 13112, Invasive Species)**
  - Initiate program to prohibit ballast water discharges at Tidal Area piers. (**EO 13112, Invasive Species; EO 11987, Exotic Organisms**)

6.4.11 Cultural Resources Management (Tidal)

The primary goal and objective of the cultural resources management program of the ESO is to implement this INRMP in a manner consistent with the conservation of significant cultural resources at Detachment Concord. A draft of the ICRMP for Detachment Concord is available from the ESO. Before any soil is disturbed or any

structures are modified, these documents should be consulted to determine the probability of disturbing any archaeological sites or historic artifacts that may be considered significant to federal listed Native American tribes or groups. The ESO complies with the NHPA, the Archaeological Resources Protect Act, and the Native American Graves Protection and Repatriation Act when managing Detachment Concord's cultural resources.

Management Measures

Goal 1: To maintain and preserve the cultural resources in the Tidal Area of Detachment Concord.

- **Objective:** Preserve the physical and ecological integrity of known Tidal Area sites, which contain high to moderate archaeological potential.

  Compliance Strategies:

  - Maintain areas of high to moderate archaeological potential as areas with limited uses for military training and public access. (**Archeological Resources Protection Act of 1979, PL 96-95; Protection of Archeological Resources: DoD Uniform Regulations**)
  - Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources. (**EO 11593, Protection and Enhancement of the Cultural Environment; Preservation of Historical and Archeological Data Act of 1974, PL 93-291, NHPA, PL 89-665)**
  - Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP. (**EO 11593, Protection and Enhancement of the Cultural Environment**)

Goal 2: To provide controlled and limited access to the Tidal Area while maintaining the military mission.

- **Objective:** Provide public access annually to the Port Chicago Memorial.

  Compliance Strategy:

  - Continue to coordinate with the National Park Service to provide access to the Port Chicago Memorial each year on the anniversary of the tragedy. (**Historic Sites, Buildings, and Antiquities Act, PL 74-292**)

6.4.12 Outdoor Recreation Management (Tidal)

Detachment Concord's recreation management program is designed to provide military personnel and their families with outdoor recreation opportunities. Due to the military mission at Detachment Concord's and the associated ESQD arcs, public access and recreational opportunities in the Tidal Area are very limited. These limits are further supported by the sensitive wetland habitats in the Tidal Area and the designation of much of the area as wetland preserve (DoN 1984).

Management Measures

Goal: To provide controlled and limited access to the Tidal Area for recreation and education, while maintaining the military mission.

Objective: Manage access to the Tidal Area as requested by the public and approved by the Navy.

Stewardship Strategies:

- Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.
- Support local nature education programs, when feasible.
- Host wildlife viewing tours, when feasible.

6.4.13 Fire Management (Tidal)

The mission of Detachment Concord is shipping, receiving, and storing munitions, and this highlights the importance of fire safety at Detachment Concord. Allowing livestock to graze and maintaining extensive fire trails greatly reduce the potential for serious wildfires. The primary goal of the fire management program in the Tidal Area is to reduce grassland fuel loads by utilizing grazing and by maintaining fire breaks and fire trails. Fire breaks are disced to be free of combustible materials, and fire trails are graded.

Management Measures

Goal: Reduce likelihood of wildfires in the Tidal Area of Detachment Concord.

- **Objective:** Manage Tidal Area grasslands in a way that is compatible with the military mission and its natural resources.

Compliance Strategies:

- Continue grazing outlease program and annually monitor fuel accumulation. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
- Continue requiring firebreak discing and grading of all fire trails annually by grazing lessees. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)
- Coordinate with regulatory agencies if any controlled burning is conducted for potential impacts to federally protected species and concerns with air quality. (**ESA, PL 93-205; Air quality regulations)**

7.0 IMPLEMENTATION OF THE INRMP

7.1 ORGANIZATIONS, ROLES, AND RESPONSIBILITIES 7-1

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SECTION 7
IMPLEMENTATION OF THE INRMP

7.1 ORGANIZATIONS, ROLES, AND RESPONSIBILITIES

The ESO at NWS Seal Beach has the primary role and responsibility for implementing this INRMP at Detachment Concord from 2002 through 2006. As mentioned previously, Detachment Concord is in ROS and will remain as such indefinitely. Additionally, Detachment Concord's Tidal Area is operated by the Army under an IUP. Under this IUP, the Navy provides for the Army's use of facilities at Detachment Concord for an indefinite period that began on October 1, 1999, and until it is terminated by mutual agreement between the Secretary of the Navy and the Secretary of the Army, as follows:

- The Army shall have use of that portion of the Detachment Concord property known as the "Tidal Area," containing 6,100 acres (2,469 ha), more or less, including Roe, Ryer, Freeman, Snag, Middle Ground and Seal Islands, along with all facilities, buildings and structures located thereon. However, the Navy shall retain access to and use of the area "Q," associated with buildings 351 and 31-41.
- The Army shall obtain written authorization from the CINCPACFLT or a designated local Navy representative prior to the initiation of any major structural changes to a building and/or demolition or removal of a structure located within the Tidal Area.

The Tidal Area shall be delivered to the Army, "AS IS WHERE IS." The Navy acknowledges that it remains liable for all environmental contamination safety and/or health hazards that arose from the Navy's past use of the property. The Navy retains land ownership of both the Tidal and Inland areas, as well as operation of the Inland Area. The Navy is responsible for the implementation and management of all natural resources programs at Detachment Concord. The Army will consult with, and receive prior approval from, the Navy before initiating any action in the Tidal Area that may affect natural resources. The US Navy Detachment Concord Environmental Services Office reviews and approves proposed Army actions that may affect natural resources.

This approval process is coordinated through the US Navy Detachment Concord Environmental Site Manager.

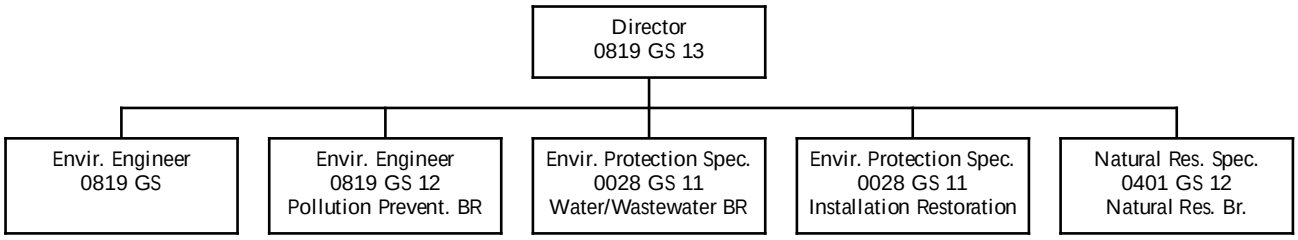
7.1.1 Labor Resources

Since Detachment Concord is in the process of implementing ROS, staffing for natural resources management is supported by the Environmental Site Manager at Detachment Concord, who is further supported by the ESO at NWS Seal Beach. Listed in Table 7-1 is the current support staff for natural resources management provided by the NWS Seal Beach. Figure 7-1 shows the organizational structure of the NWS Seal Beach ESO.

Table 7-1
Naval Weapons Station Seal Beach
Natural Resources Management Staff

Number	Position	Status
1	Director ESO	Full-time, permanent
1	NEPA and Cultural Resources	Full-time, permanent
1	Natural Resources/Spill Response/Pesticides	Full-time, permanent
1	Drinking and Industrial Wastewater	Full-time, permanent
1	Hazardous Waste	Full-time, permanent
3	Support Staff	Contractor, full/part-time

Figure 7-1
Naval Weapons Station Seal Beach, Environmental Services Office
Organizational Structure



7.2 INRMP FUNDING

7.2.1 Navy Funding

The Office of Management and Budget considers funding for preparing and implementing this INRMP, as required by the SAIA and NAVFAC P-73 Volume II, and the associated NEPA analysis and documentation, to be of paramount concern. However, funding constraints and labor resource limitations require that a priority system be placed on all natural resource projects. Any requirement for the obligation of funds for projects in this INRMP shall be subject to the availability of funds appropriated by Congress, and none of the proposed projects shall be interpreted to

require obligation or payment of funds in violation of any applicable federal law, including the Anti-Deficiency Act, 31 USC Section 1341, *et seq*.

Funding for Detachment Concord is provided by two major sources. The primary funding source is through the CNRSW. The CNRSW receives an annual budget from CINCPACFLT based on annual congressional appropriations. To receive funding for natural resource projects, Detachment Concord must submit Environmental Program Requirement (EPR) forms to NWS Seal Beach, who then reviews and submits them to the CNRSW. The funding either will be approved or denied. In general, actions to comply with federal laws and mandates are funded before stewardship-related requests.

A secondary funding source is the Navy's agricultural outlease program. Navy agricultural outlease rental receipts are deposited within a centrally managed fund at NAVFAC headquarters. Detachment Concord's grazing outlease improvement projects are funded by this centrally managed account. Specific funds are requested annually by Detachment Concord through EFA West directly from NAVFAC headquarters. Upon approval of requested funding, monies are dispersed to EFA West for approved projects at Detachment Concord.

7.1.2 Army Funding

Army funding for the INRMP would be limited to the Army's role as operator of the Tidal Area. The Army would fund strategies to protect natural resources when they have projects or activities that would affect the natural resources base.

7.2.2 Other Funding Sources

Implementing a number of the projects/programs described in this INRMP may require outside assistance from state and federal agencies, private consortiums and organizations, universities, and contractors. Using these outside entities is often the most efficient and cost-effective method for acquiring expertise on a short-term or temporary basis. Some of the parties will be reimbursed for their assistance, as individually agreed on, based on memoranda of understanding and contractual agreements. Other parties may supply their assistance in accordance with cooperative agreements. A summary of some potential outside partners is provided below.

Legacy Resource Management Program

The Legacy Resource Management Program (Legacy) was established by Congress to provide financial assistance to the DoD military branches to conserve and protect natural and cultural resources. Typical Legacy projects involve regional ecosystem management initiatives, habitat preservation efforts, archeological investigations, invasive species control, and monitoring and predicting migratory patterns of birds and mammals.

The three principles of the Legacy program, stewardship, leadership, and partnership, are seen as the foundation from which the program promotes four specific elements. The Legacy program strives to accomplish the following:

1. Incorporate an ecosystem approach that assists DoD in maintaining biological diversity and the sustainable use of the land and water resources for the military mission and other uses.
2. Implement an interdisciplinary approach to resource stewardship that takes advantage of the similarities between DoD's natural and cultural resource plans. The program strives to integrate management methodologies and techniques across natural and cultural resource initiatives.
3. Promote an understanding and appreciation of natural and cultural resources by encouraging greater awareness and involvement by both the military and the public.
4. Apply known and scientifically defensible resource management principles across broad geographic areas. Specific Legacy programs with an ecoregional scope include the Sonoran Ecosystem Management Initiative, the Gulf Coast Plain Ecosystem Partnership, the Chesapeake Bay Program, and Partners in Flight.

For fiscal years 1991 through 1999, the DoD Legacy program funded more than $200 million in natural and cultural resource projects. Project proposals are typically due in the spring of each fiscal year. Projects are funded on a competitive basis; proposal submittal guidelines and format requirements are available through the Internet at http://www.dodlegacy.org. Funding for this program has been reduced over the years, and currently only those projects already tied into the Legacy program are receiving funds.

Installation Restoration Program

The DoD established the IRP in 1975 to provide guidance and funding for the investigation and remediation of hazardous waste sites caused by historical disposal activities at military installations. The fundamental goal of the IRP is to protect human health, safety, and the environment. The IRP investigates and, if necessary, remediates former disposal and test areas, some of which were used before the disposal of chemicals was regulated or even fully understood. Detachment Concord has an active IRP aimed at identifying, monitoring, and reducing to prescribed safe levels any potential risks caused by the past operations on the installation. Funding from the IRP is designated for removal actions, interim remedial actions, and remedial actions of known hazardous waste sites. Part of the remedial action may include restoring an area to include wildlife habitat where habitat features are compatible with remediation.

DoD Forestry Reserve Funds

The DoD's forestry conservation and management programs are funded by the DoD Forestry Reserve Fund. These funds are allocated on an as needed basis through a competitive grant process. Navy installations must apply for such funds, which only may be used for approved forestry improvement, wildlife enhancement, and natural

resource projects. Project proposals are put forth to the NAVFAC headquarters upon prior approval from EFA West. Annual funds vary from fiscal cycle to fiscal cycle.

Wildlife Conservation Funds

Pursuant to 16 USC, Section 670a-f, Conservation Programs on Military Installations, military installation commanders shall establish fees for hunting, fishing, or trapping on military lands. These fees are solely for defraying the costs incurred for wildlife management on the installation and may not be used for constructing recreational structures, such as blinds or fishing piers. Funds may be used, however, for other wildlife management purposes.

Miscellaneous Grants

Nonprofit organizations and universities often become partners with federal agencies and military installations in seeking grant monies.

7.3 IMPLEMENTATION OF THE INRMP

To facilitate the implementation process of the different management tools of the INRMP, an implementation priority and funding priority rating system has been developed. The purpose of the priority rating system is to allow Detachment Concord to forecast funding requests and staffing needs. The system is designed to justify why certain management actions are needed to secure funding and to emphasize the importance of certain projects over others. Due to budgetary limitations, Navy funding is primarily for actions fulfilling legal requirements and is more limited for stewardship actions.

The Navy is required to assign an assessment level for Navy actions within the INRMP. A Navy funding assessment level applies only to those measures that are the responsibility of the Navy and require funding to implement. The Navy's centrally managed funds supply all funding for implementing management measures, as described in Section 7.2.1. Implementing each management measure will depend upon available CNRSW and/or agricultural outlease funds and staffing. The assessment levels that guide funding priorities at Detachment Concord are defined in Table 7-2. The implementation timing associated with each Navy-related funding priority is described following the table.

High – Ongoing or action will be taken to implement within the next three years depending on availability of funding and personnel.

Medium – To be implemented upon approval of pending regulation and the availability of funds and personnel.

Low – To be implemented as funds and staffing are available.

The Detachment Concord INRMP is summarized in Table 7-3. The table lists each management strategy presented in Section 6 and compares the implementation priority to the funding priority. Based on an initial review of funding needs, the table also includes the likely source of funds. In most cases, CNRSW funding is designated for strategies that are compliance and policy based, while NAVFAC agricultural outlease funds are designated for strategies tied to the agricultural outlease program and stewardship-related projects. Where possible, other funding sources have been identified.

Table 7-2
Definition of Navy-related Funding Priorities

Navy Assessment Level	Description of Requirement	Navy-related Funding Priority
Level 1	(**Legal Requirement**)—Requirements derived from existing laws, regulations, and EOs that apply to Navy activities, installations, ships, aircraft, and operations. These Office of Management and Budget (OMB)/EPA Class 0, I, or II projects and ongoing efforts include responding to applicable federal, state, and local requirements (e.g., RCRA, CWA, CAA, SDWA, NEPA, Toxic Substances Control Act) and EOs, such as EO 12088 (Federal Agency Compliance), EO 12843 (ODS Conversion/Replacement), EO 12856 (P2 and EPCRA), and EO 13101 (Recycling). Level 1 includes overseas host nation laws and final governing standards. Level 1 also includes costs of ongoing compliance, such as staffing levels, training, travel, and program management (OMB/EPA Class 0).	High
Level 2	(**Navy Policy**)—Requirements derived from DoD or Navy policy. These projects and proposed efforts are not mandated by law or other federal, state, or local regulations or orders but reflect Navy and DoD policy decisions and initiatives (e.g., polychlorinated biphenyl elimination).	
Level 3	(**Pending Regulation**)—Requirements derived from pending federal, state, or local regulations under development (where publication is scheduled), using, if available, model state regulation and permit standards.	Medium
Level 4	(**Future Requirements**)—Requirements derived from future potential federal, state, or local legislation. These requirements are speculative.	Low
Level 5	(**Leadership Initiatives**)—Requirements based on local proactive Navy initiatives not mandated by law, regulation, EO, or policy.	

Source: DoD 1996.

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
INLAND AREA					
		Soil Management (Inland)			
High	**Navy**	Continue to implement erosion control and vegetation clearing measures along Mt. Diablo/Seal Creek and other stormwater conduits to ensure unobstructed flow through operational areas. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water Resource Council's Principles and Standards Act, PL 89-80; EO 11990, Protection of Wetlands**)	1	As identified, varies per site	CNRSW
High	**Navy**	As outlined in the *Mt. Diablo Creek Flood Control and Stream Stabilization Plan* (USDA/SCS 1989), perform an annual inspection of all road and railroad crossings of Mt. Diablo/Seal Creek for blockages and excessive vegetation growth. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water Resource Council's Principles and Standards Act PL 89-80; EO 11990, Protection of Wetlands**)	1	$3k/year	CNRSW
High	**Navy**	Provide for annual debris removal from Mt. Diablo/Seal Creek. (**Watershed Protection and Flood Prevention Act, PL 92-419)**	1	$7-10k/year	CNRSW
High	**Navy**	Remove noxious plants that are intrusive to Mt. Diablo/Seal Creek, such as bamboo and other invasives that may appear. (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms**)	1	$8-15/event	CNRSW
High	**Navy**	Initiate action to correct erosion being caused from outfalls of Highway 4 and small water storage tank adjacent to Highway 4. (**Watershed Protection and Flood Prevention Act, PL 92-419; Water Resources Planning Act and Water Resource Council's Principles and Standards Act, PL 89-80; EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	$85-140k	CNRSW
N/A	**Navy**	Implement applicable strategies as outlined in Section 6.3.3, Grazing Outlease Management. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)	N/A	Ongoing with Lease	Ag Outlease/NAVFAC
High	**Navy**	Continue to annually inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning (recommended in the 1989 *Mt. Diablo/Seal Creek Flood Control and Stream Stabilization Plan*).	2	$3k/year	CNRSW
Low	**Navy**	Continue to implement annual erosion control measures at areas frequented by grazing cattle.	5	Ongoing with Lease	Ag Outlease/NAVFAC
Low	**Navy**	Protect floodwater impact zones of Mt. Diablo/Seal Creek with rip-rap or other similar protection measures to stabilize banks.	5	As identified, varies per site	CNRSW
Low	**Navy**	Ensure proper revegetation measures are implemented on construction projects to stabilize soils and prevent soil from migrating off site.	5	$1-2k/acre	CNRSW
		Water Resources Management (Inland)			
High	**Navy**	Maintain limited water distribution system to support grazing leases. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667)**)	1	$80k/year	CNRSW

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Monitor and adaptively manage stockwater ponds to maintain the quality of aquatic habitats. (**Fish and Wildlife Coordination Act, PL 85-624**)	1	$3k/year	Ag outlease/NAVFAC
High	**Navy**	Ensure stockwater ponds maintain their function as an open body of water and upon sedimentation and choking of wetland vegetation, initiate corrective action and coordinate with regulatory agencies. (**EO 11990, Protection of Wetlands; ESA, PL 93-205**)	1	$10-15k/event	Ag outlease/NAVFAC
Low	**Navy**	Manage riparian areas in accordance with strategies described in Section 6.3.6.	5	$10-15k/event	CNRSW
Low	**Navy**	Limit channelization and vegetation clearing activities in storm drains and Mt. Diablo/Seal Creek to those areas necessary to protect the facilities from flooding.	5	$15k-$20k/year	CNRSW
Low	**Navy**	Initiate an effort to work with NRCS and EBRPD to cooperatively manage the watershed.	5	N/A	N/A
		Grazing Outlease Management (Inland)			
High	**Navy**	Reduce grazing in fields in lease 4B04 (Figure 3-4) that include areas of Mt. Diablo/ Seal Creek to be only holding areas for bulls. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	N/A	N/A
High	**Navy**	Complete fencing on three small areas of lease 4B01 to prevent livestock from grazing along Mt. Diablo/Seal Creek. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	$10k-$12k	Ag outlease/NAVFAC
High	**Navy**	Continue to provide water via troughs system fed by the water system to assist with grazing rotation and livestock distribution. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Maintain water trough float valves to ensure conservation of water. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Maintain cattle exclusion fencing around stockwater ponds and other sensitive aquatic habitats. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Monitor grazing herd capacity to prevent overgrazing. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	$10-12k/year	Ag outlease/NAVFAC
High	**Navy**	Maintain existing cattle exclusion fencing surrounding riparian areas of Mt. Diablo/Seal Creek and other designated wildlife areas. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	ongoing with Lease	Ag outlease/NAVFAC
		Terrestrial Habitat Management (Inland)			
High	**Navy**	Maintain fences surrounding stockwater ponds to enable native vegetation to continue to grow unimpeded by cattle grazing. (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms)**	2	Ongoing with Lease	N/A
Low	**Navy**	Continue coordination with the US Forest Service to manage the eucalyptus and pine plantings.	5	Ongoing with US Forest Service	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
Low	**Navy**	Should trees be cut, place the slash into brush piles on the harvest site or another site for appropriate wildlife cover and schedule cutting so as not to adversely affect breeding activities of migratory birds.	5	$5-8k/event	CNRSW
Low	**Navy**	Encourage research by public universities and agencies on oak reproduction to develop management strategies for enhancing oak woodlands on Detachment Concord.	5	Ongoing	N/A
Low	**Navy**	Identify potential oak woodland revegetation sites and implement revegetation strategies where feasible.	5	Ongoing	N/A
Low	**Navy**	Continue to work with the CCC and request forestry reserve funds for the propagation and planting of native trees.	5	$25k-$35k/Request	Forestry Reserve/NAVFAC
		Wetlands Management (Inland)			
High	**Navy**	Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by Executive Order 11990, Protection of Wetlands. Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-9b as likely jurisdictional or potentially jurisdictional wetlands. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	$5-50k/event	CNRSW
High	**Navy**	Prohibit any alteration or destruction of any designated jurisdictional wetlands. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	Ongoing	N/A
High	**Navy**	Control access by cattle to aquatic areas by maintaining fencing around stockwater ponds and other sensitive water habitats in the Inland Area. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-624; Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)	1	Ongoing with Lease	N/A
Low	**Navy**	Enhance vegetation along the banks of stockwater ponds to provide cover and reduce sediment input; use native species as much as possible.	5	$1-2k/site	CNRSW
High	**Navy**	Keep noxious and invasive plants from establishing at Cistern Pond, including artichoke thistle, yellow star thistle, purple star thistle, and bull thistle. **(EO 13112, Invasive Species)**	1	$3k/event	CNRSW
		Riparian Habitat Management (Inland)			
Low	**Navy**	With assistance from the CCC, plant willow cuttings in areas where bank cutting has occurred, causing potential threat to base facilities.	5	$5k-$10k /event	CNRSW
Low	**Navy**	In areas where bank cutting does not endanger base facilities, maintain existing meandering zone for Mt. Diablo/Seal Creek, where no attempt will be made to prevent natural channel realignment, bank cutting, or vegetative succession.	5	Ongoing	N/A
Low	**Navy**	Identify potential oak woodland revegetation sites within the riparian corridor and implement revegetation strategies where feasible. CCC can assist with native tree propagations and plantings through continuing requests for forestry reserve account funds.	5	$25k-$35k/Request	Forestry Reserve/NAVFAC
Low	**Navy**	Where feasible for protection from cattle grazing, fence hillside drainages that support wetland vegetation or aquatic habitats.	5	$15-45k/event	Ag outlease/NAVFAC

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
		Wildlife Management (Inland)			
High	**Navy**	Control nonnative plant species where feasible in order to promote native grassland habitats. (see strategies in Section 6.3.10, Objective 4 for details) (**Federal Noxious Weed Act, PL 93-629; EO 11987, Exotic Organisms; EO 13112, Invasive Species**)	1	$25-35k/event	CNRSW
High	**Navy**	Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.	2	$175k-$225k	CNRSW
Low	**Navy**	Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated checklist of the amphibians and reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California* (Hickman 1993).	5	N/A	N/A
High	**Navy**	Maintain fences surrounding stockwater ponds, as outlined in Section 6.3.5, Objective 2. **(ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-624; Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667)**	1	Ongoing with Lease	N/A
Low	**Navy**	Coordinate with CCC, local colleges, and universities to restore wildlife habitat, when feasible.	5	Ongoing	N/A
Low	**Navy**	Continue to develop the GIS for biodiversity advancement and monitoring purposes.	5	Ongoing	CNRSW
Low	**Navy**	Work with local and state resource agencies to maintain or increase wildlife biodiversity.	5	Ongoing	N/A
Low	**Navy**	Work with the city of Concord to make the golf course National Audubon Society certified.	5	to be determined	Ag Outlease/NAVFAC
High	**Navy**	Provide CDFG with access necessary to manage the herd of tule elk. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c]**)	2	Ongoing	N/A
High	**Navy**	Notify CDFG when there are obviously sick/diseased tule elk within the herd and determine appropriate action. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c]**)	2	Ongoing	N/A
High	**Navy**	Notify CDFG of all mortalities that are suitable for necropsy analysis. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c]**)	2	Ongoing	N/A
High	**Navy**	Assist in carrying out *The Management Plan for the Concord Tule Elk Herd* by: • Conducting censuses; • Coordinating research activities; and • Coordinating public awareness and education activities. **(1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**	2	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Assist CDFG with: • Laboratory/field necropsies of tule elk; • Surplus animal removal operation; and • Site surveys, investigations, project plans formulation, and contract procurement, if funds are available. **(1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**	2	$7k/year	Ag outlease/NAVFAC CNRSW
High	**Navy**	Maintain the existing tule elk holding facilities and holding chute, within the limits of available funding. (**1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c]**)	2	$15-20k/event	CNRSW/Ag outlease
High	**Navy**	Complete the Tule Elk Management Plan revisions (2001) currently ongoing with CDFG. **(1982 Agreement for the Cooperative Management of Tule Elk [DoN 1982c])**	2	$7k	CNRSW/Ag outlease
Low	**Navy**	Install a means of escape within the Contra Costa Canal at select points, in order to enable tule elk that fall into the canal to escape. This strategy is to be coordinated with the Contra Costa Water District Engineering Department.	5	$3-5k/site	CNRSW
Low	**Navy**	Maintain the riparian habitat associated with Mt. Diablo/Seal Creek to provide foraging habitat for tule elk.	5	Ongoing	N/A
Low	**Navy**	Protect tule elk calving and rutting areas from development and unnecessary disturbances. Continue to work with CDFG and assist with funding, if available, to reduce the herd size further and to establish a predominantly male herd with few cows, thus reducing the need to relocate elk as frequently.	5	$7k/year	Ag outlease/NAVFAC
Low	**Navy**	Provide for tule elk viewing areas equipped with spotting scopes at prime sites.	5	$3k-$5k/site	CNRSW/Ag outlease
High	**Navy**	Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds. (**MBTA, PL 186; EO 13186, Protection of Migratory Birds**)	1	Ongoing	CNRSW
Medium	**Navy**	Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord. (**Migratory Bird Conservation Act, PL Chapter 257)**	3	Ongoing	CNRSW
High	**Navy**	Avoid removing and trimming trees with known nests, when feasible. If it is necessary, remove trees outside of the breeding season. (**MBTA, PL 186; EO 13186, Protection of Migratory Birds**)	1	Ongoing	CNRSW
High	**Navy**	Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas. (**MBTA, PL 186**)	2	Ongoing	CNRSW
High	**Navy**	Prohibit loud or lengthy disturbance within 0.5 mile (0.8-km) of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance. **(MBTA, PL 186**)	1	Ongoing	N/A
High	**Navy**	Notify the USFWS in advance of any action that is intended to take migratory birds, and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes, evaluate the effects of actions and plans on migratory birds. **(MBTA, EO 13186)**	1	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Integrate migratory bird conservation principles, measures, and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats. **(MBTA, EO 13186)**	1	Ongoing	N/A
High	**Navy**	Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations**. (MBTA, EO 13186)**	1	Ongoing	N/A
High	**Navy**	Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements. **(MBTA, EO 13186)**	1	Ongoing	N/A
Low	**Navy**	Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.	5	$8k-$12k/event	CNRSW
Low	**Navy**	Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.	5	Ongoing	N/A
Low	**Navy**	Develop a bird checklist.	5	$3K	CNRSW
		Fisheries Management (Inland)			
		None.			
		Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species (Inland)			
High	**Navy**	Discourage construction and military training activities in the aquatic habitats known to support the California red-legged frog. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)	1	Ongoing	N/A
High	**Navy**	Conduct surveys in aquatic habitats potentially supporting the California red-legged frog prior to implementing actions that may affect the habitat quality or quantity. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)	1	$15k-$25k/event	CNRSW
High	**Navy**	Inspect and maintain existing fencing around the stockwater ponds known to contain populations of California red-legged frog in order to exclude cattle and to encourage growth of native vegetation. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)	1	Ongoing with Lease	Ag Outlease
High	**Navy**	Discourage pesticide application in areas that may support the California red-legged frog. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**; **FIFRA, PL 92-516**)	1	Ongoing	N/A
High	**Navy**	Conduct California red-legged frog surveys prior to revision of this INRMP. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264**)	1	$25k-$40k/event	CNRSW
High	**Navy**	Conduct surveys to assess sensitive species habitat health in Inland Area of Detachment Concord, prior to revisions of this INRMP.	2	$75-90k/event	CNRSW
Medium	**Navy**	Discourage construction and military training activities in the aquatic habitats known to support the California tiger salamander. (potential future **ESA, PL 93-205)**	3	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
Medium	**Navy**	Discourage pesticide use for ground squirrel control in areas where the California tiger salamander may occur. (potential future **ESA, PL 93-205)**	3	Ongoing	N/A
Low	**Navy**	Provide information and education programs for base personnel and the public regarding sensitive species at Detachment Concord.	5	As requested	CNRSW
Medium	**Navy**	Conduct population consensus and habitat evaluation surveys for the California tiger salamander. (potential future **ESA, PL 93-205)**	3	$25-30k/event	CNRSW
		Pest Management (Inland)			
High	**Navy**	Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications. (**FIFRA, PL 92-516**)	1	Ongoing with Lease	N/A
High	**Navy**	The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually. (**FIFRA, PL 92-516**)	2	Ongoing	CNRSW
High	**Navy**	Ensure pesticide/herbicide applications will not negatively affect red-legged frog populations. (**ESA, PL 93-205; Fish and Wildlife Coordination Act, PL 85-264; FIFRA, PL 92-516**)	1	Ongoing	N/A
High	**Navy**	Maintain cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae in aquatic areas. (**FIFRA, PL 92-516**)	1	$2k/year	CNRSW
High	**Navy**	Maintain cooperative relationship with grazing lessees to monitor and report increased ground squirrel populations. (**Animal Damage Control Act, (7 USC 426-426c)**	1	Ongoing with Lease	N/A
High	**Navy**	Develop and implement an IPMP to manage invasive and noxious weed populations, such as yellow star thistle. (**EO 11987Exotic Organisms; EO 13112, Invasive Species**)	1	$40k-$45k	CNRSW
High	**Navy**	Maintain cooperative relationship with grazing lessees to monitor, report, and treat invasive and noxious weed populations. (**Federal Noxious Weed Act, PL 93-269)**	1	Ongoing with Lease	N/A
High	**Navy**	Conduct surveys to detect new invasive and noxious weed populations and to monitor existing invasive and noxious weed populations. (**EO 11987, Exotic Organisms; EO 13112, Invasive Species**)	1	$15k-$25k/event	CNRSW
		Cultural Resources Management (Inland)			
High	**Navy**	In areas of high to moderate archaeological potential, limit military training and public access. (**Archeological Resources Protection Act of 1979, PL 96-95; Protection of Archeological Resources: DoD Uniform Regulations**)	1	Ongoing	N/A
High	**Navy**	Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources. (**EO 11593; Protection and Enhancement of the Cultural Environment Preservation of Historical and Archeological Data Act of 1974, PL 93-291, NHPA, PL 89-665)**	1	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP. (**EO 11593, Protection and Enhancement of the Cultural Environment**)	1	Ongoing	N/A
		Outdoor Recreation Management (Inland)			
Low	**Navy**	Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.	5	Ongoing and as requested	N/A
Low	**Navy**	Maintain agreement with the city of Concord for use of the baseball diamond located near Olivera Road and Detachment Concord's enlisted family housing area.	5	Ongoing	N/A
Low	**Navy**	Support local nature education programs, when feasible.	5	As requested	N/A
Low	**Navy**	Host wildlife viewing tours and install spotting scopes at tule elk viewing areas.	5	As requested	N/A
		Fire Management (Inland)			
High	**Navy**	Continue grazing outlease program and annually monitor fuel accumulation. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)	1	Ongoing with Lease	N/A
High	**Navy**	Continue having fire breaks disced and all fire trails graded annually. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)	1	$80k-$100k/year	Via Ag Lease
High	**Navy**	Coordinate any controlled burning activities with regulatory agencies for potential impacts to federally listed species (California red-legged frog) and for air quality concerns. **(ESA, PL 93-205,; Air quality regulations)**	1	Ongoing	CNRSW
Low	**Navy**	Remove dead/dying trees and excess understory vegetation from abandoned orchards and eucalyptus and pine plantings; ensure compliance with the MBTA prior to removal.	5	$15-20k	CNRSW
TIDAL AREA					
		Soil Management (Tidal)			
High	**Navy**	Correct the gully action taking place within the Alpha area. (**CWA, PL 92-500**)	1	$45-60k	CNRSW
High	**Army**	Ensure that proper revegetation measures and/or other erosion control techniques are implemented on construction projects to stabilize soils and prevent soil from migrating off site.	2	$5-55k/site	CNRSW
Low	**Navy**	Continue to inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning. (recommended in the 1989 *Mt. Diablo/Seal Creek Flood Control and Stream Stabilization Plan* [USDA/SCS 1989])	5	$3k/year	CNRSW
Low	**Navy**	Initiate action to correct the 1.0-million–gallon (3.8-million-liter) tank outlet that discharges into an adjacent natural drainage and that is causing excessive soil erosion and slope instability.	5	Design: $120-$150k; Construction: $175-$210k	CNRSW

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
		Water Resources Management (Tidal)			
High	**Army**	Continue routine maintenance of landscape irrigation systems to maintain efficiency and to conserve water. (**EO 13148; Greening the Government Through Leadership in Environmental Management, Water Resources Planning Act and Water Resource Council's Principals and Standards Act of 1965, PL 89-80**)	1	Ongoing	N/A
High	**Navy**	Conduct routine surveys of water distribution systems to ensure float valves on all livestock water troughs are operating properly to avoid unnecessary water loss. (**EO 13148; Greening the Government Through Leadership in Environmental Management, Water Resources Planning Act and Water Resource Council's Principals and Standards Act of 1965, PL 89-80**)	1	Ongoing with Lease	N/A
		Grazing Outleases Management (Tidal)			
High	**Navy**	Work cooperatively with grazing lessees to ensure proper grazing measures are followed to avoid over grazing and unnecessary soil erosion. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Ensure proper grazing measures are followed to avoid introduction of additional invasive plant species. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Ensure grazing lessees comply with removal of noxious and invasive plants, such as artichoke thistle and purple star thistle. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
High	**Navy**	Maintain cattle exclusion fencing around stockwater ponds and other sensitive habitats. **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	Ag outlease
High	**Navy**	Ensure that cattle do not graze new pastures adjacent to Contra Costa Water District canal from November 1 through April 15 each year to reduce risk of water contamination **(PL 97-321, Agricultural Leasing; Grazing lease)**	2	Ongoing with Lease	N/A
		Terrestrial Habitat Management (Tidal)			
Low	**Navy/Army**	Should trees be cut, place the slash into brush piles on the harvest site or another site for appropriate wildlife cover, and schedule cutting so as not to adversely affect breeding activities of migratory birds.	5	$5k/event	CNRSW
Low	**Navy**	Complete a wildlife survey prior to implementation of a revised INRMP in 2007.	5	$175k-$200k	CNRSW
		Wetlands Management (Tidal)			
High	**Navy/Army**	Maintain wetland preserve designation status for Roe Island, Ryer Island, Freeman Island, Snag Island, Middle Ground Island and Seal Islands, Hastings Marsh, Pier Marsh, Middle Ground Marsh, East Marsh, and North Area K Marsh (Figure 3-11). (**1984 MOU; EO 11990; Protection of Wetlands CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; EO 13186, Protection of Migratory Birds**)	1	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Conduct studies, surveys, and other research, as determined by availability of funds and personnel, on the fish and wildlife resources of the preserve and coordinate such activities with USFWS. (**1984 MOU; Fish and Wildlife Coordination Act, PL 85-264)**	1	$25k-$40k/event	CNRSW
High	**Army**	Give priority to protecting and managing the preserve and prevent, as far as feasible, any military activity that could adversely affect or otherwise be detrimental to the wetland resources of the preserve. (**1984 MOU; EO 11990, Protection of Wetlands; CWA, PL 92-500; Fish and Wildlife Coordination Act, PL 85-264**)	1	Ongoing	N/A
High	**Army**	Continue to uphold the Navy's obligations regarding conservation of wetlands, migratory birds, and endangered species, as required by the ESA, the MBTA, Migratory Bird Conservation Act, Executive Order 11990, Protection of Wetlands, and other obligations regarding the conservation and management of natural resources of the preserve.	1	Ongoing	N/A
High	**Army**	As specified in the 1984 MOU, allow access to USFWS personnel responsible for carrying out the purposes of the 1984 MOU. (**Fish and Wildlife Coordination Act, PL 85-264; EO 13186, Protection of Migratory Birds**)	1	Ongoing	N/A
High	**Army**	Allow the Navy to enter into agreements with educational, research, scientific, and government organizations in carrying out Navy responsibilities under the 1984 MOU, provided that Navy agrees to coordinate such activities with USFWS to ensure the activities contribute to proper management and protection of the preserve. (**Fish and Wildlife Coordination Act, PL 85-264; EO 13186, Protection of Migratory Birds**)	1	Ongoing	N/A
High	**Navy**	Perform a complete survey of Tidal Area wetlands for the federally listed endangered salt marsh bird's beak. (**ESA, PL 93-205**)	1	$25k-$40k/event	CNRSW
Low	**Navy/Army**	Initiate a meeting with the San Francisco Bay National Wildlife Complex office to discuss the MOU.	5	N/A	N/A
High	**Army**	Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by EO 11990. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	Ongoing	Army
High	**Army**	Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-10b as likely jurisdictional or potentially jurisdictional wetlands. (**EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	$10-25k/event	Army
High	**Army**	Maintain facilities management procedures to prevent nonpoint source pollution and stormwater runoff from negatively affecting wetland resources from upland sources. (**CWA, PL 92-500; EO 11990, Protection of Wetlands**)	1	Ongoing	Army
		Riparian Habitat Management (Tidal)			
		None.			

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
		Wildlife Management (Tidal)			
High	**Navy/Army**	Continue to manage wetlands in Tidal Area as wetlands preserve, as agreed upon in the 1984 MOU. (**EO 11990, Protection of Wetlands; CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; EO 13186, Protection of Migratory Birds**)	1	Ongoing	N/A
High	**Navy**	Control nonnative plant species where feasible to promote native grassland habitat, as outlined by strategies in Section 6.4.10. (**EO 11990, Protection of Wetlands; EO 13112, Invasive Species**)	1	$20-25k/event	CNRSW
High	**Navy**	Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.	2	$175k-$200k	CNRSW
Low	**Navy**	Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated checklist of the amphibians and reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California* (Hickman 1993).	5	N/A	N/A
Low	**Navy**	Coordinate with local colleges, universities, and CCC to restore wildlife habitat when feasible.	5	As requested	N/A
Low	**Navy**	Continue to advance the GIS for biodiversity advancement and monitoring purposes.	5	Ongoing	N/A
Low	**Navy**	Work with local and state resource agencies, as well as CCC, to maintain and increase wildlife biodiversity in the Tidal Area.	5	Ongoing	N/A
High	**Navy/Army**	Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds. (**MBTA, PL 186; EO 13186, Protection of Migratory Birds**)	1	Ongoing	Army/CNRSW
Medium	**Navy**	Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord. (**Migratory Bird Conservation Act, PL Chapter 257)**	3	Ongoing	CNRSW
High	**Navy**	Avoid removing and trimming trees with known nests, when feasible. If it is necessary, remove trees outside of the breeding season. (**MBTA, PL 186; EO 13186, Protection of Migratory Birds**)	1	Ongoing	CNRSW
High	**Navy**	Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas. (**MBTA, PL 186**)	2	Ongoing	CNRSW
High	**Navy**	Prohibit loud or lengthy disturbance within half a mile (eight-tenths km) of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance. (**MBTA, PL 186**)	1	Ongoing	N/A

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Notify the USFWS in advance of any action that is intended to take migratory birds, and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes, evaluate the effects of actions and plans on migratory birds. **(MBTA, EO 13186)**	1	Ongoing	N/A
High	**Navy**	Integrate migratory bird conservation principles, measures, and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats. **(MBTA, EO 13186)**	1	Ongoing	N/A
High	**Navy**	Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations**. (MBTA, EO 13186)**	1	Ongoing	N/A
High	**Navy**	Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements. **(MBTA, EO 13186)**	1	Ongoing	N/A
Low	**Navy**	Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.	5	$8k-$12k/event	CNRSW
Low	**Navy**	Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.	5	Ongoing	N/A
Low	**Navy**	Develop a bird checklist.	5	$3K	CNRSW
		Fisheries Resource Management (Tidal)			
High	**Navy/Army**	Review pier maintenance, dredging, and development projects to ensure the conservation of EFH. (**CWA, PL 92-500; Coastal Zone Management Act, PL 92-583; Migratory Marine Game-Fish Act, PL 86-358**)	1	Ongoing	Army/CNRSW
High	**Navy/Army**	Consult with NMFS regarding projects that may affect essential fish habitat (see Section 3.10.2 and 3.11 for specific species). (**Coastal Zone Management Act, PL 92-583; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)	1	$5-10k/event	Army/CNRSW
High	**Navy/Army**	Manage the designated wetland preserve areas in coordination with USFWS, according to the 1984 MOU (**EO 13186, Protection of Migratory Birds; EO 11990, Protection of Wetlands; CWA, PL 92-500**)	1	Ongoing	CNRSW
		Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species (Tidal)			
High	**Army/Navy**	Restrict access to tidal marsh habitats to reduce the potential for human-induced impacts to sensitive species. (**ESA, PL 93-205**)	1	Ongoing	Army/CNRSW
High	**Navy/Army**	Continue to maintain the tidal marsh area in accordance with the 1984 MOU (individual strategies are included in Section 6.4.5). (**ESA, PL 93-205**)	1	Ongoing	CNRSW
High	**Navy**	Continue to monitor populations of federally listed endangered and threatened species to assess effectiveness of natural resources management goals. The specific species to be monitored are the California sea blite, soft bird's beak, California red-legged frog, California clapper rail, and Salt marsh harvest mouse. (**ESA, PL 93-205**)	1	$50k-60k/event	CNRSW

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Conduct surveys to assess sensitive species habitat health in the Tidal Area of Detachment Concord.	2	$40k-$60k/event	CNRSW
High	**Army**	Discourage development and military training in areas known to contain habitat for sensitive species. (**ESA, PL 93-205**)	1	Ongoing	Army/CNRSW
High	**Army/Navy**	When conducting pier construction or major maintenance activities, coordinate with USFWS to determine appropriate noise mitigation measures. (**ESA, PL 93-205**)	1	$5-10k/event	Army/CNRSW
High	**Navy**	Review proposed military activities and development to ensure the conservation of these species. (**ESA, PL 93-205**)	1	$3-7k/event	Army/CNRSW
High	**Navy/Army**	Prohibit access to areas known to contain these species for purposes other than approved research. (**ESA, PL 93-205**)	1	Ongoing	Army
High	**Navy**	Perform a complete survey of Tidal Area wetlands for the federally listed endangered soft bird's beak. (**ESA, PL 93-205**)	1	$25k-$40k	CNRSW
High	**Navy**	Monitor species populations in Tidal Area to determine population trends. (**ESA, PL 93-205**)	1	$40k/event	CNRSW
High	**Army**	Consult with USFWS prior to conducting activities in the bay that may affect delta smelt or Sacramento splittail habitat. (**ESA, PL 93-205; Migratory Marine Game-Fish Act, PL 86-358; Magnuson Fishery Conservation and Management Act, PL 94-265**)	1	Ongoing	Army/CNRSW
High	**Army**	Consult with NMFS prior to conducting activities in the bay that may affect Central Valley steelhead, Central Valley spring-run chinook salmon, and Sacramento winter-run chinook salmon and their associated critical habitat. (**ESA, PL 93-205; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)	1	Ongoing	Army/CNRSW
High	**Army**	When conducting pier construction, major maintenance, or dredging activities in the bay or estuary, coordinate with NMFS to determine appropriate seasonal timing to avoid impacts to migrating sensitive salmonid species. (**Salmon and Steelhead Conservation and Enhancement Act, PL 96-561; Migratory Marine Game-Fish Act, PL 86-358; MFCMA, PL 94-265**)	1	Ongoing	Army/CNRSW
High	**Navy**	Conduct surveys to investigate the possible presence of California red-legged frog in Tidal Area. (**ESA, PL 93-205**)	1	$15-25k/event	CNRSW
High	**Navy**	Should California red-legged frog be identified in the Tidal Area, implement management strategies for the conservation of identified populations. Management strategies would be similar to those described of the Inland Area in Section 6.3.9. (**ESA, PL 93-205**)	1	To be determined	CNRSW
		Pest Management (Tidal)			
High	**Navy/Army**	Maintain a cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae where necessary. **)**	2	$12k/year	Army
High	**Navy**	Develop and implement an IPMP to manage invasive and noxious weed populations, such as yellow star thistle. (**EO 13112, Invasive Species; EO 13148, EO11987, Exotic Organisms**)	1	$25k-$40k	Army/CNRSW

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
High	**Navy**	Encourage the use of native killifish as opposed to nonnative mosquitofish as a means of biological control. (**EO 13112, Invasive Species; EO 13148, Greening the Government Through Leadership in Environmental Management**)	1	Ongoing	Army/CNRSW
High	**Navy**	Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications. (**FIFRA, PL 92-516**)	1	Ongoing with Lease	N/A
High	**Navy**	The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually. (**FIFRA, PL 92-516**)	1	Ongoing	CNRSW
High	**Navy**	Continue to require that lessees control purple star and artichoke thistle. (**Federal Noxious Weed Act, PL 93-629**)	1	Ongoing with Lease	N/A
High	**Navy**	Conduct surveys to monitor existing, and to discover new invasive plant and noxious weed populations. (**EO 13112, Invasive Species)**	1	$15k-$20k/event	CNRSW
High	**Navy**	Remove ice plant from natural areas and seed with a mixture of native grasses and forbs. (**EO 13112, Invasive Species)**	1	$5-12k/event	CNRSW
High	**Army**	Initiate program to prohibit ballast water discharges at Tidal Area piers. (**EO 13112, Invasive Species; EO11987, Exotic Organisms**)	1	$5-15k/year	Army
		Cultural Resources Management (Tidal)			
High	**Army**	Maintain areas of high to moderate archaeological potential as areas with limited uses for military training and public access. (**Archeological Resources Protection Act of 1979, PL 96-95; Protection of Archeological Resources: DoD Uniform Regulations**)	1	Ongoing	Army/CNRSW
High	**Army**	Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources. (**EO 11593, Protection and Enhancement of the Cultural Environment; Preservation of Historical and Archeological Data Act of 1974, PL 93-291; NHPA, PL 89-665)**	1	Ongoing	Army/CNRSW
High	**Navy/Army**	Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP. (**EO 11593, Protection and Enhancement of the Cultural Environment**)	1	Ongoing	Army/CNRSW
High	**Navy/Army**	Continue to coordinate with the National Park Service to provide access to the Port Chicago Memorial each year on the anniversary of the tragedy. (**Historic Sites, Buildings, and Antiquities Act, PL 74-292**)	1	Ongoing	Army/CNRSW
		Outdoor Recreation Management			
Low	**Navy/Army**	Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.	5	Ongoing and as requested	Army/CNRSW
Low	**Navy/Army**	Support local nature education programs, when feasible.	5	As requested	Army/CNRSW
Low	**Navy/Army**	Host wildlife viewing tours, when feasible.	5	As requested	Army/CNRSW

Table 7-3
Summary of Management Strategies, Priority of Implementation and Funding, and Potential Funding Sources *(continued)*

CINCPACFLT Funding Priority*	Responsibility (Navy/Army)	Management Strategy/Recommendation (Potential regulatory drivers in bold)	Navy Assessment Level (1-5)	Estimated Cost of Action	Potential Funding Source
		Fire Management (Tidal)			
High	**Navy**	Continue grazing outlease program and annually monitor fuel accumulation. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)	1	Ongoing with Lease	CNRSW
High	**Navy**	Continue requiring fire break discing and grading of all fire trails annually by grazing lessees. (**Outleasing for Grazing and Agriculture on Military Lands, 10 USC § 2667**)	1	$80k-$110k/year	Via Lease
High	**Navy/Army**	Coordinate with regulatory agencies if any controlled burning is conducted for potential impacts to federally protected species and concerns with air quality. (**ESA, PL 93-205; Air quality regulations**).	1	ongoing	Army/CNRSW

* Funding priority also defines implementation priority.

8.0 REFERENCES

8.1 REFERENCES **8-1**

8.2 PERSONS CONSULTED **8-6**

SECTION 8
REFERENCES

8.1 REFERENCES

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SECTION 9
LIST OF PREPARERS

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APPENDICES

APPENDIX A

ENVIRONMENTAL ASSESSMENT FOR THE DETACHMENT CONCORD INRMP

APPENDIX A
ENVIRONMENTAL ASSESSMENT FOR THE DETACHMENT CONCORD INRMP

A.1 INTRODUCTION

In accordance with the Sikes Act Improvement Act of 1997 (SAIA) and DoD and DoN guidance and instructions, Detachment Concord is proposing to implement an Integrated Natural Resources Management Plan (INRMP). This environmental assessment (EA) evaluates the potential environmental impacts from implementing either of two action alternatives or a no action alternative at Detachment Concord. The EA presents the purpose of and need for the proposed action, identifies alternatives to the proposed action, describes the affected environment, and analyzes potential impacts to the environment from the proposed action and alternatives. The EA has been prepared pursuant to and in accordance with the National Environmental Policy Act (NEPA) of 1969, PL 91-190 (42 USC §§ 4321 – 4370d), the Council of Environmental Quality (CEQ) regulations on implementing NEPA (40 Code for Federal Regulations [CFR] Parts 1500-1508), Department of Defense (DoD) Directive 4173.5, Chief of Naval Operations Guidance on Preparing NEPA Documents for INRMPs, and Navy guidelines (OPNAVINST 5090.1B CH-2). The NEPA process ensures that environmental impacts of proposed major federal actions are considered in the planning and decision-making process. Additional summary information is in the Executive Summary and a list of acronyms is in the Table of Contents of the INRMP.

A.2 PURPOSE OF AND NEED FOR PROPOSED ACTION

A.2.1 Purpose of the Proposed Action

The purpose of this INRMP, the proposed action, is to meet statutory requirements of the SAIA. In November 1997, the Sikes Act, 16 USC §§ 670a *et seq.*, was amended to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement INRMPs for each military installation in the US unless the absence of

significant natural resources on a particular installation makes preparation of a plan for that installation inappropriate. More specifically, the purpose of this INRMP is to guide the natural resources management program at Detachment Concord from 2002 through 2006 and to provide a solid foundation from which to build the program beyond 2006. Pursuant to DoD policy, an INRMP must support the military mission and protect the ecological condition of the installation. In addition, the INRMP should ensure that natural resources management and naval military training requirements are integrated and are consistent with federal and state stewardship requirements.

A.2.2 Need for the Proposed Action / INRMP

- To update the existing Natural Resources Management Plan (NRMP) (DoN 1988). A number of resource-specific management plans and studies have been completed subsequent to completion of the NRMP. These plans and studies are discussed in Section 4 and include a Draft Integrated Cultural Resources Management Plan (ICRMP) (DoN 2000), a Wildlife and Plant Community Survey (DoN 1999d), a Natural Resources Management Plan for Outdoor Recreation (DoN 1994a), and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). The INRMP is needed to integrate these existing plans into one comprehensive natural resources management plan. This process would resolve potential conflicts and would integrate the planning functions of multiple programs.
- To guide Navy and Army personnel in jointly managing the Tidal Area's natural resources. As a result of an Indefinite Use Permit (IUP) between the Navy and Army, the Army occupies and maintains the facilities, structures, and equipment in the Tidal Area. Many of the wetlands in the Tidal Area were declared a wetland preserve under a 1984 Memorandum of Understanding (MOU) between the Navy and US Fish and Wildlife Service (USFWS). The INRMP would help Army personnel understand the natural resource base and the goals and objectives of natural resource management. This would allow the Army to more accurately assess impacts to natural resources as a result of its activities and proposed projects.
- To document the principles of ecosystem management as part of Detachment Concord's natural resources program (Environmental Conservation Program, DoD Instruction 4715.3). It is Navy policy to incorporate ecosystem management as the basis for planning and managing Navy facilities (OPNAVINST 5090.1B). This approach takes a long-term view of human activities, including military training needs, human uses, and biological resources, as part of the same environment. The following is the goal of ecosystem management, as defined by the DoD's Environmental Conservation Program, Instruction 4715.3:

  > "To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain

and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations" (DoD 1996).

A.2.3 Public Involvement and Agency Coordination

Please refer to Section 1.7 of the INRMP.

A.3 PROPOSED ACTION AND ALTERNATIVES

A.3.1 Description of the Proposed Action

The proposed action is to revise the existing NRMP (DoN 1988) and practices at Detachment Concord by developing and implementing an INRMP consistent with the military use of Detachment Concord and the goals and objectives established in the SAIA. The goal of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and enhancement of natural resources in a manner that is consistent with the military mission, that integrates and coordinates all natural resource management activities, and that provides for sustainable multipurpose uses of natural resources, including public access for use of natural resources subject to safety and military security considerations. The management objectives of this INRMP are to integrate management plans as practicable and consistent with the military mission and established land uses.

Implementing the proposed action would comply with federal regulations and military requirements that mandate adequate protection of natural resources managed by the Navy. The proposed action focuses on a five-year planning period, which is consistent with the time frame mandated by the SAIA and DoD Instruction.

A.3.2 Alternatives

Given the policy-level detail of an INRMP and the large number of specific management actions, a nearly infinite number of permutations of specific management alternatives are possible. In order to capture the full range of possible impacts that could result from implementing the INRMP, two alternative means of implementing a natural resources program at Detachment Concord for the next five years have been identified. These programs range from implementing the full INRMP, as outlined in Section 6 (an ecosystem approach), to implementing only those activities required to comply with federal law and regulation. The Navy's preferred alternative is to implement an ecosystem approach to meet multiple objectives.

The selection of viable alternatives must consider issues related to the military use of the property. At Detachment Concord, the predominant issue is the need to maintain Explosive Safety Quantity Distances (ESQD) arcs in order to safely handle and store munitions. Other issues related to the military use include pier operation and maintenance, and facilities maintenance.

The two action alternatives are discussed below, along with an overview of the No Action Alternative. Land management activities that would be implemented for each alternative have been delineated into 14 management categories. The three alternatives vary in their emphasis on management issues, as summarized in Table A-1. Section A.5 provides a detailed overview of the specific management activities included in each alternative, along with an assessment of potential impacts resulting from implementing each alternative.

Alternative 1: Ecosystem-based INRMP. Under this alternative, Detachment Concord would implement the INRMP approach outlined in Section 6, focusing on sustaining military readiness, complying with applicable federal laws and regulations, and promoting ecological stewardship. This alternative addresses the changes in the natural resources management program as a result of the 1999 IUP. Detachment Concord's grazing outlease program would be managed in compliance with PL 97-321, Agricultural Outleasing. In addition, this alternative integrates the management measures identified in *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b) and the 1984 MOU with USFWS regarding the wetland preserve. Implementing the management strategies identified in Section 6 would depend upon the availability of funding and staff. The implementation priority for each of the management measures under Alternative 1 is shown in Table A-2. An adaptive management strategy would be instituted to conduct additional research, to monitor management actions, and to revise the management plan accordingly.

Table A-1
Summary of General Management Emphasis by Alternative and Resource Areas

	Level of Emphasis					
	Alternative 1		Alternative 2		No Action Alternative	
Management Category	**Inland**	**Tidal**	**Inland**	**Tidal**	**Inland**	**Tidal**
Soil	High	Med.	High	Low	Med.	Low
Water Resources	Med.	High	Low	High	Med.	High
Grazing Outlease	High	High	N/A	N/A	Med.	Med.
Terrestrial Habitat	Low	Low	N/A	N/A	Low	Low
Wetlands	High	High	High	High	High	High
Riparian Habitat	Low	N/A	N/A	N/A	Low	N/A
Wildlife	Med.	Med.	Med.	Med.	Med.	Med.
Fisheries	N/A	High	N/A	High	N/A	High
Endangered Species	High	High	Med.	High	Med.	High
Pests	High	High	Low	Med.	Med.	Med.
Cultural Resources	High	High	High	High	High	High
Outdoor Recreation	Low	Low	Low	N/A	Low	Low
Fire	High	High	Med.	Med.	High	High

N/A: Not applicable.
High: Most management actions within the management category have high or medium implementation priorities.
Med (medium): Most management actions within the management category have medium implementation priority, although some could be high or low.
Low: Most management actions within the management category have low implementation priorities, although some could be high or N/A.

Alternative 2: Compliance-based INRMP. Under this alternative, Detachment Concord would implement only those natural resource management actions necessary to comply with applicable federal law and regulation. This approach to natural resources management would be in response to Detachment Concord's progression toward reduced operational status. This operations progression would result in the further reduction of funds and staff available for natural resources management. Under this alternative the 1984 MOU with USFWS regarding the wetland preserve and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b) would continue to be recognized; however, implementing the management measures would be subject to reduced funding and staff availability. Public Law 97-321, Agricultural Outleasing, allows for a grazing outlease program to be undertaken at the discretion of natural resource managers. Due to the reduction in staff, the grazing outlease program would be discontinued under Alternative 2. Actions to support the mission and sustain military readiness would continue to be implemented. Therefore, this alternative focuses only on legally protected resources (e.g., federally listed endangered and threatened species) and does not emphasize specific management approaches or stewardship. Compliance management strategies, as identified in Section 6, would be the only actions implemented, with the exception of grazing outlease management strategies. The implementation priority for each of the management measures to be implemented under Alternative 2 is shown in Table A-2. Those management strategies driven by pending regulation were considered compliance strategies and given an implementation priority of medium in Table A-2.

No Action Alternative. The No Action Alternative would continue implementing the objectives and practices under the existing natural resources management programs. On-going practices used for management of natural resources at Detachment Concord would continue and there would be no change to the objectives of the current natural resources management programs. The current natural resources management programs are described in Section 4 of the INRMP and include the Detachment Concord NRMP (DoN 1988) and *The Management Plan for the Concord Tule Elk Herd* (DoN 1982b). The current NRMP was written prior to the 1999 IUP and does not address the resulting changes in natural resource management. This program focuses on compliance actions as a top priority but also includes implementing some stewardship actions. This alternative broadly supports all natural resources and generally does not emphasize specific management areas. In this regard, the level of effort of the No Action Alternative falls between Alternative 1 and Alternative 2. A No Action Alternative is prescribed by CEQ regulations and serves as a benchmark against which proposed federal actions are evaluated. The implementation priority for each of the management measures to be implemented under the No Action Alternative is shown in Table A-2.

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
Soil Management (Inland)			
• Continue to implement erosion control and vegetation clearing measures along Mt. Diablo/Seal Creek and other stormwater conduits to ensure unobstructed flow through operational areas.	High	High	High
• As outlined in the *Mt. Diablo Creek Flood Control and Stream Stabilization Plan* (USDA/SCS 1989), perform an annual inspection of all road and railroad crossings of Mt. Diablo/Seal Creek for blockages and excessive vegetation growth.	High	High	High
• Provide for annual debris removal from Mt. Diablo/Seal Creek.	High	High	Medium
• Remove noxious plants that are intrusive to Mt. Diablo/Seal Creek, such as bamboo and other invasives that may appear.	High	High	Medium
• Initiate action to correct erosion being caused from outfalls of Highway 4 and small water storage tank adjacent to Highway 4.	High	High	Medium
• Implement applicable strategies as outlined in Section 6.3.3, Grazing Outlease Management.	High	N/A	Medium
• Continue to annually inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning.	High	High	High
• Continue to implement annual erosion control measures at areas frequented by grazing cattle.	Low	N/A	Low
• Protect floodwater impact zones of Mt. Diablo/Seal Creek with rip-rap or other similar protection measures to stabilize banks.	Low	N/A	Low
• Ensure proper revegetation measures are implemented on construction projects to stabilize soils and prevent soil from migrating off-site.	Low	N/A	Low
Water Resources Management (Inland)			
• Maintain limited water distribution system to support grazing leases.	High	N/A	High
• Monitor and adaptively manage stockwater ponds to maintain the quality of aquatic habitats.	High	High	High
• Ensure stockwater ponds maintain their function as an open body of water and upon sedimentation and choking of wetland vegetation, initiate corrective action and coordinate with regulatory agencies.	High	High	High
• Manage riparian areas in accordance with strategies described in Section 6.3.6.	Low	N/A	Low
• Limit channelization and vegetation clearing activities in storm drains and Mt. Diablo/Seal Creek to only those areas necessary to protect the facilities from flooding.	Low	N/A	Low
• Initiate an effort to work with NRCS and EBRPD to cooperatively manage the watershed.	Low	N/A	Low
Grazing Outlease Management (Inland)			
• Reduce grazing in fields in lease 4B04 (Figure 3-4) that include areas of Mt. Diablo/ Seal Creek to be only holding areas for bulls.	High	N/A	Medium
• Complete fencing on three small areas of lease 4B01 to prevent livestock from grazing along Mt. Diablo/Seal Creek.	High	N/A	Medium
• Continue to provide water via troughs system fed by the water system to assist with grazing rotation and livestock distribution.	High	N/A	Medium
• Maintain water trough float valves to ensure conservation of water.	High	N/A	Medium
• Maintain cattle exclusion fencing around stockwater ponds and other sensitive aquatic habitats.	High	N/A	Medium
• Monitor grazing herd capacity to prevent overgrazing.	High	N/A	Medium
• Maintain existing cattle exclusion fencing surrounding riparian areas of Mt. Diablo/Seal Creek and other designated wildlife areas.	High	N/A	Medium
Terrestrial Habitat Management (Inland)			
• Maintain fences surrounding stockwater developments in order to allow native vegetation to grow unimpeded by cattle grazing.	High	N/A	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Continue coordination with the US Forest Service to manage the eucalyptus and pine plantings.	Low	N/A	Low
• Should trees be cut, place the slash into brush piles on the harvest site or another site for appropriate wildlife cover and schedule cutting so as not to adversely affect breeding activities of migratory birds.	Low	N/A	Low
• Encourage research by public universities and agencies on oak reproduction to develop management strategies for enhancing oak woodlands on Detachment Concord.	Low	N/A	Low
• Identify potential oak woodland revegetation sites and implement revegetation strategies where feasible	Low	N/A	Low
• Continue to work with the CCC and request forestry reserve funds for the propagation and planting of native trees.	Low	N/A	Low
Wetlands Management (Inland)			
• Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by Executive Order 11990, Protection of Wetlands. Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-9b as likely jurisdictional or potentially jurisdictional wetlands.	High	High	High
• Prohibit any alteration or destruction of any designated jurisdictional wetlands.	High	High	High
• Control access by cattle to aquatic areas by maintaining fencing around stockwater ponds and other sensitive water habitats in the Inland Area.	High	N/A	High
• Enhance vegetation along the banks of stockwater ponds to provide cover and reduce sediment input; use native species as much as possible.	Low	N/A	Low
• Keep noxious and invasive plants from establishing at Cistern Pond, including artichoke thistle, yellow star thistle, purple star thistle, and bull thistle.	High	High	Low
Riparian Habitat Management (Inland)			
• With assistance from the CCC, plant willow cuttings in areas where bank cutting has occurred, causing potential threat to base facilities.	Low	N/A	Low
• In areas where bank cutting does not endanger base facilities, maintain existing meandering zone for Mt. Diablo/Seal Creek where no attempt will be made to prevent natural channel realignment, bank cutting, or vegetative succession.	Low	N/A	Low
• Identify potential oak woodland revegetation sites within the riparian corridor and implement revegetation strategies where feasible. CCC can assist with native tree propagations and plantings through continuing requests for forestry reserve account funds.	Low	N/A	Low
• Where feasible for protection from cattle grazing, fence hillside drainages that support wetland vegetation and/or aquatic habitats.	Low	N/A	Low
Wildlife Management (Inland)			
• Control nonnative plant species where feasible in order to promote native grassland habitats (see strategies in Section 6.3.10, Objective 4 for details).	High	Medium	Medium
• Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.	High	Medium	Medium
• Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated Checklist of the Amphibians and Reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California*, (Hickman 1993).	Low	Low	Low
• Maintain fences surrounding stockwater ponds, as outlined in Section 6.3.5, Objective 2.	High	N/A	High
• Coordinate with CCC, local colleges, and universities to restore wildlife habitat, when feasible.	Low	N/A	Low

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Continue to develop the GIS for biodiversity advancement and monitoring purposes.	Low	N/A	Low
• Work with local and state resource agencies to maintain or increase wildlife biodiversity.	Low	N/A	Low
• Work with the city of Concord to make the golf course National Audubon Society certified.	Low	N/A	N/A
• Provide CDFG with access necessary to manage the herd of tule elk.	High	High	High
• Notify CDFG when there are obviously sick/diseased elk within the herd and determine appropriate action.	High	High	High
• Notify CDFG of all moralities that are suitable for necropsy analysis.	High	High	High
• Assist in carrying out *The Management Plan for the Concord Tule Elk Herd*, by: 1. Conducting censuses; 2. Coordinating research activities; and 3. Coordinating public awareness and education activities.	High	High	High
• Assist CDFG with: 1. Laboratory/field necropsies of tule elk; 2. Surplus animal removal operation; and 3. Site surveys, investigations, project plans formulation, and contract procurement, if funds are available.	High	High	High
• Maintain the existing tule elk holding facilities and holding chute, within the limits of available funding.	High	Medium	Medium
• Complete the Tule Elk Management Plan revisions (2001) currently ongoing with CDFG.	High	High	High
• Install a means of escape within the Contra Costa Canal at select points to enable tule elk that fall into the canal to escape. This strategy is to be coordinated with the Contra Costa Water District Engineering Department.	Low	N/A	Low
• Maintain the riparian habitat associated with Mt. Diablo/Seal Creek to provide foraging habitat for tule elk.	Low	N/A	Low
• Protect tule elk calving and rutting areas from development and unnecessary disturbances. Continue to work with CDFG and assist with funding if available to reduce the herd size further and to establish a predominantly male herd with few cows, thus reducing the need to relocate elk as frequently.	Low	N/A	Low
• Provide for tule elk viewing areas equipped with spotting scopes at prime sites.	Low	N/A	Low
• Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds.	High	High	High
• Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord.	Medium	Medium	Medium
• Avoid removing and trimming trees with known nests, when feasible. If it is necessary, remove trees outside of the breeding season.	High	High	High
• Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas.	High	High	High
• Prohibit loud or lengthy disturbance within half a mile (eight tenths km)of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance.	High	High	High
• Notify the USFWS in advance of conducting any action that is intended to take migratory birds and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes, evaluate the effects of actions and plans on migratory birds.	High	High	High
• Integrate migratory bird conservation principles, measures, and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats.	High	High	High
• Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations.	High	High	High
• Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements.	High	High	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.	Low	N/A	Low
• Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.	Low	N/A	Low
• Develop a bird checklist.	Low	N/A	N/A
Fisheries Management (Inland)			
None.			
Federally Listed Endangered, Federally Listed Threatened and Other Sensitive Species (Inland)			
• Discourage construction and military training activities in the aquatic habitats known to contain California red-legged frog.	High	High	High
• Conduct surveys in aquatic habitats potentially supporting the California red-legged frog prior to implementing actions that may affect the habitat quality or quantity.	High	High	High
• Inspect and maintain existing fencing around the four stockwater ponds known to contain populations of California red-legged frog in order to exclude cattle and to encourage growth of native vegetation.	High	N/A	High
• Discourage pesticide application in areas that may support the California red-legged frog.	High	High	High
• Conduct California red-legged frog surveys prior to revision of this INRMP.	High	High	High
• Conduct surveys to assess sensitive and endangered species habitat health in Inland Area of Detachment Concord, prior to revisions of this INRMP.	High	Low	Medium
• Discourage construction and military training activities in the aquatic habitats known to support the California tiger salamander.	Medium	Medium	Medium
• Discourage pesticide use for ground squirrel control in areas where the California tiger salamander may occur.	Medium	Medium	Medium
• Provide information and education programs for base personnel and the public regarding sensitive species at Detachment Concord.	Low	N/A	Low
• Conduct population consensus and habitat evaluation surveys for the California tiger salamander.	Medium	Medium	Medium
Pest Management (Inland)			
• Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications.	High	N/A	High
• The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually.	High	N/A	High
• Ensure pesticide/herbicide applications will not negatively affect California red-legged frog populations.	High	High	High
• Maintain cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae in aquatic areas.	High	High	Medium
• Maintain cooperative relationship with grazing lessees to monitor and report increased ground squirrel and coyote populations.	High	N/A	Medium
• Develop and implement an IPM Plan to manage invasive and noxious weed populations, such as yellow star thistle.	High	High	Medium
• Maintain cooperative relationship with grazing lessees to monitor, report, and treat invasive and noxious weed populations.	High	N/A	Medium
• Conduct surveys to detect new invasive and noxious weed populations and to monitor existing invasive and noxious weed populations.	High	High	Medium
Cultural Resources Management (Inland)			
• In areas of high to moderate archaeological potential, limit military training and public access.	High	High	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources.	High	High	High
• Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP.	High	High	High
Outdoor Recreation Management (Inland)			
• Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.	Low	N/A	Low
• Maintain agreement with the city of Concord for use of the baseball diamond, free of charge, located near Olivera Road and Detachment Concord's enlisted family housing area.	Low	N/A	Low
• Support local nature education programs, when feasible.	Low	N/A	Low
• Host wildlife viewing tours and install spotting scopes at tule elk viewing areas.	Low	N/A	Low
Fire Management (Inland)			
• Continue grazing outlease program and annually monitor fuel accumulation.	High	N/A	High
• Continue having firebreaks disced and all fire trails graded annually.	High	High	High
• Coordinate any controlled burning activities with regulatory agencies for potential impacts to federally listed species (California red-legged frog) and for air quality concerns.	High	High	High
• Remove dead/dying trees and excess understory vegetation from abandoned orchards and eucalyptus and pine plantings; ensure compliance with the MBTA prior to removal.	Low	N/A	Low
Soil Management (Tidal)			
• Correct the gully action taking place within the Alpha area.	High	High	High
• Ensure that proper revegetation measures and/or other erosion control techniques are implemented on construction projects to stabilize soils and prevent soil from migrating off site.	High	High	High
• Continue to inspect culverts, pond dam outfalls, and other energy dissipaters to ensure proper functioning. (recommended in the 1989 *Mt. Diablo/Seal Creek Flood Control and Stream Stabilization Plan* [USDA/SCS 1989])	Low	N/A	Low
• Initiate action to correct the 1.0-million-gallon (3.8-million-liter) tank outlet that discharges into an adjacent natural drainage and that is causing excessive soil erosion and slope instability.	Low	N/A	Low
Water Resources Management (Tidal)			
• Continue routine maintenance of existing landscape irrigation systems to maintain efficiency and to conserve water.	High	High	Medium
• Conduct routine surveys of water distribution systems to ensure float valves on all livestock water troughs are operating properly to avoid unnecessary water loss.	High	N/A	High
Grazing Outleases Management (Tidal)			
• Work cooperatively with grazing lessees to ensure proper grazing measures are followed to avoid overgrazing and unnecessary soil erosion.	High	N/A	Medium
• Ensure proper grazing measures are followed to avoid introduction of additional invasive plant species.	High	N/A	Medium

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Ensure grazing lessees comply with removal of noxious and invasive plants, such as artichoke thistle and purple star thistle.	High	N/A	Medium
• Maintain cattle exclusion fencing around stockwater ponds and other sensitive habitats.	High	N/A	Medium
• Ensure that cattle do not graze new pastures adjacent to Contra Costa Water District canal from November 1 through April 15 each year to reduce risk of water contamination	High	N/A	Medium
Terrestrial Habitat Management (Tidal)			
• Should trees be cut, place the slash into brushpiles on the harvest site or another site for appropriate wildlife cover, and schedule cutting so as not to adversely affect breeding activities of migratory birds.	Low	N/A	Low
• Complete a wildlife survey prior to implementing a revised INRMP in 2007.	Low	N/A	Low
Wetlands Management (Tidal)			
• Maintain wetland preserve designation status for Roe Island, Ryer Island, Freeman Island, Snag Island, Middle-Ground Island and Seal Islands, Hastings Marsh, Pier Marsh, Middle-Ground Marsh, East Marsh, and North Area K Marsh (Figure 3-11)	High	High	High
• Conduct such studies, surveys, and other research, as determined by availability of funds and personnel, on the fish and wildlife resources of the preserve and coordinate such activities with USFWS.	High	High	High
• Give priority to protecting and managing the preserve and prevent, as far as feasible, any military activity that could adversely affect or otherwise be detrimental to the wetland resources of the preserve.	High	High	High
• Continue to uphold the Navy's obligations regarding protection of wetlands, migratory birds, and endangered species, as required by the ESA, the MBTA, Migratory Bird Conservation Act, Executive Order 11990, Protection of Wetlands, and other obligations regarding the conservation and management of natural resources of the preserve.	High	High	High
• As specified in the 1984 MOU, allow access to USFWS personnel responsible for carrying out the purposes of the 1984 MOU.	High	High	High
• Allow the Navy to enter into agreements with educational, research, scientific, and government organizations in carrying out Navy responsibilities under the 1984 MOU, provided that the Navy agrees to coordinate such activities with USFWS to ensure the activities contribute to proper management and protection of the preserve.	High	High	High
• Perform a complete survey of Tidal Area wetlands for the federally listed endangered salt marsh bird's beak.	High	High	High
• Initiate a meeting with the San Francisco Bay National Wildlife Complex office to discuss the MOU.	Low	Low	Low
• Support the mitigation policy of avoidance, minimization, and compensation for any wetland losses, as mandated by EO 11990.	High	High	High
• Perform a wetland delineation prior to conducting activities in areas identified in Figure 3-10b as likely jurisdictional or potentially jurisdictional wetlands.	High	High	High
• Maintain facilities management procedures to prevent nonpoint source pollution and stormwater runoff from negatively affecting wetland resources from upland sources.	High	High	High
Riparian Habitat Management (Tidal)			
No management measures are proposed.			
Wildlife Management (Tidal)			
• Continue to manage wetlands in Tidal Area as wetlands preserve, as agreed upon in the 1984 MOU.	High	High	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Control non-native plant species where feasible to promote native grassland habitat (see strategies described in Section 6.4.10).	High	High	High
• Conduct a station-wide biodiversity survey before developing the 2007-2011 INRMP in order to develop more complete baseline data for analyzing/monitoring environmental trends.	High	Medium	Medium
• Standardize nomenclature used in future wildlife and vegetation studies by using the Navy's preferred references: *Annotated Checklist of the Amphibians and Reptiles of California*, second revised edition (Jennings 1987); *Supplement to the American Ornithologists Union Checklist of North American Birds* (AOU 1996); *Common Names of Mammals of the World* (Wilson and Cole 2000); *Mammal Species of the World: a Taxonomic and Geographic Reference*, second edition (Wilson and Reeder 2000); and the *Jepson Manual: Higher Plants of California*, (Hickman 1993).	Low	Low	Low
• Coordinate with local colleges, universities, and CCC to restore wildlife habitat when feasible.	Low	N/A	Low
• Continue to advance the GIS for bio-diversity advancement and monitoring purposes.	Low	N/A	Low
• Work with local and state resource agencies, as well as CCC, to maintain and increase wildlife biodiversity in the Tidal Area.	Low	N/A	Low
• Evaluate proposed activities and construction projects for their likelihood to kill, injure, or significantly disturb migratory birds.	High	High	High
• Coordinate with the Department of the Interior if any proposed land acquisition for bird conservation should affect Detachment Concord.	Medium	Medium	Medium
• Avoid removing and trimming trees with known nests, when feasible. If it is necessary, remove trees outside of the breeding season.	High	High	High
• Review all proposed training activities and construction projects for their potential to affect woodlands, riparian areas, large trees, and known undisturbed nesting areas.	High	High	High
• Prohibit loud or lengthy disturbance within half a mile (eight-tenths km)of any golden eagle nest. Distance will vary according to terrain, amount of screening vegetation, and the type of disturbance.	High	High	High
• Notify the USFWS in advance of conducting any action that is intended to take migratory birds, and ensure that the environmental analysis of actions required by the NEPA, or other established environmental review processes evaluate the effects of actions and plans on migratory birds.	High	High	High
• Integrate migratory bird conservation principles, measures, and practices into installation activities and avoid or minimize, to the extent practicable, adverse impacts on migratory birds and migratory bird habitats.	High	High	High
• Identify any unintentional takings that have, or are likely to have, a measurable negative effect on migratory bird populations.	High	High	High
• Develop and implement standards and practices designed to lessen the amount of unintentional takings to the extent practicable and consistent with mission requirements.	High	High	High
• Conduct raptor surveys to provide information on important nesting, feeding, wintering, and roosting areas and on trends in populations and productivity.	Low	N/A	Low
• Continue to work with the National Audubon Society in conducting their annual Christmas bird counts at Detachment Concord.	Low	N/A	Low
• Develop a bird checklist.	Low	N/A	N/A
Fisheries Resource Management (Tidal)			
• Review pier maintenance, dredging, and development projects to ensure the conservation of essential fish habitat.	High	High	High
• Consult with NMFS regarding projects that may affect essential fish habitat (See sections 3.10.2 and 3.11 for specific species).	High	High	High
• Manage the designated wetland preserve areas in coordination with USFWS, according to the 1984 MOU.	High	High	High
Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species (Tidal)			
• Restrict access to tidal marsh habitats to reduce the potential for human-induced impacts to sensitive species.	High	High	High
• Continue to maintain the tidal marsh area in accordance with the 1984 MOU (Individual strategies are included in Section 6.4.5).	High	High	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Continue to monitor populations of federally listed endangered and threatened species to assess effectiveness of natural resources management goals. The specific species to be monitored are the California sea blite, soft bird's beak, California red-legged frog, California clapper rail, and Salt marsh harvest mouse. (**ESA, PL 93-205**)	High	High	High
• Conduct surveys to assess sensitive and endangered species habitat health in the Tidal Area of Detachment Concord.	High	High	High
• Discourage development and military training in areas known to contain habitat for sensitive species.	High	High	High
• When conducting pier construction or major maintenance activities, coordinate with USFWS to determine appropriate noise mitigation measures.	High	High	High
• Review proposed military activities and development to ensure the conservation of these species.	High	High	High
• Prohibit access to areas known to contain these species for purposes other than approved research.	High	High	High
• Perform a complete survey of Tidal Area wetlands for the federally listed endangered soft bird's beak.	High	High	High
• Monitor species populations in Tidal Area to determine population trends.	High	High	High
• Consult with USFWS prior to conducting activities in the bay that may affect delta smelt or Sacramento splittail habitat.	High	High	High
• Consult with NMFS prior to conducting activities in the bay that may affect Central Valley steelhead, Central Valley spring-run chinook salmon, and Sacramento winter-run chinook salmon and their associated critical habitat.	High	High	High
• When conducting pier construction, major maintenance, or dredging activities in the bay or estuary, coordinate with NMFS to determine appropriate seasonal timing to avoid impacts to migrating sensitive salmonid species.	High	High	High
• Conduct surveys to investigate the possible presence of California red-legged frogs in Tidal Area.	High	High	High
• Should California red-legged frogs be identified in the tidal areas, implement management strategies for the conservation of identified populations. Management strategies would be similar to those described of the Inland Area in Section 6.3.9.	High	High	High
Pest Management (Tidal)			
• Maintain a cooperative relationship with the Contra Costa County mosquito abatement program to control mosquito larvae where necessary.	High	High	High
• Develop and implement an IPMP to manage invasive and noxious weed populations, such as yellow star thistle.	High	High	High
• Encourage the use of native killifish as opposed to nonnative mosquitofish as a means of biological control.	High	High	High
• Lessees shall be responsible for complying with all federal, military, state, and local environmental standards and shall obtain necessary permits for pesticide/herbicide applications.	High	N/A	High
• The Environmental Site Manager at Detachment Concord would continue to review lessees pest management plans annually.	High	N/A	High
• Continue to require that lessees control purple star and artichoke thistle.	High	N/A	Medium
• Conduct surveys to monitor existing and to discover new invasive plant and noxious weed populations.	High	Medium	Medium
• Remove ice plant from natural areas and seed with a mixture of native grasses and forbs.	High	Medium	Medium
• Initiate program to prohibit ballast water discharges at Tidal Area piers.	High	Medium	Medium
Cultural Resources Management (Tidal)			
• Maintain areas of high to moderate archaeological potential as areas with limited uses for military training and public access.	High	High	High
• Monitor for the presence of prehistoric sites whenever projects involving ground disturbance or development are proposed in areas likely to contain cultural resources.	High	High	High

Table A-2
Summary of Management Strategies and Priority of Implementation by Alternative *(continued)*

Management Strategy/Recommendation	Alternative 1: Ecosystem-based INRMP	Alternative 2: Compliance-based INRMP	Alternative 3: No Action
• Continue to manage cultural resources in accordance with the priorities set forth in the 2000 ICRMP.	High	High	High
• Continue to coordinate with the National Park Service to provide access to the Port Chicago Memorial each year on the anniversary of the tragedy.	High	High	High
Outdoor Recreation Management			
• Educate Detachment Concord personnel about the locations of sensitive resources and acceptable outdoor activities.	Low	N/A	Low
• Support local nature education programs, when feasible.	Low	N/A	Low
• Host wildlife viewing tours, when feasible.	Low	N/A	Low
Fire Management (Tidal)			
• Continue grazing outlease program and annually monitor fuel accumulation.	High	N/A	High
• Continue requiring fire break discing and grading of all fire trails annually by grazing lessees.	High	High	High
• Coordinate with regulatory agencies if any controlled burning is conducted for potential impacts to federally protected species and concerns with air quality.	High	High	High

Notes:
The ranking of management strategies represents a timing preference and does not reflect how well the strategy would be in fulfilling the goals and objectives based on the means of implementation under each alternative.
High Priority = Program to be continued or likely to implemented within the next three years.
Medium Priority = Likely to be implemented within the next six years.
Low Priority = Likely to be implemented when staffing and funding is available.
N/A= Not applicable.

A.3.3 Scope of Analysis

The potential environmental impacts associated with the proposed action are required to be assessed in compliance with NEPA, CEQ regulations, and NAVFAC P-73, Volume II. This document identifies, documents, and evaluates the effects of implementing the INRMP at Detachment Concord. The scope of the INRMP will guide the installation in the following activities:

- Meeting future training requirements and objectives of the military mission of Detachment Concord;
- Achieving the natural resource management goals; and
- Meeting legal and policy requirements, including those associated with NEPA, that are consistent with current national natural resource management philosophies.

In order to meet this objective, an interdisciplinary team of environmental scientists, biologists, geographers, engineers, archaeologists, historians, planners, and military technicians gathered to develop the INRMP. The team identified the affected environment, analyzed the proposed action against existing conditions, and determined the potential beneficial and adverse effects associated with the proposal.

Resources covered in this EA include those applicable to resource management (as discussed in Section 3) in addition to those that have a potential to be affected by the action, including air quality, noise, public health and safety, and socioeconomic conditions. An environmental justice assessment of impacts to minority or low-income populations is also provided. Resources not included are transportation and infrastructure since the proposed action does not include activities that would generate more or less traffic or infrastructure needs.

A.4 EXISTING ENVIRONMENTAL CONDITIONS

A.4.1 Introduction

This section describes the existing environmental conditions at Detachment Concord. Land use, facilities, climate, geology, soil resources, water resources, vegetation, wetlands, wildlife, federally listed endangered, federally listed threatened, and other sensitive species, and cultural resources are described in Section 3 of the INRMP. To keep the order of resource categories consistent with the environmental consequences discussion (Section A.5), each resource category described in Section 3 of the INRMP is also referenced in this section.

A.4.2 Land Use

Refer to Section 3.2 of the INRMP for a description.

A.4.3 Facilities

Refer to Section 3.3 of the INRMP for a description.

A.4.4 Climate

Refer to Section 3.4 of the INRMP for a description.

A.4.5 Geology

Refer to Section 3.5 of the INRMP for a description.

A.4.6 Soil Resources

Refer to Section 3.6 of the INRMP for a description.

A.4.7 Water Resources

Refer to Section 3.7 of the INRMP for a description.

A.4.8 Wetlands

Refer to Section 3.8 of the INRMP for a description.

A.4.9 Vegetation

Refer to Section 3.9 of the INRMP for a description.

A.4.10 Wildlife

Refer to Section 3.10 of the INRMP for a description.

A.4.11 Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species

Refer to Section 3.11 of the INRMP for a description.

A.4.12 Cultural Resources

Refer to Section 3.12 of the INRMP for a description.

A.4.13 Air Quality

Ambient Air Quality Standards

Both California and the federal government have established ambient air quality standards for the following six criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, inhalable and fine particulate matter (PM_{10} and $PM_{2.5}$, respectively), and lead particles (Table A-3). Ambient standards for some pollutants have been set for both short and long periods. Federal ambient air quality standards are based on evidence of acute and chronic health effects. Most state ambient air quality standards are based primarily on health effects data, but also can reflect other considerations, such as protection of crops, protection of materials, or avoidance of nuisance conditions (such as odors).

Areas that violate a federal air quality standard are designated nonattainment areas. Nonattainment designations for ozone, carbon monoxide, and PM_{10} include subcategories indicating the severity of the air quality problem. Areas that comply with federal air quality standards are designated attainment areas. Areas that have been

Table A-3
Ambient Air Quality Standards

Pollutant	Symbol	Averaging Time	Standard, as parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 Hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in a 3-year period
		8 hours	---	0.08	---	160	---	If exceeded by the mean of annual 4th highest daily values for a 3-year period.
Carbon monoxide	CO	8 Hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 Hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 Hours	6	---	7,000	---	If exceeded	---
Inhalable particulate matter	PM_{10}	Annual Geometric Mean	---	---	30	---	If exceeded	---
		Annual Arithmetic Mean	---	---	---	50	---	If exceeded as a 3-year single station average
		24 Hours	---	---	50	150	If exceeded	If exceeded by the mean of annual 99th percentile values over 3 years
Fine particulate matter	$PM_{2.5}$	Annual Arithmetic Mean	---	---	---	15	---	If exceeded as a 3-year spatial average of data from designated stations
		24 Hours	---	---	---	65	---	If exceeded by the mean of annual 98th percentile values over 3 years
Nitrogen dioxide	NO_2	Annual Average	---	0.053	---	100	---	If exceeded
		1 Hour	0.25	---	470	---	If exceeded	---
Sulfur dioxide	SO_2	Annual Average	---	0.03	---	80	---	If exceeded
		24 Hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		3 Hours	---	0.5	---	1,300	---	If exceeded on more than 1 day per year
		1 Hour	0.25	---	655	---	If exceeded	---
Lead particles	Pb	Calendar Quarter	---	---	---	1.5	---	If exceeded
		30 Days	---	---	1.5	---	If equaled or Exceeded	---
Sulfate particles	SO_4	24 Hours	---	---	25	---	If equaled or Exceeded	---
Hydrogen sulfide	H_2S	1 Hour	0.03	---	42	---	If equaled or Exceeded	---
Vinyl chloride	C_2H_3Cl	24 Hours	0.010	---	26	---	If equaled or Exceeded	---

Notes: EPA adopted new ozone and particulate matter standards on July 18, 1997; the new standards became effective on September 16, 1997. On May 14, 1999, a three-judge panel of the US Court of Appeals for the District of Columbia Circuit issued an opinion regarding the revised national ambient air quality standards for ozone and particulate matter. The panel left the 8-hour ozone standard in place but determined that EPA cannot enforce it. EPA has asked the US Department of Justice to appeal this decision and take all judicial steps necessary to overturn the decision. On June 28, 1999, the federal government filed a petition for rehearing key aspects of the case in the US Court of Appeals for the District of Columbia Circuit.

Sources: California Air Resources Board 1991. State and National Ambient Air Quality Standards (ARB Fact Sheet 39). 40 CFR §§ 50, 53, and 58.

reclassified from nonattainment to attainment are designated as attainment/maintenance areas. Areas that lack monitoring data to demonstrate attainment or nonattainment status are designated as unclassified areas and are treated as attainment areas for various regulatory purposes. The San Francisco Bay area, including Detachment Concord, is designated a nonattainment area for the federal and state ozone standards and the state PM_{10} standard. The urbanized portions of the San Francisco Bay area are designated a maintenance area for the federal carbon monoxide standard. The Detachment Concord is considered to be in an urbanized area. The area is in attainment or unclassified for the remainder of the federal and state ambient air quality standards.

Regulatory Considerations

Federal Requirements

The federal Clean Air Act (CAA) requires each state to develop, adopt, and implement a state implementation plan (SIP) to achieve, maintain, and enforce federal air quality standards throughout the state. SIP documents are developed on a pollutant-by-pollutant basis whenever one or more air quality standards are being violated.

Federal Clean Air Act Conformity Process

Section 176(c) of the CAA, 42 USC §§ 7401 – 7671q, requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable SIPs. The US Environmental Protection Agency (EPA) has promulgated rules establishing conformity analysis procedures for transportation-related actions and for other (general) federal agency actions. The EPA general conformity rule requires that a formal conformity determination document be prepared for federal actions in federal nonattainment and maintenance areas when the total direct and indirect emissions of nonattainment or maintenance pollutants (or their precursors) exceed specified thresholds. The federal nonattainment and maintenance pollutants subject to conformity analyses in the San Francisco Bay area include ozone precursors (reactive organic compounds and nitrogen oxides) and carbon monoxide. Applicable threshold levels for federal actions in the San Francisco Bay area are 100 tons (90,718 kilograms [kg]) per year of reactive organic compounds, 100 tons (90,718 kg) per year of nitrogen oxides, and 100 tons (90,718 kg) per year of carbon monoxide.

State and Local Requirements

Air pollution control programs were established in California prior to the enactment of federal requirements. Responsibility for air quality management programs in California is divided between the California Air Resources Board, as the primary state air quality management agency, and air pollution control districts, as the primary local air quality management agencies. Detachment Concord falls under the jurisdiction of the Bay Area Air Quality Management District. Federal CAA legislation in the 1970s resulted in a gradual merger of local and federal air quality programs.

A.4.14 Noise

Noise Terminology

Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. Sound level meters measure pressure fluctuations from sound waves, with separate measurements made for different sound frequency ranges. These measurements are reported in a logarithmic decibel (dB) scale. Because the human ear is not equally sensitive to all frequencies, the "A-weighted" decibel scale (dBA) is used to weigh the meter's response to approximate that of the human ear.

Varying noise levels often are described in terms of the equivalent constant decibel level. Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for potential annoyance due to time of day or other considerations. The L_{eq} data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements.

Average noise exposure over a 24-hour period is often presented as a day-night average noise level (L_{dn}) or as a community noise equivalent level (CNEL). L_{dn} values are calculated from hourly L_{eq} values, with the L_{eq} values for the nighttime period (10 PM to 7 AM) increased by 10 dB to reflect the greater disturbance potential from nighttime noises. CNEL values are very similar to L_{dn} values but include a 5 dB annoyance adjustment for evening (7 PM to 10 PM) L_{eq} values in addition to the 10 dB adjustment for nighttime L_{eq} values. Because CNEL and L_{dn} values for the same noise condition seldom differ by more than 1 db, they often are used interchangeably when interpreting noise level criteria and standards.

Noise Level Criteria and Standards

Federal Guidelines

The federal Noise Control Act of 1972 (42 USC §§ 4901 - 4918 [1999]) established a requirement that all federal agencies must comply with applicable federal, state, interstate, and local noise control regulations. Local and state agencies have no applicable authority over military aircraft operations. Federal agencies also were directed to administer their programs in a manner that promotes an environment free from noise that jeopardizes public health or welfare.

Noise levels on Navy installations generally are evaluated as part of installation compatible use zone studies. When military airports are present, these studies are called air installation compatibility use zone studies. Noise levels are mapped according to the following general noise exposure zones:

- Zone 1: Areas exposed to CNEL levels below 65 dB;
- Zone 2: Areas exposed to CNEL levels of 65 to 75 dB; and
- Zone 3: Areas exposed to CNEL levels above 75 dB.

All on-site land uses are compatible with Zone 1 noise levels. Industrial, administrative, and personnel support uses generally are compatible with Zone 2 noise levels. Educational and residential land uses generally are not compatible with Zone 2 noise levels unless special acoustic treatments and designs are used to ensure acceptable interior noise levels. Administrative, residential, and personnel support land uses are not compatible with Zone 3 noise levels. Industrial and manufacturing land uses could be acceptable in Zone 3 areas if special building designs and other measures are implemented.

State Guidelines

State noise standards and guidelines include airport noise standards, guidelines for noise elements of general plans, and noise insulation standards for hotels, motels, and new multiple unit residential developments.

The California Department of Health Services (1987) has published guidelines for the noise element of local general plans. These guidelines include a noise level/land use compatibility chart that categorizes outdoor CNEL or L_{dn} levels into the four compatibility categories of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable, depending on land use. The chart in the state noise element guidelines identifies normally acceptable noise levels for low-density residential uses as CNEL values below 60 dB. The normally acceptable range for high-density residential uses is identified as CNEL values below 65 dB. For educational and medical facilities, CNEL values of 60 to 70 dB are identified as conditionally acceptable. For office and commercial land uses, CNEL values of 67.5 to 77.5 dB are categorized as conditionally acceptable. Local cities and counties are free to adopt different land use compatibility guidelines as part of the noise element of their general plan.

Local Guidelines and Criteria

Cities and counties in California are required to adopt noise elements as part of the local general plan. Noise elements identify existing and anticipated noise problems, programs to remedy these problems when feasible, and programs to minimize the creation of future noise problems. Some cities and counties also adopt noise ordinances to establish limitations and enforcement procedures for various categories of fixed noise sources. State and federal law preempts most direct local regulation of noise from motor vehicles, locomotives, ships, and aircraft.

Inland Area and Tidal Area

Applicable noise policies adopted by Contra Costa County and included in its general plan set a CNEL level of 60 dB as the marginally acceptable limit for residential and other noise-sensitive land uses. Detachment Concord operates within the guidelines set forth by the county.

A.4.15 Public Health and Safety

Explosives safety is the main public health and safety concern at Detachment Concord. In years past, ordnance was received, segregated, stored, and issued to ships docked at Detachment Concord. A large explosion in the Tidal Area known as Port Chicago

occurred at Pier 1 on July 17, 1944. Much of the current safety criteria employed by all DoD ordnance-handling activities came as a result of the lessons learned from this accident.

The recently issued Executive Order (EO) 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (62 Federal Register 19885), establishes a requirement that federal agencies identify, assess, and address the extent to which agency programs and activities create disproportionate environmental health and safety risks for children.

Inland and Tidal Areas

Detachment Concord has three operational ordnance-handling piers, 76 railroad barricaded sidings, and 299 magazines. As a result of these explosive operations, much of Detachment Concord is encumbered with ESQD arcs. ESQD hazard zones or "quality-distance" requirements have been established by the DDESB for explosive material. Areas within ESQD arcs are considered encumbered, and the size of these arcs vary depending on the amount of explosives being handled.

Hazardous Materials and Hazardous Waste

As defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, PL 96-510, as amended (42 USC §§ 9601 – 9675), and the Superfund Amendments and Reauthorization Act (SARA) of 1986, a hazardous material is a substance, pollutant, or contaminant that, due to its quantity, concentration, or physical or chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment. The Navy's Environmental and Natural Resources Program Manual (OPNAVINST 5090.1B) states that hazardous materials include but are not limited to hazardous substances, hazardous waste, and any material that a handler or administering agent has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or environment (DoN 1994b).

The Resource Conservation and Recovery Act (RCRA) of 1976, PL 94-580 (42 USC §§ 6901 – 6992k), as amended by the Hazardous and Solid Waste Amendments of 1984, PL 98-616, defines a hazardous waste as a solid waste or combination of wastes that, due to its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or may pose a substantial present or future hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed. A solid waste is a hazardous waste if it is not excluded from regulation as a hazardous waste, if it exhibits any ignitable, corrosive, reactive, or toxic characteristic, or if it is listed in Subpart D of RCRA.

The RCRA requires that hazardous wastes be managed through a record keeping system that requires manifesting properly labeled hazardous shipments from point of generation to ultimate disposal. Also required by federal and California law are proper

labeling, storage, containerization, training, and emergency procedures for hazardous waste.

Installation Restoration Program

The CERCLA and SARA established a series of programs for the cleanup of hazardous materials disposal sites and release sites nationwide. One of this series, the Defense Environmental Restoration Program (DERP), is codified in SARA section 211 (10 USC §§ 2701). The Navy Installation Restoration Program (IRP) is a component of DERP and is designed to identify, assess, and remediate contamination at past hazardous materials disposal sites and release sites that resulted from Navy and Marine Corps activities (Tt EMI 1997a).

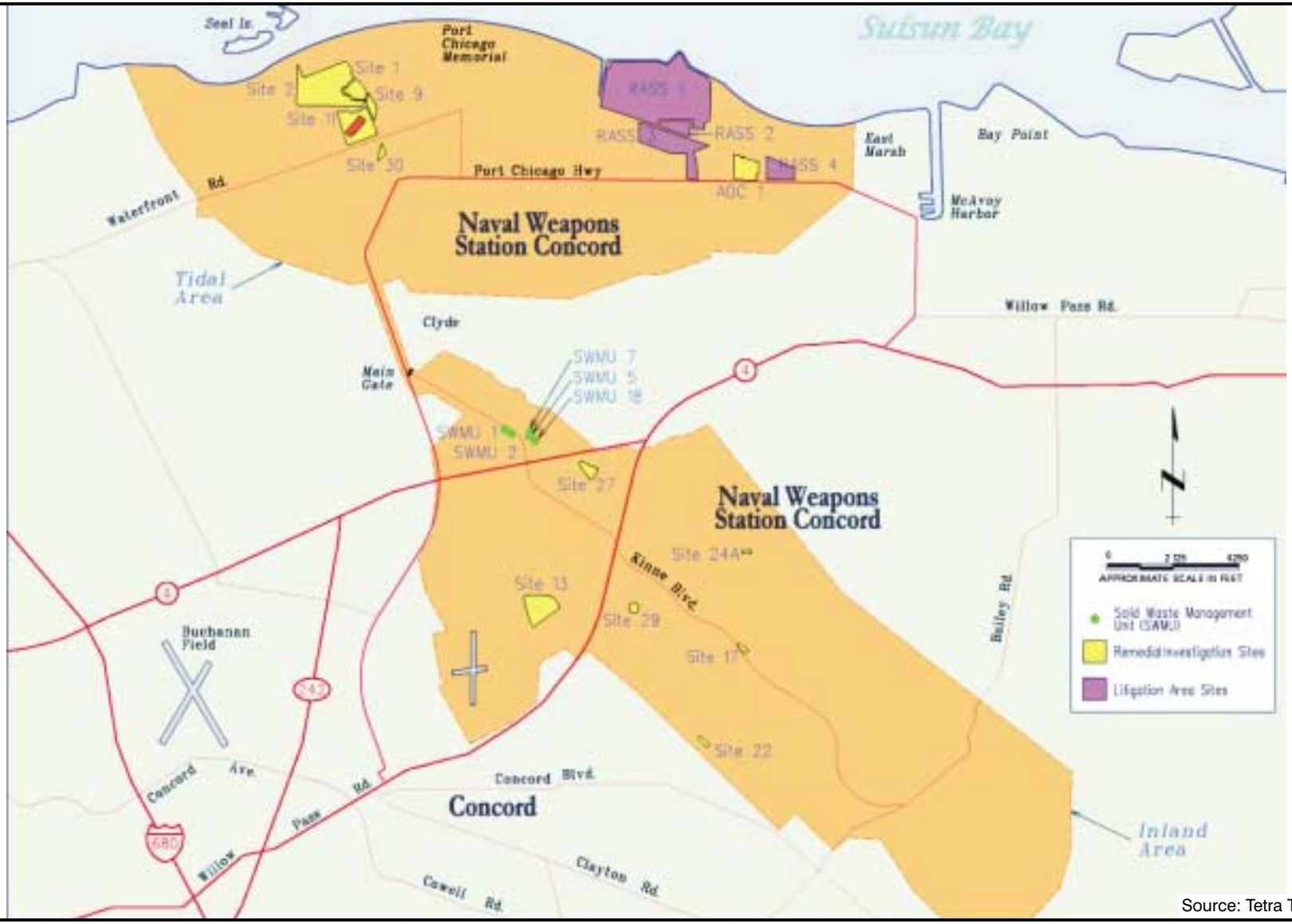
A site qualifies for funds under the IRP depending on when the disposal operations occurred and on the type of waste disposed of. The IRP is intended to address the cleanup of contamination resulting from pre-1986, but not current, disposal operations. 1986 is the year that SARA was passed. As a result, the IRP is based on pre-1986 conditions and clean up of any later contamination is the responsibility of the activity which caused the contamination. The IRP is primarily intended to clean up pre-1986 waste disposal or spill areas that endanger public health and welfare or the environment and that may include such chemicals as polychlorinated biphenyls (PCB), metals, petroleum, oil, and lubricants, pesticides, paints and solvents, and ordnance products (Tt EMI 1997a).

A Federal Facility Site Remediation Agreement between the Navy and state regulatory agencies was signed on September 29, 1992. The agreement for Detachment Concord defines the activities and responsible parties involved in the IRP process at the various sites. The activities are conducted in cooperation and close coordination with the State of California Department of Toxic Substances Control (DTSC), EPA Region IX, the San Francisco Bay Regional Water Quality Control Board (RWQCB), USFWS, the National Oceanic and Atmospheric Administration, the California Department of Fish and Game (CDFG), and the Contra Costa County Public Health Department (Tt EMI 1997a).

There are 11 installation restoration sites, 1 area of concern, 5 solid waste management units (SWMU), and 4 litigation area sites being monitored or in some phase of investigation at Detachment Concord. The installation restoration sites under investigation are located in both the Inland Area and Tidal Area (Figure A-1).

Installation restoration sites within the Inland Area include the following:

- Site 13 (Burn Area), Site 17 (Building IA-24),
- Site 22 (Surface Drain at Building 7SH5),
- Site 24A (Gunnery Range),
- Site 27 (Building IA-20), and



Source: Tetra Tech EMI 2001

r:\new\G505\InvSitesMap.cdr - 05/24/01 - MMM

The Installation Restoration Program at Detachment Concord includes: 11 IR sites, 1 Area of Concern, 5 Solid Waste Management Units, and 4 Litigation Area Sites. All sites are currently being monitored or, are in some phase of investigation.

Installation Restoration Program Sites

NWSSB, Detachment Concord
Concord, California

Tetra Tech, Inc.

Figure A-1

- Site 29 (Building IA-25).

Installation restoration sites within the Tidal Area include the following:

- Site 1 (Tidal Area Landfill),
- Site 2 (R Disposal Site),
- Site 9 (Froid and Taylor Road),
- Site 11 (Wood Hogger Facility), and
- Site 30 (Taylor Boulevard Bridge Disposal Site).

One or more Records of Decision (ROD) will be made for most of the investigated sites located in the Inland Area and Tidal Area of Detachment Concord. The ROD will result in either a "No Further Action" or will provide a record of the selected appropriate remedial action.

The area of concern is just north of the Port Chicago Highway near the litigation area sites. Remedial action likely would be implemented at this location.

A groundwater remedial investigation is being conducted within the Inland Area to investigate low-level volatile organic compounds (VOC) contamination in the vicinity of SWMU sites 1, 2, 5, 7, and 18. The status of these sites is pending.

Four sites are being monitored in what is known as the litigation area, located in the northeast section of the Tidal Area of Detachment Concord. These sites are in year five of a 30-year monitoring plan; after the 30-year monitoring period a determination will be made as the whether additional remediation is necessary.

Executive Order 13045

EO 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks" (62 Federal Register 19885), states that each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Environmental health risks and safety risks mean risks to health or to safety that are attributable to products or substances that the child is likely to come into contact with or to ingest.

A.4.16 Socioeconomic Resources

This section describes recent socioeconomic trends in the region surrounding Detachment Concord.

Definition of Resource

Socioeconomics includes data on population, employment, income, housing, business volume, net government revenues, schools, and recreation and community facilities.

Population includes the number of residents in the area and the recent change in population growth. Employment data include labor sectors, labor force, and statistics on unemployment. Income information is provided as an annual total by county and as per capita income. Housing includes numbers of multifamily units, single-family homes, and mobile homes and their vacancy rate. Business volume is defined as local business activity or sales and is the sum of retail and wholesale trade sales, service receipts, and value added by manufacturing. Government revenues are total financing sources. School enrollment and capacity, along with recreation and community facilities, are provided for the project area.

Affected Area

The affected socioeconomic area for Detachment Concord includes Contra Costa County. The Inland Area lies within the Concord city limits, while the mainland portion of the Tidal Area is in unincorporated Contra Costa County. Located between the Inland Area and Tidal Area is the small unincorporated community of Clyde with a population of 694 (Contra Costa County Community Development 2001).

Population

According to 2000 census data, the population of Contra Costa County was 948,816 while the population of Concord was 121,780. Table A-4 illustrates the population trends for the past ten years in Contra Costa County, using census data for 1990 and 2000. For years 1993 through 1998, estimates were based on census data along with city and county housing estimates. For these years, population figures represented a slight population increase for Contra Costa County (0.6 percent) and a slight population decrease for Concord (-0.5 percent). Of the 21 cities within Contra Costa County, nearly half experienced a decline in population, with the city of Brentwood experiencing the largest percentage growth increase of 14.1 percent.

Table A-4
Population, Contra Costa County

Year	Total Population	Net Change
1990	807,616	3,884
1993	851,368	12,682
1995	867,331	7,098
1997	896,235	18,311
1998	916,899	20,664
2000	948,816	31,917

Sources: State of California, Department of Finance 2000; Contra Costa County Community Development Department 2001.

Employment

From 1995 to 2002, nonagricultural employment in Contra Costa County is projected to increase by 62,400 jobs. Most of the industry sectors will show gains, but 50 percent of the job additions are estimated to be in the services industry sector, adding 31,000 new jobs between 1995 and 2002. Of this number, 50 percent will occur in the business services sector, adding 15,800 jobs. Other service sectors include retail trade, estimated to add 10,500 jobs, the health services industry, with 3,700 jobs, and the finance, real

estate, and insurance sector, adding 6,000 jobs (California Department of Finance 2000).

Between 1995 and 2002, government payrolls are projected to increase by 4,700 jobs, mostly in local public education. Construction employment has rebounded from its 1992 low and is expected to add 3,300 jobs, due mostly to the demand in residential housing. The transportation and public utilities sector will gain 2,500 jobs, with most of them in the communications industry. Manufacturing and the wholesale trade will each add an estimated 2,100 jobs to their respective sectors. Table A-5 lists employment figures for Contra Costa County by sector for years 1995 through 1999.

Table A-5
Sector Employment, Contra Costa County

Sector	1995	1997	1999	Percent Change 1995 to 1999
Total Farm	1,000	1,100	900	-10.0
Nonfarm				
Mining	2,200	1,900	2,000	-9.0
Construction	17,400	19,700	23,600	35.6
Manufacturing	27,000	26,000	24,200	-10.4
Transportation and public utilities	20,300	20,300	20,000	-1.5
Wholesale trade	10,600	11,700	11,900	12.2
Retail trade	56,200	56,900	59,300	5.5
Finance, insurance, and real estate	27,300	27,000	28,800	5.5
Services	84,100	96,300	106,300	26.4
Government				
Federal	6,600	6,400	6,600	0.0
State	1,100	1,000	900	-18.0
Local	37,400	38,300	39,100	4.5
Total	**291,200**	**306,600**	**323,600**	**11.1**

Source: California Employment Development Department 2000.

The majority of jobs in Contra Costa County are within the service-producing sector. This includes transportation, wholesale and retail trades, finance, and real estate. Direct services, such as business and health services account for the largest number of service-related jobs, numbering 106,800 in 1999. The government sector accounts for the next largest number of jobs, with 46,600 in 1999. Most of these jobs are in local education and county government (California Employment Development Department 2000).

Unemployment

Since 1994 unemployment rates in Contra Costa County have declined; this is believed to be indicative of the employment opportunities in the area. The annual average unemployment rate dropped from a high of 6.4 percent in 1994 to 3.2 percent in 1999. Although the labor force has increased by more than 32,000 workers since 1994, the unemployment rate has continued to decline in Contra Costa County during the same

period. Table A-6 lists the total civilian labor force along with the number of unemployed in Contra Costa County for 1994 through 1999.

Table A-6
Civilian Labor Force and Unemployment for Contra Costa County

Year	Labor Force	Unemployed	Average Unemployment Rate (percent)
1994	452,400	28,800	6.4
1996	456,200	24,100	5.3
1998	477,200	18,400	3.9
1999	484,700	15,700	3.2

Source: California Employment Development Department 2000.

Income

In 1996, the per capita personal income for Contra Costa County was $32,558. In 1998, the figure rose to $36,006, an increase of nearly 11 percent in two years. In 1989, the per capita personal income for Contra Costa County was $20,748. Table A-7 lists the annual income in the affected area between 1989 and 1998.

Table A-7
Personal and Per Capita Income for Contra Costa County

	Total Personal Income (In millions of dollars)	Per Capita Income
1989	N/A	$ 20,748
1996	28,690	$ 32,558
1997	31,188	$ 34,673
1998	33,052	$ 36,006

Source: US Department of Commerce, Bureau of Economic Analysis 2000.

Housing

Contra Costa County was estimated to have 353,983 housing units in 2000 (Table A-8). Of the total occupied housing stock, approximately 73 percent are single-family units, 25 percent are multifamily units, and two percent are mobile homes.

Table A-8
Housing Estimates for Contra Costa County

Year	Single-family Units	Multi-family Units	Mobile Homes	Total Housing Units	Occupied Units	Percent Vacant
1990	228,792	79,966	7,412	316,170	300,288	5.02
2000	259,279	87,115	7,589	353,983	335,958	5.09

Source: California Department of Finance 2000.

Detachment Concord has approximately 30 acres (12 hectares [ha]) of housing that are no longer used. There are 118 housing units; 34 were used as Married Officers Quarters and 84 were used as Married Enlisted Quarters. A third of the housing dates from the 1940s, with the remainder built within the last 30 years (DoN 1989).

Business

Job growth in Contra Costa County has created many business opportunities. The county's nonfarm wage and salary employment has shown strong growth since 1994. Payroll employment in 1998 grew by 8,800 jobs, or 2.8 percent. Job growth in the services sector accounted for 71.6 percent of this growth, with a large portion coming from business services. In 1993, there were 20,535 business establishments with 262,842 employees and a combined payroll of $7,677,335,000. By 1998, the number of businesses increased to 21,674, employees numbered 288,747, and annual payrolls increased to $10,630,185,000 (Table A-9).

Table A-9
Annual Payroll ($1,000s), Contra Costa County

Sector	1993	1995	1997	1998
Manufacturing	1,121,953	1,259,160	1,236,237	980,029
Transportation and public utilities	760,869	856,153	993,278	1,209,311
Wholesale trade	559,986	604,387	643,766	571,126
Finance, insurance, and real estate	1,231,943	1,098,992	1,354,991	1,419,245
Retail trade	950,008	1,020,738	1,064,325	837,180
Services	2,371,574	2,818,190	3,491,957	4,754,968
Construction	637,388	694,276	748,368	858,326
Agricultural Services	43,614	48,401	50,529	N/A
Total	**7,677,335**	**8,400,297**	**9,583,451**	**10,630,185**

Source: US Census Bureau, County Business Patterns 2000.

Grazing Outlease Program

It is the policy of the DoD and the Navy to promote grazing outleases (along with other land uses) to the maximum extent compatible with the military mission and ecological constraints. Many military installations include grazing lands that must be retained for buffer or safety zones, security of the installation, mobilization needs, or future mission requirements. Where feasible, these lands may be put under production to optimize natural resources and to minimize funds expended in maintaining these lands.

A report issued by the US General Accounting Office states that grazing/agricultural outleasing programs on military lands reduce maintenance costs while generating additional income, which may result in a net increase in funds deposited into the US Treasury. The report, entitled "DoD Can Increase Revenues Through Better Use of Natural Resources It Holds in Trust," (US General Accounting Office 1981) issued on November 25, 1981, shortly after the enactment of Public Law 97-321, the Military Construction Authorization Act of 1983. PL 97-321 mandates that the revenue

generated from agricultural and grazing lease agreements is to be retained by the Secretary of the Navy and used to finance multiple-use land management programs at any installation under jurisdiction of the Secretary.

Approximately 6,000 acres (2,428 ha) at Detachment Concord are outleased for grazing. This figure represents acreage in both the Inland and Tidal Areas. This acreage supports one year-round and two seasonal cattle grazing leases, with a maximum allowable cattle head count of 7,160. Because of annual forage availability fluctuations, this number often is not realized. Proceeds from Detachment Concord's grazing outlease program are used to fund its resource management programs, including yellow star and artichoke thistle control.

Navy policy is that all new or revised land management plans will incorporate the potential for additional grazing/agricultural outleases, and related documentation, in a section of the plan dealing specifically with grazing/agricultural outleasing. Should there be a potential for additional outleases (compatible with the military mission and ecological constraints), a written report describing the potential lands, a summary of potential uses, a summary of benefits the US government will derive from leasing, and an economic analysis will be provided to the Officer-in-Charge of Detachment Concord.

Proceeds from grazing/agriculture outlease programs are to be used by Naval Facilities Engineering Command to fund the following program requirement categories:

- Category I: Administrative expenses of outleasing land for agricultural use (including temporary and permanent employee labor costs);
- Category II: Administrative expenses of planning and implementing natural resources (multiple-use) management programs other than Category I expenses; and
- Category III: Natural resources projects that support objectives of multiple-use natural resources management plans.

The priority designation for funding administrative expenses and multiple-use land management projects is as follows:

- Priority A: Expenses of outleasing land for agricultural use.
- Priority B: Projects that enhance, improve, or perpetuate the potential to increase agricultural outlease proceeds. Projects may be for any cost-effective work necessary to bring land into agricultural production.
- Priority C: Land management improvement projects to accomplish soil surveys, soil maps, erosion control, watershed management, and other similar requirements.

- Priority D: Contracted surveys and inventories essential to develop and implement multiple-use natural resources management plans and cooperative agreements.
- Priority E: Expenses of preparing multiple-use natural resources management plans.

Requirements that may be covered by the above general categories but that cannot be funded with grazing/agricultural outlease proceeds include the following:

- Improvements that are normally provided for in the annual Military Construction Authorization and Appropriation Acts;
- Permanent position labor costs not wholly attributable to the grazing/agricultural outlease program;
- Projects and expenses covered supporting commercial forest production; and
- Projects and expenses covered by criteria for using conservation funds as outlined in Naval Facilities Instruction 7110.18c (DoN 1989).

Tourism and Outdoor Recreation

Because much of the land at Detachment Concord is encompassed within the ESQD arcs, public access is extremely limited. There are no formal tourism programs at Detachment Concord. Outdoor recreation is limited mainly to those activities associated with the golf course and the baseball field. The municipal golf course occupies 58 acres (23 ha) of city-owned land and 82 acres (33 ha) owned by Detachment Concord. The city of Concord has leased the 82 acres (33 ha) from Detachment Concord since 1989 (Pontemayor 2001).

A.4.17 Environmental Justice

This section addresses specific topics related to environmental justice, as required by NEPA. Specifically, a discussion of issues related to environmental justice are presented, in accordance with EO 12898.

Executive Order 12898

On February 11, 1994, President Clinton issued EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority and Low-income Populations." This order requires that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations" (EO 12898, 59 Federal Register 7629 [Section 1-101]). On April 21, 1995, the Secretary of Defense submitted a formal environmental justice strategy and implementation plan to the EPA. To comply with the order, Detachment Concord has conducted the following actions concurrently with this INRMP:

- Gathered economic, racial, and demographic information generated from the 1990 census to identify areas of low-income and high minority populations in and around Detachment Concord;
- Assessed the potential for disproportionate impacts resulting from on-site activities associated with the proposed action; and
- Encouraged community participation in and input from public agencies through meetings and public notification of the draft document, as described in Section 1.7.

Existing Demographics

Detachment Concord lies within the political boundaries of Contra Costa County. Racial and ethnic data for 1990 and 1998 are illustrated in Table A-10. Regional trends indicate that the relative proportion of Caucasian Contra Costa County residents has declined by five percent from 1990 to 1998. The Hispanic and Asian proportions increased by two percent, while both the African American and Native American proportions have remained constant at nine and one percent of the total population.

Table A-10
Total Population of Contra Costa County by Race/Ethnicity

Race/Ethnicity	1990	1998	Percent of Total 1990/1998
White	562,837	599,575	70/65
Hispanic*	92,315	123,136	11/13
African American	73,212	85,113	9/9
Asian	74,789	104,165	9/11
Native American	4,463	4,910	1/1
Total	807,616	916,899	100/99

Source: California Department of Finance 2000.
* Hispanic is a multi-ethnic group and usually overlaps with other races.

Table A-11 illustrates the percentage of the population living below the poverty line in Contra Costa County. The median household income level in the county is estimated to be $53,055.

Table A-11
1997 Poverty Level Estimates in Contra Costa County

Statistic	Number	Percent
People of all ages	80,691	8.7
People under age 18	32,488	13.6
Children age 5-17 of families in poverty	22,376	13.1

Source: US Census Bureau, Small Area Income and Poverty Estimates Program 2001.

A.5 ENVIRONMENTAL CONSEQUENCES

A.5.1 Introduction

This section describes the adverse and beneficial environmental consequences that likely would occur from implementing the action alternatives and the No Action Alternative. Each environmental resource is presented in the same sequence as in Section 3, followed by a discussion of the likely impacts of each alternative. The environmental consequences analysis is further divided into Inland Area and Tidal Area resources. Alternatives are compared to existing conditions (Section A.4) to determine if direct or indirect impacts would result from their implementation. If appropriate, impacts are identified as short term or long term. Short term is defined as the transition period for implementing the high priority actions within the management plan. Long-term impacts are those deviations from existing conditions that last longer than three years. Determination as to whether an impact is considered adverse or beneficial is discussed under each alternative. Adverse impacts are those that result in a degraded environmental condition or in noncompliance with regulatory standards, plans, or policies. Beneficial impacts are those that result in enhanced environmental resource conditions. The Navy will use adaptive management and best professional judgment in implementing any compliance-based or stewardship-based management strategies to ensure mission compatibility and to maximize environmental benefit.

As discussed in Section A.3.2, the following three alternatives have been assessed for environmental consequences:

- Alternative 1: Ecosystem-based INRMP
- Alternative 2: Compliance-based INRMP
- No Action Alternative

Implementation priorities for each alternative presented in Table A-2 were determined by the following criteria:

- *High Priority*: Legally required activities or actions deemed important to the military mission, ecology, or safety of personnel. These actions would be ongoing or likely would be implemented within the next three years, depending on the availability of funding.
- *Medium Priority*: Compliance or stewardship actions that need to be implemented in time to meet the established deadlines as defined in the INRMP or within the next six years, depending on the availability of funding.
- *Low Priority*: Activities and projects that enhance natural resources but that are not specifically required by law or military mission needs. These actions are likely to be implemented when staffing and funding is available.

The execution of any of the INRMP actions/projects will depend on the availability of appropriate funding sources. Any requirement for the obligation of funds for actions/projects evaluated in this EA will be subject to the availability of funds appropriated by Congress, and none of the actions/projects will be interpreted to require obligation or payment of funds in violation of any applicable federal law, including the Anti-Deficiency Act (31 USC 1341 et seq.).

The primary difference between the action alternatives is the management philosophy and priority for implementing specific management tools and strategies. The general management models for each alternative are discussed in Section A.3.2; the priorities for implementing specific management tools under each of the action alternatives are summarized in Table A-2. A matrix comparing the environmental consequences for each alternative by resource is shown in Table A-3.

Table A-3
Summary of Environmental Consequences by Alternative and Resource Area

Management Category	Environmental Consequences.					
	Alternative 1		Alternative 2		No Action Alternative	
	Inland	Tidal	Inland	Tidal	Inland	Tidal
Land Use	No significant adverse effects.	No significant adverse effects.	No significant adverse effects.	No significant adverse effects.	No significant adverse effects.	No significant adverse effects.
Facilities	No significant adverse effects.	No significant adverse effects.	Potential increased fire risk from increase in fuel loads.	Potential increased fire risk from increase in fuel loads.	No significant adverse effects.	No significant adverse effects.
Climate	No effects.	No effects.	No effects.	No effects.	No effects.	No effects.
Geological Resources	No effect to geological resources other than soils.	No effect to geological resources other than soils.	No effect to geological resources other than soils.	No effect to geological resources other than soils.	No effect to geological resources other than soils.	No effect to geological resources other than soils.
Soil Resources	Beneficial effects.	Beneficial effects.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.
Water Resources	Slight beneficial effects.	Slight beneficial effects.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.
Wetlands	Beneficial effects from wetland protection strategies.	Beneficial effects from wetland protection strategies.	Potentially beneficial effects from discontinuation of cattle grazing.	No significant adverse impacts.	Slight beneficial effects.	Slight beneficial effects.
Vegetation	Beneficial effects from native vegetation protection measures.	Beneficial effects from native vegetation protection measures.	Some beneficial effects from discontinuation of cattle grazing. Some potential adverse effects from reduced invasive vegetation management.	Potential loss of diversity.	Slight beneficial effects.	Slight beneficial effects.
Wildlife	Beneficial effects.	Beneficial effects.	No beneficial effects, potentially adverse impacts.	No significant adverse impacts.	Some beneficial effects.	Some beneficial effects.

Table A-3
Summary of Environmental Consequences by Alternative and Resource Area *(continued)*

Management Category	Environmental Consequences.					
	Alternative 1		**Alternative 2**		**No Action Alternative**	
	Inland	**Tidal**	**Inland**	**Tidal**	**Inland**	**Tidal**
Federally listed endangered, federally listed threatened, and other sensitive species	Beneficial effects, enhanced protection and additional studies.	Beneficial effects, enhanced protection and additional studies.	No significant adverse impacts.	No significant adverse impacts.	Beneficial effects.	Beneficial effects.
Cultural Resources	Provides protection for cultural resources.	Provides for protection for cultural resources.	Provides protection for cultural resources	Provides protection for cultural resources	Provides protection for cultural resources	Provides protection for cultural resources
Air Quality	No change to air quality	No change to air quality	Potential increase in fire risk and associated particulates.	Potential increase in fire risk and associated particulates.	No change to air quality.	No change to air quality.
Noise	No change in noise levels.	No change in noise levels.	No change in noise levels.	No change in noise levels.	No change in noise levels.	No change in noise levels.
Public Health and Safety	No significant adverse impacts.	No significant adverse impacts.	Potential increased fire risk.	Potential increased fire risk.	No significant adverse impacts.	No significant adverse impacts.
Socioeconomic Resources	No significant adverse impacts.	No significant adverse impacts.	Reduced income for grazing lessees resulting from discontinuation of grazing.	Reduced income for grazing lessees resulting from discontinuation of grazing.	No significant adverse impacts.	No significant adverse impacts.
Environmental Justice	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.	No significant adverse impacts.

A.5.2 Land Use

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 1 in the Inland Area of Detachment Concord would have no significant adverse effects on land use and would be largely beneficial to both developed and undeveloped uses.

Management strategies proposed under this alternative, especially those related to grazing outleases and wildlife, would promote the designated purpose of undeveloped land uses at Detachment Concord. In addition, specific management strategies would ensure continued compatibility among the developed areas and adjacent land uses. Wildlife and riparian management strategies (e.g. maintaining fencing for wildlife management around stockponds and creek areas) would ensure continued compatibility among operational, grazing, and wildlife land uses. This alternative is consistent with all active local and regional land use plans.

Tidal Area Resources

Implementing the management strategies under Alternative 1 in the Tidal Area of Detachment Concord would have no significant adverse effects on land use and would be beneficial to both developed and undeveloped uses. Management strategies proposed under this alternative, especially those related to wetland preserves and wildlife, would promote the conservation of sensitive habitats while supporting the military mission of the Tidal Area.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 2 in the Inland Area would have no significant adverse effects on land use. Although regulatory compliance would be emphasized under this alternative, existing land uses would be comparable to existing conditions and thus would not result in any significant land use impacts. Many of the management recommendations with a potential to affect land use compatibility (e.g., terrestrial habitat enhancements) likely would not be realized due to funding and staff reductions caused by discontinuing the agricultural outlease program. The management strategies under this alternative would have no significant adverse impacts to land use resources.

Tidal Area Resources

Implementing the management strategies under Alternative 2 in the Tidal Area would have no significant adverse effects on land use. The potential environmental consequences are the same as those described above for Inland Resources.

No Action Alternative

Inland Area Resources

Selection of the No Action Alternative would not result in any change in land use in the Inland Area, and no impacts would occur. All management strategies being implemented under the current natural resources management plan are compatible with the master plan for Detachment Concord. As a result, there would be no significant impacts to land use under the No Action Alternative.

Tidal Area Resources

Selection of the No Action Alternative would not result in any change in land use in the Tidal Area, and no impacts would occur. The potential environmental consequences are the same as those described above for Inland Resources.

A.5.3 Facilities

Impacts to facilities include damage to existing facilities as a result of natural resource management strategies and any conversion of existing facilities to wildlife habitat.

Alternative 1 and the No Action Alternative

Inland Area and Tidal Area Resources

Implementing the management strategies under Alternative 1 and the No Action Alternative would have no significant adverse effects on facilities because both alternatives place a high priority on management strategies that protect and potentially enhance existing facilities.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 2 could have adverse impacts on the Inland Area facilities at Detachment Concord. Discontinuing the agricultural outlease program could increase the likelihood of wildfires caused by an increase in fuel loads and a reduction in the maintenance of firebreaks at Detachment Concord, which is usually performed by grazing lessees. The result could be a loss of some structures at Detachment Concord in the event of fire.

Tidal Area Resources

Implementing the management strategies under Alternative 2 could have an adverse impact on the Tidal Area facilities at Detachment Concord. Discontinuing the agricultural outlease program could increase the likelihood of wildfires caused by an increase in fuel loads and a reduction in the maintenance of fire breaks at Detachment Concord, which is usually performed by grazing lessees. While Tidal Area grassland acreage is significantly less than that of the Inland Area, the presence of ordnance material in the Tidal Area greatly increases the risk to Tidal Area facilities in the event of fire.

A.5.4 Climate

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

Implementing any of the proposed alternatives would have no foreseeable impacts on local or regional climate.

A.5.5 Geological Resources

Geologic impacts include exposure to geologic hazards or loss of or reduced access to geologic resources. Geologic hazards include seismicity, slope failure, or land subsidence. Geologic resources include soils, mineral deposits, or unique landscape features; soils resources are addressed separately in the following section.

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

None of the existing or proposed land management strategies are expected to affect geologic resources in the Inland Area other than soils. For example, there would be no increase in seismic hazards because of existing or proposed land management practices.

A.5.6 Soil Resources

Soil resources are a subset of geological resources. Potential adverse impacts on soil resources include erosion, subsidence, and contamination. In general, the land management strategies of the INRMP are intended to protect soils from erosion and contamination as well as to maintain the maximum long-term benefits from the soils. Therefore, land management strategies are expected to result in beneficial impacts on soil resources.

The management goals for one resource could conflict with the goals for another resource, and some of the management strategies designed to protect other resources could adversely affect soils. The analysis that follows is intended primarily to identify and characterize the potential impacts associated with those conflicting goals.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Alternative 1 in the Inland Area provides for habitat protection and enhancement. Soil management strategies would focus on reducing soil erosion by implementing or continuing certain erosion control measures, such as managing cattle grazing, fencing stock ponds, and maintaining various water sources, such as Mt. Diablo/Seal Creek. The impacts of these strategies on soils are expected to be beneficial.

Tidal Area Resources

Alternative 1 in the Tidal Area provides for habitat protection and enhancement. Soil management strategies would focus on reducing soil erosion by implementing or

continuing certain erosion control measures, such as managing cattle grazing, fencing stock ponds, and annually maintaining various water conduits, such as Mt. Diablo/Seal Creek. The impacts of these strategies on soils are expected to be beneficial to both the soil resources and surrounding wetland habitats.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Under Alternative 2, existing management programs in the Inland Area are assumed to continue. Under this alternative, the management strategies designed to protect and enhance soil stabilization by using proactive vegetation strategies would not be realized as they would be under Alternative 1. The management measures described in Section 6.3.3 for the grazing outlease management program would not be implemented due to the discontinuation of the agricultural outlease program. Beneficial impacts to soil resources under this alternative could include less erosion and sediment deposition into stream channels. Impacts on soil could lead to changes in vegetation, water-retention capacity, and ultimately to changes in the nature and distribution of habitat.

Tidal Area Resources

Several, revegetation and other erosion control measures during construction would not apply under this alternative. Soil or sediment erosion in Tidal Area could reduce water clarity and increase sediment deposition in tidal channels. The impacts would depend on the nature of the project and the degree to which budget constraints reduce management measures. Impacts are likely to be small and would occur mainly due to construction projects affecting less than 5 acres (2 ha), since stormwater erosion control measures are required under existing regulations for sites larger than 5 acres (2 ha).

No Action Alternative

Inland Area Resources

The No Action Alternative in the Inland Area would not result in any significant adverse impacts on soil resources. However, some management measures to improve Mt. Diablo/Seal Creek drainage would not receive a high priority, possibly prolonging or resulting in less chance for improvement of these channels than under either of the action alternatives.

Tidal Area Resources

Implementing the No Action Alternative in the Tidal Area would not result in any significant adverse impacts on soil resources. However, revegetation and erosion control techniques described under Alternative 1 would not receive a high priority, allowing for continued adverse impacts on wetland resources in the Tidal Area. The effects would occur primarily in relation to small construction projects under 5 acres (2 ha) that are not subject to storm water permit compliance.

A.5.7 Water Resources

Water resources include surface water and groundwater resources. Impacts on water resources include changes in water quality, changes in the quantity of water available for existing or potential beneficial uses, changes in hydraulic conditions (for example velocity of flow and channel capacity), and changes in the potential for flooding.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Under Alternative 1, the grazing outlease program in the Inland Area would continue, with an emphasis on increased water quality for Inland Area habitats. The ecosystem approach uses existing water quality management efforts, while implementing routine surveys of present water distribution systems. In addition, continued protection of stockwater ponds would ensure both water quality and wildlife habitat health. The availability of a more predictable water supply is expected to be beneficial to both the grazing program and surrounding wildlife habitats occurring in the Inland Area.

Tidal Area Resources

Little change in management strategies for tidal water resources is proposed under Alternative 1 relative to the No Action Alternative, except that the routine maintenance of landscape irrigation system and water conservation measures would receive a higher priority. This could increase the reliability of water supplies and reduce reliance on import of water from Contra Costa Water District.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Under Alternative 2, strategies designed to protect water quality in the Inland Area would be implemented in accordance with laws and regulations. No emphasis would be given to enhancing water supplies in support of grazing leases, due to the discontinuation of the agricultural outlease program. This could have beneficial impacts to water resources, such as increased water availability and water quality in and around the area's riparian and wetland habitats.

Tidal Area Resources

Under Alternative 2, strategies designed to protect water quality in the Tidal Area would be implemented in accordance with laws and regulations. Water conservation measures would be given a higher priority than under the No Action Alternative, possibly reducing reliance on imported water from Contra Coast Water District.

No Action Alternative

Inland Area Resources

Under the No Action Alternative, Detachment Concord would continue to implement compliance-based strategies and additional conservation measures when feasible. The

No Action Alternative is not expected to result in significant adverse impacts to water resources in the Inland Area.

Tidal Area Resources

Under the No Action Alternative, Detachment Concord would continue to implement compliance-based strategies and additional conservation measures when feasible, subject to available funding. The No Action Alternative is not expected to result in significant impacts to water resources in the Tidal Area, but water conservation would have a lower priority than under either of the action alternatives.

A.5.8 Wetlands

This section assesses the impacts to wetland resources from implementing the various alternatives. Impacts to wetland resources may be adverse or beneficial.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 1 would have no significant adverse effects on Inland Area wetlands. Most of the impacts of implementing the management strategies would be beneficial to such ecosystems.

Policies and habitat protection measures included in the INRMP would protect and enhance existing wetlands in the Inland Area of Detachment Concord. By following existing wetland policies and regulations, potential wetland impacts would be first avoided, then minimized, and if they cannot be avoided or minimized, mitigation would include compensatory wetlands. A jurisdictional wetland delineation would be conducted before any activities take place in wetlands.

Existing wetland habitat would be protected, and new wetland habitat would be encouraged by the wildlife wetland resource management strategies. Fencing stockwater ponds would protect wetland vegetation from grazing cattle while providing habitat cover for endangered and sensitive wildlife species. Managing access of cattle to the riparian areas of Mt. Diablo/Seal Creek would enhance the existing riparian habitat by protecting the area from grazing overuse. The impacts of these strategies on Inland Area wetlands are expected to be beneficial to both the wetland resources and the wildlife that inhabit these systems.

Tidal Area Resources

Implementing the management strategies under Alternative 1 would have no significant adverse effects on Tidal Area wetlands. Most of the impacts associated with implementing the management strategies would be beneficial to such ecosystems.

Policies and habitat protection measures included in the INRMP would protect and enhance existing wetlands in the Tidal Area of Detachment Concord. By following existing wetland policies and regulations, potential wetland impacts would be first avoided, then minimized, and if they cannot be avoided or minimized, mitigation would

include compensatory wetlands. A jurisdictional wetland delineation would be conducted before any activities take place in wetlands.

Maintaining wetland preserve designation status for Roe Island, Ryer Island, Freeman Island, Snag Island, Middle Ground Island and Seal Islands, Hastings Marsh, Pier Marsh, Middle Ground Marsh, East Marsh, and North Area K Marsh would conserve and protect existing wetland resources. Maintaining wetland preserve designation status also would support and conserve habitat for migratory birds and endangered species.

A host of other management strategies would enhance wetland function by improving water quality, reducing invasive species, and managing the hydrology of wetland areas. The water quality in wetlands would be improved by reducing nonpoint sources of sediment and pesticides. Several strategies affecting water use on Detachment Concord also would benefit the hydrologic function of existing wetlands. Maintaining water distribution and storm runoff systems would benefit wetlands that receive runoff from the Inland Area. The impacts of these strategies on Tidal Area wetlands are expected to be beneficial to both the wetland resources and the wildlife that inhabit these systems.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 2 would have no significant adverse effects on Inland Area wetlands. Environmental compliance would be emphasized under this alternative. Existing wetlands would likely not change and could possibly benefit from this alternative through the discontinuation of the agricultural outlease program, thereby enabling sensitive wetland habitats to grow unimpeded by grazing cattle. Management strategies, such as wetland protection, would continue but likely would result in fewer benefits than those described for Alternative 1. However, there would be no need to protect riparian habitat and wildlife from grazing cattle, therefore freeing up those resources for other management needs.

Tidal Area Resources

Implementing the management strategies under Alternative 2 would have no significant adverse effects on Tidal Area wetlands. Environmental compliance would be emphasized under this alternative, along with existing preserve designation as agreed to under the 1984 MOU between the USFWS and the Navy. Wetlands would not change, but many of the beneficial strategies to wetlands proposed under Alternative 1 for pest, soil, and wildlife management may not be realized under this alternative. While the MOU between USFWS and the Navy would continue to be recognized, the stewardship measures proposed under Alternative 1 would not be recognized and thus would provide no additional benefits to plant and wildlife habitat quality.

No Action Alternative

Inland Area Resources

Implementing the No Action Alternative would have some beneficial impacts to Inland Area wetlands. All of the compliance-based strategies, such as wetland protection,

would be implemented. In addition, several beneficial stewardship strategies would be implemented when funding and staffing are available. However, many of the beneficial strategies proposed in Alternative 1 would not be implemented, and as a result the net benefits to vegetation would be less than those for Alternative 1.

Tidal Area Resources

Implementing the No Action Alternative would have some beneficial impacts to Tidal Area wetlands. All of the compliance-based strategies, such as wetland protection and wetland preserve status, would be implemented. In addition, several beneficial stewardship strategies pertaining to soil, pest, and wildlife management would be implemented only when funding and staffing are available. As a result, many of the beneficial strategies proposed in Alternative 1 would not be implemented under this alternative.

A.5.9 Vegetation

This section assesses the impacts on vegetation that would result from implementing the management strategies outlined in Table A-2 for each alternative. Impacts to vegetation communities and habitats may be adverse or beneficial.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing the management strategies contained in the INRMP would have beneficial impacts for vegetation in the Inland Area of Detachment Concord. Maintaining fences surrounding stockwater developments would permit growth of native vegetation unimpeded by cattle grazing. In addition, Alternative 1 places a higher priority on pursuing research and revegetation projects, which would likely result in beneficial impacts.

Exploring alternative methods to control invasive nonnative vegetation would provide long-term benefits to grassland habitats and wildlife by increasing the amount of cover available at any given time. Removing and controlling yellow-star and artichoke thistles would help to increase native annual grass populations, thereby enhancing native habitat. The impacts of these strategies on vegetation are expected to be beneficial to both the vegetation resources and the wildlife that inhabit the Inland Area.

Tidal Area Resources

Implementing the management strategies contained in the INRMP would have beneficial impacts for vegetation in the Tidal Area of Detachment Concord. The potential environmental consequences are similar to those described for Inland Resources.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing the management strategies in the Inland Area under Alternative 2 could result in adverse impacts to vegetation. Under this alternative, the agricultural outlease program would be discontinued at Detachment Concord. Since proceeds from this program are used to finance the natural resources program, all levels of resource protection could be compromised. Fewer funds would be available for ESO staff to meet compliance-based requirements, such as managing invasive nonnative vegetation. This could lead to fewer management strategies being planned and implemented and could encourage development of other resources to compensate for this loss of income. Specifically, cattle have largely replaced large mammals as the primary grazers in the grasslands of Detachment Concord. As such, they play a significant role in reducing the amount of fuel available in case of wildfire and in reducing the amount of nonnative vegetation. In addition, a loss of diversity could result from a greater infestation of invasive plants, with a corresponding loss of high-quality wildlife habitat. Benefits to grasslands would be limited, compared to those discussed for Alternative 1, because many of the beneficial management strategies would have a no implementation priority. Some wetland and riparian vegetation areas could benefit from discontinuing cattle grazing. Compared with Alternative 1 and the No Action Alternatives, many of the same wetland and riparian areas would benefit, but through different management methods. Alternative 1 and the No Action Alternative propose more active enhancement and protection methods, while Alternative 2 would not be as active but could benefit from being undisturbed.

Tidal Area Resources

Implementing the management strategies in the Tidal Area under Alternative 2 could result in significant adverse impacts to vegetation. ESO staff would focus on meeting compliance-based requirements, such as managing invasive nonnative vegetation. Benefits to grasslands would be limited, compared to those discussed for Alternative 1, because many of the beneficial management strategies would not be realized. As a result, fires occurring at the Detachment Concord could burn hotter and with greater impacts to native vegetation and wildlife. A loss of diversity could result from a greater infestation of invasive plants, with a corresponding loss of high-quality wildlife habitat.

No Action Alternative

Inland Area Resources

Implementing a No Action Alternative in the Inland Area would have some beneficial impacts to vegetation. The compliance-based strategy of pest management objectives would be implemented. In addition, several beneficial stewardship strategies would be implemented when funding and staffing are available, such as protecting oak woodlands. However, most stewardship strategies proposed in Alternative 1 would not be implemented, and as a result the net benefits to vegetation would be less than those described for Alternative 1.

Tidal Area Resources

Implementing a No Action Alternative in the Tidal Area would have some beneficial impacts to vegetation. All of the compliance-based strategies, such as wetland protection and pest management, would be implemented. In addition, several beneficial stewardship strategies would be implemented when funding and staffing are available. However, many of the stewardship strategies proposed in Alternative 1 would not be implemented, and as a result the net benefits to vegetation would be less than those described for Alternative 1.

A.5.10 Wildlife

This section identifies potential consequences to wildlife resources from implementing the action alternatives and the No Action Alternative. Projected conditions resulting from the proposed alternatives are compared to existing wildlife resources and projected results of current management practices. Resources considered in this section are the wildlife communities described in Section 3.10.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing an ecosystem-based INRMP would result in beneficial impacts to wildlife communities in the Inland Area of Detachment Concord. The management strategies proposed are designed to protect and conserve wildlife communities through habitat management. These strategies would not have any significant adverse impact on wildlife. Alternative 1 could have the following beneficial results:

- Actively protecting stockwater ponds would benefit the amphibian and water bird communities;
- Conducting biannual raptor and other species surveys would provide important information on nesting, feeding, roosting, and population trends for bird communities;
- Monitoring federally listed endangered and threatened species would allow Detachment Concord to adaptively manage these resources; and
- Reviewing all proposed training activities and construction projects for potential impacts to wildlife resources and habitats would provide protection against habitat disturbance and damage.
- Formalizing the process for compliance with the MBTA would provide better protection for migratory birds.

Implementing an ecosystem-based INRMP would continue to address many of the issues associated with cattle grazing and Inland Area wildlife communities. This alternative continues many of the current management strategies, while implementing additional stewardship activities aimed at conserving and enhancing Inland Area wildlife.

Tidal Area Resources

Implementing an ecosystem-based INRMP likely would result in beneficial impacts to wildlife communities in the Tidal Area of Detachment Concord. The management strategies proposed are designed to protect and conserve wildlife communities through habitat management. The potential environmental consequences for the Tidal Area are similar to those described above for Inland Area.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing an environmental compliance-based INRMP could result in adverse impacts to Inland Area wildlife communities. Management strategies that are required by federal and state regulations would continue to be implemented, although at a lower priority level. Migratory birds would continue to be protected with a high priority level, in compliance with EO 13186. Jurisdictional wetlands would be protected at the same priority level, which would benefit the wildlife communities using these areas and enhance wildlife species protection. The stewardship management strategies proposed in Alternative 1 likely would not be implemented under Alternative 2; therefore, the benefits would not be realized.

Ending the agricultural outlease program at Detachment Concord could have both beneficial and adverse effects on wildlife. Cattle help to maintain wildlife habitat in grassland areas by reducing fuel for wildfires and in some cases by helping to maintain populations of native plant species. Therefore, a reduction in grazing could have significant negative impacts on inland wildlife communities, especially when considered in combination with the effect of a lower priority of compliance with federal wildlife protection regulations as well as reduced implementation of conservation-oriented stewardship strategies. However, beneficial impacts could occur in non-grassland habitats through the removal of grazing cattle. Removal of the disturbance created by grazing cattle would allow biological resources to exist unimpeded in these areas. Over time, due to the lack of activity and/or disturbance in these habitats, wildlife species could experience a greater recovery of their populations and habitat from existing disturbed conditions.

Tidal Area Resources

Overall, implementing an environmental compliance-based INRMP would not result in any significant adverse impact to Tidal Area wildlife communities. However, beneficial impacts would be somewhat reduced. Alternative 2 calls for lower priority to be placed on review of training and construction activities with reference to potential impacts on woodlands, large trees, and known undisturbed nesting areas. In this way the benefits to wildlife would be less than those proposed for Alternative 1. Also, since the stewardship management strategies proposed in Alternative 1 likely would not be implemented under Alternative 2, the benefits resulting from these strategies would not be realized. As a result, while there could be some benefits to wildlife and wildlife habitat, it likely would not be to the extent proposed in Alternative 1. Migratory birds would continue to be protected with a high priority level, in compliance with EO

13186. Management strategies, including jurisdictional wetlands protection, that are required by federal and state regulations would continue to be implemented. This would continue to benefit the wildlife communities using these areas and continue to enhance special status species conservation.

No Action Alternative

Inland Area and Tidal Area Resources

Implementing a No Action Alternative would have some beneficial impacts to Inland Area wildlife. Detachment Concord's current wildlife management methods include all of the compliance-based strategies, such as wetland protection and special status species and habitat conservation. Migratory birds would continue to be protected with a high priority level, in compliance with EO 13186. In addition, several beneficial stewardship strategies would be implemented when funding and staffing are available. However, many of the beneficial strategies proposed in Alternative 1 would not be implemented, and as a result the net benefits to wildlife would be less than those described for Alternative 1.

A.5.11 Federally Listed Endangered, Federally Listed Threatened, and Other Sensitive Species

This section identifies potential consequences to federally listed endangered and threatened species and other sensitive species from implementing the action alternatives and the No Action Alternative. As stated in Section 3, federally listed endangered and threatened species are those protected under the ESA. Sensitive species are all other species that have been identified by the coordinating agencies as requiring management consideration. Projected conditions resulting from the proposed alternatives are compared to existing conditions and current management practices. Implementing the proposed INRMP would have a significant impact if it were to substantially affect species (or their habitat) listed as endangered or threatened by federal resource agencies and other species specifically protected by applicable laws.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing an ecosystem-based INRMP in the Inland Area would result in potentially beneficial impacts to special status species. Alternative 1 would have the following beneficial impacts:

- Monitoring military and lease operations for activities that could disturb or displace federally listed endangered and threatened and other sensitive wildlife species would conserve species populations and their habitat;
- Providing information and education programs to base personnel and the public would help minimize disturbance in federally listed endangered and threatened and other sensitive species habitat;

- Discouraging construction and military training activities in aquatic habitats would conserve California red-legged frog and California tiger salamander populations;
- Maintaining water supply priority for ponds containing known population of protected or sensitive amphibian species would conserve sensitive species habitat;
- Conducting annual or biannual surveys would help to assess Inland Area sensitive and endangered species habitat health; and
- Inspecting and maintaining existing fencing around the four stockwater ponds known to contain populations of California red-legged frog and California tiger salamander would encourage native vegetation to grow.

Implementing an ecosystem-based INRMP would continue to address many of the issues associated with Inland Area sensitive species and their habitats. This alternative continues many of the current management strategies, while implementing additional stewardship activities aimed at conserving and enhancing Inland Area federally listed endangered and threatened and other sensitive species.

Tidal Area Resources

Implementing an ecosystem-based INRMP in the Tidal Area would result in potentially beneficial impacts to special status species. Alternative 1 would have the following beneficial impacts:

- Restricting access to tidal marsh habitats and discouraging development and military training in areas known to contain habitat for the above sensitive species would reduce the potential for human-induced impacts to Tidal Area sensitive species;
- Continuing to maintain tidal marsh area in accordance with the 1984 MOU would protect and enhance wetland habitat;
- Conducting annual or biannual surveys would help to assess sensitive and endangered species habitat health in the Tidal Area;
- Continuing to monitor protected and sensitive species populations would help to assess the effectiveness of natural resources management programs;
- Coordinating with USFWS and NMFS prior to conducting pier construction or major maintenance activities would help to determine noise mitigation measures;
- Consulting with USFWS prior to conducting activities in the bay would result in minimal effects to delta smelt and/or Sacramento splittail habitat; and

- Consulting with NMFS prior to conducting pier construction, major maintenance, or dredging activities in the bay or estuary would help to prevent negative impacts to migrating salmonid species.

Implementing an ecosystem-based INRMP would continue to address many of the issues associated with Tidal Area federally listed endangered and threatened species and other sensitive species populations and their habitats. This alternative continues many of the current management strategies, while implementing additional stewardship activities aimed at conserving and enhancing Tidal Area federally listed endangered, federally listed threatened, and other sensitive species.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing an environmental compliance-based INRMP would not result in any significant adverse impacts to Inland Area federally listed endangered, federally listed threatened, and other sensitive species because the amount of habitat available would not change. Environmental compliance would be emphasized under this alternative. Most management measures in this category are considered high-priority compliance measures. However, some of the enhancement measures for federally listed endangered, federally listed threatened, and other sensitive species would be less likely to be implemented under this alternative than those proposed in Alternative 1. Therefore, beneficial impacts under Alternative 2 would be reduced when compared with Alternative 1. Management strategies that are required by federal regulations would be fully implemented under this alternative. This would include conserving areas where federally protected species are known to occur. However, additional management strategies, such as conducting annual or biannual surveys to assess sensitive species habitat health or maintaining and improving foraging habitat for tule elk, are not likely to be implemented. As a result, there would be no significant improvements to federally protected and other sensitive species habitat beyond those that are the result of compliance-based strategies.

The removal of grazing under this alternative could result in beneficial impacts for special status species. Removal of the disturbance created by grazing cattle would allow sensitive habitats and special status species to exist unimpeded in these areas. Over time, due to the lack of activity and/or disturbance in these habitats, federally listed endangered, federally listed threatened, and other sensitive species would experience a greater recovery of their populations and habitat from existing disturbed conditions and could grow unimpeded by grazing cattle.

Tidal Area Resources

Implementing an environmental compliance-based INRMP would not result in any significant adverse impact to Tidal Area federally listed endangered, federally listed threatened, and other sensitive species because the amount of habitat available would not change. Most sensitive species management measures are considered high priority compliance measures. However, some of the enhancement measures for sensitive

species would be less likely to be implemented than those proposed in Alternative 1; therefore, beneficial impacts would be reduced under this alternative. Management strategies that are required by federal and state regulations would be fully implemented under this alternative. This would include conserving jurisdictional wetlands and other designated wildlife areas where sensitive species are known to occur. However, additional management strategies, such as conducting annual or biannual surveys to assess federally protected species and other sensitive species habitat health, are not likely to be implemented. As a result, there would be no significant improvements to habitat beyond those that are the result of compliance-based strategies.

No Action Alternative

Inland Area and Tidal Area Resources

Implementing a No Action Alternative would have some beneficial impacts to Inland Area federally listed endangered, federally listed threatened, and other sensitive species. Detachment Concord's current species-management methods include all of the compliance-based strategies, such as federally listed endangered species habitat conservation. In addition, several beneficial stewardship strategies would be implemented if funding and staffing were available. However, many of the beneficial strategies proposed in Alternative 1 would not be implemented, and as a result the net benefits to federally protected and other sensitive species would be less than those described for Alternative 1 but more than those described for Alternative 2.

A.5.12 Cultural Resources

This section identifies potential impacts to cultural resources that could result from implementing the action alternatives and the No Action Alternative. Impacts to cultural resources include implementing ground-disturbing activities, modifying and altering historic structures, causing visual intrusion on a historic setting, and collecting artifacts without authorization.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Archaeological Sites. The INRMP requires monitoring for prehistoric sites whenever Inland Area projects involving ground disturbances or development are proposed in areas likely to contain cultural resources. Most of the Inland Area is considered to have a low potential for archaeological sites. Soil-disturbing activity in the limited areas of Detachment Concord considered to have medium to high potential for subsurface archaeological sites would be monitored for the presence of cultural resources in compliance with the ICRMP. There is a single archaeological site in the Inland Area that may be eligible for the NRHP, and this would be managed in compliance with the ICRMP. Grazing is considered a ground-disturbing activity, and although low sensitivity areas may not contain cultural resources, the potential exists for continued grazing and grazing-related activities, such as fence construction and stock ponds, to disturb undiscovered cultural resources. Any ground-disturbing activity, such as the construction of fences or stock pond construction, should be monitored for the

presence of previously undocumented archaeological resources. Compliance with the ICRMP would result in no adverse impact to surface archaeological resources.

Traditional Cultural Properties. No traditional cultural properties have been identified at Detachment Concord; therefore, implementing the INRMP would have no impact on these resources.

Historical Archaeological Sites and Properties. No historical archaeological sites or properties have been identified in the Inland Area of Detachment Concord; therefore, implementing the INRMP would have no impact on these resources.

Tidal Area Resources

Archaeological Sites. Most of the Tidal Area is considered to have a low potential for archaeological sites because of the disturbed nature of the soils in that area. Soil-disturbing activity in the limited areas of the Tidal Area considered to have medium to high potential for subsurface archaeological sites would be monitored for the presence of cultural resources in compliance with the ICRMP. Two historical archaeological sites have been identified in the Tidal Area, but they have been determined to be ineligible for the NRHP. Grazing is considered a ground-disturbing activity, and the potential exists for continued grazing and grazing-related activities, such as fence construction and stock ponds, to disturb undiscovered cultural resources. Any ground-disturbing activity, such as the construction of fences or pond construction, should be monitored for the presence of previously undocumented archaeological resources. Compliance with the ICRMP would result in no adverse impact to surface archaeological resources.

Traditional Cultural Properties. No traditional cultural properties have been identified at Detachment Concord; therefore, implementing the INRMP would have no impact on these resources.

Historical Archaeological Sites and Properties. No historical archaeological sites or properties have been identified in the Tidal Area of Detachment Concord; therefore, implementing the INRMP would have no impact on these resources.

Alternative 2: Compliance-based INRMP

Inland Area and Tidal Area Resources

The cultural resources management strategies proposed under this alternative would provide the same level of protection to cultural resources as those discussed under Alternative 1. Because this alternative eliminates grazing and the potential of grazing-related ground disturbing activities, there would be no significant impacts to cultural resources under this alternative.

No Action Alternative

Inland Area and Tidal Area Resources

The cultural resources management strategies proposed under the No Action Alternative would provide the same level of protection to cultural resources as those discussed under Alternative 1. Grazing is considered a ground-disturbing activity, and the potential exists for continued grazing and grazing-related activities, such as fence construction and stock ponds, to disturb undiscovered cultural resources. Any ground-disturbing activity, such as the construction of fences or pond construction, should be monitored for the presence of previously undocumented archaeological resources. Compliance with the ICRMP would result in no adverse impact to Inland and Tidal Area cultural resources under the No Action Alternative.

A.5.13 Air Quality

A Record of Nonapplicability (RONA) has been prepared for this INRMP and is included as Attachment A-1.

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

Selection of either of the action alternatives or the No Action Alternative would not result in any change in air quality for the Inland Area, and no impacts would occur. All management strategies being implemented under the current management plan are compatible with the master plan for Detachment Concord. As a result, there would be no significant impacts to air quality under this alternative. Under Alternative 2, discontinuing the agricultural outlease program could have an indirect impact on air quality should this alternative result in an increase in wildfires.

A.5.14 Noise

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

Selection of Alternative 1 or 2 or the No Action Alternative would not result in any change in noise levels for the Inland Area, and no impacts would occur. As a result, there would be no significant noise impacts under this alternative.

A.5.15 Public Health and Safety

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

At Detachment Concord there would be no adverse impacts with respect to children's environmental health and safety under EO 13045, as the health and safety of all children of personnel and local residents are already considered under the general health and safety guidelines for Detachment Concord. As a result, there would be no change to environmental health and safety under EO 13045 for any of the alternatives.

Other potential impacts to public health and safety are described by area and alternative below.

Alternative 1: Ecosystem-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 1 would have no significant adverse effects on public health and safety in the Inland Area and would continue to protect the Army and Navy personnel of Detachment Concord, other DoD personnel and their families, and local residents.

Federal, state, and Navy regulations strictly regulate the use, storage, and transportation of hazardous materials. This regulatory aspect would not be altered or amended under ecosystem management. Likewise, no additional hazardous waste products would be generated. Pesticides would continue to be applied on agricultural fields at a rate and volume similar to current conditions; therefore, no impacts are expected. As a result, there would be no significant impacts to public health and safety under this alternative.

Tidal Area Resources

Implementing the management strategies under Alternative 1 would have no significant adverse effects on public health and safety in the Tidal Area and would continue to adequately protect the personnel of Detachment Concord, their families, and local residents.

Alternative 2: Compliance-based INRMP

Inland Area Resources

Implementing the management strategies under Alternative 2 could have significant adverse impacts on the Inland Area facilities at Detachment Concord. Discontinuing the agricultural outlease program could increase the likelihood of wildfires caused by an increase in fuel loads and a reduction in the maintenance of firebreaks at Detachment Concord, duties that are usually performed by grazing lessees. The result could be a loss of some structures at Detachment Concord in the event of wildfire. While all public health and safety management strategies have been rated as compliance-based and are regarded with the highest priority, discontinuing the grazing program under this alternative would require implementing additional management strategies to address wildfire potential and its effect on public health and safety.

Tidal Area Resources

Implementing the management strategies under Alternative 2 could have an adverse impact on the Tidal Area facilities at Detachment Concord. Because much of the activity in the Tidal Area involves the movement of ordnance, adverse impacts to public health and safety could occur in the event of wildfire caused by the discontinuation of the agricultural outlease program. While all public health and safety management strategies have been rated as compliance-based and are regarded with the highest priority, discontinuing the agricultural outlease program under this alternative

would require implementing additional management strategies to address wildfire potential and its effect on public health and safety.

No Action Alternative

Inland Area and Tidal Area Resources

The No Action Alternative would result in no foreseeable impact to the Inland Area public health and safety program at Detachment Concord because the current management strategies would continue to be implemented. All aspects of the public health and safety program would continue to receive the highest consideration by the ESO.

A.5.16 Socioeconomic Resources

Alternative 1 and the No Action Alternative

Inland Area and Tidal Area Resources

Implementing the management strategies under any of the proposed alternatives would have no significant adverse effects on socioeconomic resources. Employment and local income likely would not be affected. Socioeconomic resources in the surrounding communities would remain relatively constant.

Alternative 2: Compliance-based INRMP

Implementing the management strategies under Alternative 2 would have an adverse impact to economic resources. The discontinuation of the agricultural outlease program under this alternative would result in reduced income to the lessee (Detachment Concord), thereby reducing the financial resources needed to manage natural resource programs.

A.5.17 Environmental Justice

The affected area for environmental justice issues at Detachment Concord includes Contra Costa County. To determine whether low-income and minority populations could be disproportionately affected by the two action alternatives or the No Action Alternative, census data identified in Section A.4.16 was used to identify income and population characteristics of neighborhoods near Detachment Concord. The percentages of low-income and minority populations in each census tract were compared to the county average to determine whether they were disproportionately larger than the county-wide average.

Alternatives 1 and 2 and the No Action Alternative

Inland Area and Tidal Area Resources

Implementing the management strategies under any of the proposed alternatives would have no significant adverse effects on issues concerning environmental justice. Existing demographics and poverty levels would likely remain constant. There is no evidence to

suggest that implementing the management strategies would result in a disproportionate impact to minority or low-income populations.

A.6 CUMULATIVE EFFECTS

The CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as follows:

> The impact on the environment (that) results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR § 1508.7 [1997]).

To assess cumulative effects, a review of other projects, both on-station and off-station, was conducted. This included looking at past, present, and reasonable foreseeable projects that might be interdependent with the INRMP proposal. No current actions or past projects were identified. Any additional actions taken by the gas well lessee on Ryer Island would need to comply with the goals and objectives of this INRMP. The East Bay Regional Park District (EBRPD) has proposed a regional trail system that includes public trails on both the Inland and Tidal Areas of Detachment Concord. Both action alternatives and the No Action Alternative would not allow for public access as required in the trail plan, because of safety concerns. While the INRMP would conflict with the EBRBD's proposed land use, it is not expected to be a cumulative effect or reduce recreation opportunities from current conditions. In addition, Detachment Concord has been directed to undertake a joint use study to evaluate potential uses by other agencies and organizations of the Detachment Concord as a result of the Reduced Operations Status (ROS) being implemented by the Navy. The joint use study is to receive and evaluate potential uses of the Detachment Concord, mainly the Inland Area, as the Navy's presence is reduced. Joint use proposals are to be received by the joint use technical advisory board, and, on initial approvals by this board, they will undertake their own environmental analysis and endorsement by the Navy prior to any implementation. Joint use proposals may complement objectives put forth in this INRMP, or they may stand alone on their own merits. Implementing the INRMP with other proposed actions at Detachment Concord would not result in any significant impacts to local natural or cultural resources.

A.7 OTHER CONSIDERATIONS

A.7.1 Irreversible or Irretrievable Commitment of Resources

NEPA requires an analysis of significant irreversible effects. Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of nonrenewable resources, such as metal, wood, fuel, paper, and other natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Another impact that falls under the category of irreversible and irretrievable commitment of resources is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

No irreversible or irretrievable impacts would be expected from implementing any of the alternatives. Under all the alternatives, cultural resources and protected habitats (for example, wetlands and areas inhabited by federally listed endangered and threatened species) would not be adversely affected. Likewise, both alternatives would have a negligible to beneficial effect on net consumption of resources.

A.7.2 Unavoidable Adverse Effects

NEPA requires a discussion of any adverse environmental effects that cannot be avoided. No significant adverse impacts have been identified from implementing either of the action alternatives or the No Action Alternative.

A.7.3 Relationship Between Short-term Uses and Long-term Productivity

NEPA requires a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. Both of the action alternatives would have short-term effects as the management program and management tools are implemented (as discussed in the resource sections above). These effects would be temporary and would serve to obtain the long-term goals of either management alternative. In general, both alternatives would increase productivity of one sort or another. Alternative 1 would balance the productivity of agriculture, human recreation, and ecological stewardship, and Alternative 2 would strive to maintain regulatory compliance.

A.8 REFERENCES

Please refer to Section 8 of the INRMP.

A.9 LIST OF PREPARERS

Please refer to Section 9 of the INRMP.

APPENDIX A-1
RECORD OF NON-APPLICABILITY

Department of Defense

Department of the Navy

Record of Non-applicability

Naval Weapons Station Seal Beach, Detachment Concord, California Integrated Natural Resources Management Plan (INRMP),

Pursuant to Section 176 (c) of the Clean Air Act, as amended by the 1990 amendments; the General Conformity Rule at 40 CFR Parts 51 and 93; and the Chief of Naval Operations Interim Guidance on Compliance with the Clean Air Act Conformity Rule, the Department of Navy determined that the majority of practices outlined in the Integrated Natural Resources Management Plan are exempt from conformity requirements in accordance with sections 3b.(iv), 3b.(vii), 3b.(x), 3b.(xii), and 3b.(xiii) of the Chief of Naval Operations Interim Guidance on Compliance with the Clean Air Act Conformity Rule. The goal of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and enhancement of natural resources in a manner that is consistent with the military mission, that integrates and coordinates all natural resource management activities, and that provides for sustainable multipurpose uses of natural resources, including public access for use of natural resources subject to safety and military security considerations. The management objectives of this INRMP are to integrate management plans as practicable and consistent with the military mission and established land uses.

The proposed action results in no emission increase or an increase that is clearly de minimis. Consequently, the proposed action is exempt from the conformity determination requirements of the Environmental Protection Agency's conformity rule.

To the best of my knowledge, the information contained in this Record of Nonapplicability is correct and accurate, and I concur in the finding that air emissions associated with the proposed action are below de minimis levels, are not regionally significant, and therefore do not require further conformity analysis or determination.

_____ _____

CDR J. C. Steelman Date
USN

APPENDIX B

DISTRIBUTION LIST

APPENDIX B
DISTRIBUTION LIST

Coordinating Agencies Points of Contact

U.S. Fish and Wildlife Service
ATTN: Mr. Joel Medlin
Sacramento Field Office
2800 Cottage Way # W2605
Sacramento, CA 95825-1846

California Department of Fish and Game
ATTN: Janice Gan
PO Box 1161
Tracy, CA. 95378

California Department of Fish and Game
ATTN: Janice Gan
Region 3
PO Box 47
Yountville, CA 94599

Public Outreach Points of Contact

City of Concord
2900 Salvio Street
Concord, CA 94519

Chevron Pipe Line Company
ATTN: Easement & Rightaway Rep.
2360 Buchanan Road
Pittsburg, Ca 94565

Clyde Civic Improvement Association
ATTN: Mrs. Alice Davis
142 Wellington Ave.
Clyde, CA 94520

East Bay Municipal Utility District
375 11th Street
Oakland, CA 94607

East Bay Regional Parks District
ATTN: Brian Wiese
2950 Peralta Oaks Court
Oakland, CA 94605

Holbrook Heights Homeowners Association
ATTN: Dana Claire
P.O. Box 485
Concord, CA 94522

Public Outreach Points of Contact *(continued)*

Concord Historical Society
History Research Center
ATTN: Ms. Donna Enjaian
P.O. Box 404
Concord, CA 94522

Contra Costa County Community Development Department
ATTN: Mr. Jim Cutler
651 Fine Street, 4th Floor
Martinez, California 94553

Contra Costa County Flood Control and Water Conservation District
255 Glacier Drive
Martinez, California 94553-4987

Contra Costa Water District
Engineering Department
ATTN: Mr. Dennis Pisila
1331 Concord Avenue
P.O. Box H20
Concord, California 94524

Contra Costa County Board of Supervisors District 4
ATTN: Mr. Mark De Saulnier
2425 Bisso Lane, Suite 110
Concord, CA 94520

US Army, Detachment Concord Military Traffic Management Control
Hess Rouhafza
410 Norman Avenue
Concord, CA 94520-1142

Honorable George Miller Congressman
1333 Willow Pass Road
Suite 203
Concord, CA 94520

Holbrook Heights Homeowners Association
ATTN: Mr. Marcus O'Connell
2061 Grant Street #305
Concord, CA 94520

Pacific Gas & Electric Company
Diablo Division
ATTN: Mr. Frank Eich
1030 Detroit Avenue
Concord, California 94518-2487

San Francisco Bay Conservation and Development Commission
30 Van Ness Venue, Suite 2011
San Francisco, CA 94102

US Department of the Interior Western Ecological Research Center
ATTN: Keith Miles
USGS Field Station, UC Davis
1 Shields Avenue, Room 278
Davis, CA 95616

US Navy, Detachment Concord Environmental Site Manager
Rudy Pontemayer
10 Delta Street
Concord, CA 94520-5100

APPENDIX C

INDEFINITE USE PERMIT FOR THE TIDAL AREA

All correspondence in connection with this Indefinite Use Permit should include reference to:

INDEFINITE USE PERMIT FOR TIDAL AREA
of
Naval Weapons Station, Seal Beach Detachment Concord
Concord, California

This Indefinite Use Permit (hereinafter Permit) made this 29th day of September 1999 between the Department of the Navy, (hereinafter called "Navy") and Department of the Army (hereinafter called "Army") provides for Army's use of facilities at Naval Weapons, Seal Beach Detachment Concord located in Concord, California (hereinafter called "Detachment Concord"), in connection with Military Traffic Management Command operations. The objective of this Permit is to provide for the maintenance and operation by the Army of those facilities, equipment, buildings and structures located on the Detachment Concord Tidal Area.

1. For an indefinite period beginning on 1 October 1999 and until terminated by mutual agreement between the Secretary of the Navy and Secretary of the Army:

a. The Army shall have use of that portion of the Naval Weapons Station, Seal Beach Detachment Concord property known as the "Tidal Area," containing 6,100 acres, more or less, including: Roe, Ryer, Freeman, Snag, Middle-Ground and Seal Islands, along with all facilities, buildings and structures located thereon, all as shown on the drawing, identified as "Army Tidal" and Drawing No. 1; marked Exhibit "A," attached to and made a part hereof. However, the Navy shall retain access to and use of Area "Q," associated with buildings 351 and 31-41, as shown on said Exhibit "A." Army shall manage, maintain and operate the facilities included in Exhibit "B". Buildings identified in Exhibit B excess to Army operational requirements shall be maintained to minimum standards sufficient to protect human health and the environment. As requested by the Army, the Navy, as possible, agrees to Permit to the Army additional Detachment Concord property to meet Army operational requirements.

b. The Tidal Area shall be delivered to the Army "AS IS, WHERE IS." The Navy makes no warranty as to the Tidal Area's usability generally or as to its fitness for any particular purpose. However, the Navy acknowledges that it remains liable for all environmental contamination safety and/or health hazards that arose from the Navy's past use of the property, or that arises from any potential future use, as further described in paragraph 9 of this Permit.

2. Transporting, handling, storing, or sale of hazardous waste or toxic substances, materials or wastes shall be in accordance with all applicable Federal, state, and local regulations and/or ordinances.

3. The land and improvements, existing and to be constructed, shall be carried on the Inventory of Military Real Property of the Navy, with reporting data supplied by Army. Real Property accounting shall be in accordance with procedures prescribed by the DoD Financial Management Regulation and as required to provide Naval Facilities Asset Database records.

4. Army shall reimburse Navy for the full cost of any utilities and services, if any, provided by Navy during the transition period (1 October 1999 through 30 September 2000). An interim review of support requirements will be conducted in February 2000. The Army and Navy agree, following the transition period, that for the life of this Permit the Army is responsible for the provision and cost of all utilities and services required to operate the Tidal area. Likewise, for the life of this Permit, the Navy shall be responsible for the provision and cost of all utilities and services required for all other portions of Detachment Concord property.

5. Prior to the initiation of any major structural changes in a building and/or demolition or removal of a structure, the Army shall obtain written authorization from the Commander in Chief, Pacific Fleet (CINCPACFLT) or a designated local Navy representative. The Navy shall not unduly delay this process. Permanent structural changes, additions, or installations accomplished and financed by the Army during occupancy shall remain in place (and be left in condition comparable with the rest of the building or structure). Temporary structural changes, additions, alterations, or installations may be removed by the Army, at its option, after giving notice of its intent, provided that, if removal is accomplished, the building or structure shall be returned to its original condition, upon the request of the Navy. Siting of Army facilities shall conform to Detachment Concord's Master Plan except as otherwise provided in writing by the Navy. Standards of design and construction shall conform to criteria and directives consistent with those of the Navy. The Army will provide documentation related to major structural changes to the Navy in order to update the Master Plan.

6. Army shall conduct all activities within the Tidal Area in accordance with Department of Defense Explosive Safety Board (DDESB) standards (DoD 6055.9-STD) or successor policies and regulations, applicable to the Explosive Safety Quantity-Distance (ESQD) arc criteria. In addition, the Navy ESQD arcs existing as of 30 September 1999 within Detachment Concord's Master Plan shall remain in place for the duration of this IUP; and, future construction within the Tidal area shall be limited by said DDESB standards.

7. Any alterations, additions, or changes to Navy-owned property shall be made at the Army's sole cost and expense.

8. The Army and the Navy may not transfer or assign any use granted by this Permit without joint concurrence. "Use" includes, but is not limited to licenses, permits, easements, and leases or outgrants of the property subject to this use Permit. The Navy acknowledges, however, the Army's interest in converting the Tidal Area to a government owned contractor operated (GOCO) facility, and agrees to cooperate fully in the drafting and execution of any legal instruments required to achieve this purpose, as requested by the Army.

9. The Army will assume all environmental responsibility and liability for any environmental issues occurring in the Tidal Area after 1 October 1999, including, but not limited to fines, penalties, and compliance and cleanup requirements. The Navy shall continue to have liability for all environmental conditions that arose from its past use of the property, or that arises from any potential future use by the Navy, including those environmental conditions as detailed in a Phase I Environmental Baseline Study (EBS) in the form provided in Exhibit C and herein incorporated by reference. A Phase II EBS will be prepared by the Navy in a form acceptable to the Army and in time to allow its incorporation by reference into this Permit prior to 1 October 2000. The Phase II EBS will provide additional information on the environmental conditions of the Tidal Area. However, inasmuch as the Army has agreed to execute this Permit prior to the completion of the Phase II EBS, the Navy acknowledges and agrees that any environmental contamination identified on the Tidal Area property prior to the completion of the Phase II EBS shall be assumed to have been caused by the Navy, unless linked demonstrably to an Army activity.

a. Except as otherwise provided as Navy's responsibility hereunder, the Army, and its contractors shall comply with all applicable Federal, State, and local laws, regulations and standards that are or may become applicable to the Army's or its contractors' activities in the Tidal Area.

b. The Army shall be solely responsible for obtaining, at its own cost and expense, any environmental permits/waivers, etc. required for operations under this Permit independent of any existing permits held by the Navy as landowner, as permitted under applicable laws and regulations. Consistent with this requirement, the Army shall provide prior notice to the Navy of all permit applications in connection with the use and operation of the Tidal Area. The Navy agrees, however, to cooperate fully as required to assist the Army in obtaining any permits requiring the Army to name the Navy as a permittee or co-permittee. Absent coordination with the Navy, the Army expressly agrees that the Navy will not be made a party to any permit covering the Tidal Area. Copies of all environmental permits and associated compliance and response plans required to operate the Tidal Area and obtained by the Army will be provided to Navy within thirty (30) calendar days of their receipt by the Army.

c. The Navy and other Federal, State, and local environmental regulatory agencies and their officers, agents, employees, contractors and subcontractors

have the right, upon reasonable notice to the Army, to enter upon the Tidal Area for the purposes enumerated in these subparagraphs:

(i) To conduct investigations and surveys, including, where necessary, drilling, soil sampling, testing soil borings, establishing groundwater monitoring wells, groundwater sampling, test pitting, geophysical surveying, and conducting any other activities related to the Detachment Concord Installation Restoration Program (IRP) or any other on-going environmental investigations;

(ii) To inspect field activities of the Navy and its contractors and subcontractors in implementing the Detachment Concord IRP or any other on-going environmental investigations;

(iii) To conduct any test or survey related to implementation of the Detachment Concord IRP or any other environmental conditions at the Tidal Area or verify any data submitted to Federal, State, or local environmental regulatory agencies by the Navy relating to such conditions;

(iv) To construct, operate, maintain or undertake any other response or remedial action as required or necessary under the Detachment Concord IRP, or any other ongoing environmental investigations, including, but not limited to, monitoring wells, pumping wells and treatment facilities and fencing for Detachment Concord IRP sites.

(v) To administer and oversee the existing or future agricultural and/or livestock grazing outlease(s) to achieve vegetation management for wildlife control which requires monthly monitoring; seasonal livestock grazing from 1 December through 30 June annually; and to allow improvements to the leased premises, including but not limited to, watering facilities, fencing and noxious weed control.

Any and all such entries under the above subparagraphs shall be made and conducted in manner designed to minimize interference with the Army's operations in the Tidal Area as much as reasonably possible under the then-existing circumstances.

d. The Navy agrees to provide the Army copies of all health and safety plans in effect under the Detachment Concord IRP on the commencement date of this Permit. The Army agrees to comply with the provisions of any health or safety plan in effect under the Detachment Concord IRP during the course of any of the above described response or remedial actions. Any inspection, survey, investigation or other response or remedial action will, to the extent practicable, be coordinated with representatives designated by the Army. In addition, the Army shall comply with all applicable Federal, State, and local occupational safety and health regulations.

e. The Army shall provide its plan for responding to hazardous waste, fuel and other chemical spills prior to commencement of operations in the Tidal Area in a form acceptable to the Navy prior to 1 October 2000. The Army will operate under the Navy's plan through 30 September 2000. The Army's response plan shall be independent of any Navy response plan for the Detachment Concord, and shall not rely on any use of Navy personnel or equipment. If the Navy provides any personnel or equipment, whether for initial response and/or spill containment, the Army agrees to reimburse the Navy, to the extent permitted by law, for all costs in association with such response or cleanup.

f. The Army shall be responsible for reporting, containment, removal and cleanup of any air, land, or water pollution that emanates from the Tidal Area that is caused by Army operations.

g. The Army shall not conduct any subsurface excavation, digging, drilling or other disturbance of the surface without the prior written approval by CINCPACFLT or a designated local Navy representative, which approval shall be not be unreasonably withheld.

h. The Army shall strictly comply with the hazardous waste permit requirements under the Resource Conservation and Recovery Act (RCRA) and any other applicable laws, rules or regulations. In connection with the Army's activities in the Tidal Area, the Army must provide, at its own expense, such hazardous waste storage facilities that comply with all laws and regulations as needed for such storage. The Army is required to obtain its own Environmental Protection Agency (EPA) hazardous waste generator identification numbers.

i. The presence of known asbestos containing material (ACM), lead based paint (LBP), or polychlorinated biphenyls (PCBs) containing transformers are identified in the Phase I EBS as described in paragraph 9 of this Permit.

(i) Except as provided in the paragraph below, the Navy is not responsible for any removal or containment of ACM. The Army agrees to notify the Navy of any plans to make improvements or repairs to the Tidal Area property that require the removal of asbestos, and to provide in a form acceptable to the Navy a copy of its asbestos disposal plan by 1 September 2000. At a minimum, the Army's asbestos disposal plan will identify the proposed disposal site for the asbestos, or in the event the site has not been identified, will provide for disposal at a licensed facility authorized to receive it.

(ii) The Navy warrants that all friable, damaged, and accessible ACM in the Tidal Area has been removed or encapsulated meeting the requirements of all Federal laws, rules, or regulations governing the handling and treatment of ACM. The Navy agrees to abate or remediate such materials to the extent that this warranty is later demonstrated inaccurate. However, ACM, which during the period of this Permit becomes damaged or deteriorated through the passage of

time, as the result of a natural disaster, or as a consequence of the Army's activities under this Agreement, including but not limited to, any emergency, will be abated or remediated under applicable law by the Army, at its sole cost and expense. Notwithstanding the requirement in paragraph in i (i) above to notify Navy of any plans relating to the removal of asbestos, in an emergency, the Army agrees only to notify Navy as soon as practicable of its emergency ACM response. The Army shall be responsible for monitoring the condition of existing ACM in the Tidal Area for deterioration or damage and accomplishing repairs or abatement pursuant to the applicable conditions of this Permit. The Army shall notify the Navy as soon as practicable after any emergency abatement activities undertaken by the Army pursuant hereto. Until 1 October 2000, the Army shall use the Navy's existing ACM Management Plan as outlined in the Inter-Service Support Agreement (ISA) to be entered into between MTMC and the CINCPACFLT. The Army shall submit an ACM Management Plan in a form acceptable to the Navy by 1 September 2000.

j. The Army acknowledges that the Navy and the U. S. Fish and Wildlife Service (USFWS), under a Memorandum of Understanding (MOU) in 1984, jointly designated portions of the Tidal Area as a Wetland Preserve. The Army agrees to comply with all provisions of this MOU or future agreements between the Navy and the Federal and state wildlife resource agencies and shall not undertake any activity that may violate such agreements. Consistent with paragraph 10 of this IUP, the Army's position will be solicited prior to final signature on any future agreements, and the Navy expressly agrees, to the extent allowed by law, that any such agreements which it may enter into will not degrade or interfere with any Army operational requirement in the Tidal Area.

k. The Army agrees to provide an annual Pest Management Plan in a form acceptable to the Navy prior to 1 October 2000 and annually thereafter. The Army agrees to provide all pesticides in accordance with this plan, and agrees to provide CINCPACFLT or a designated local Navy representative prior written notice of any on-site storage or mixing of pesticides or herbicides in the Tidal Area.

l. The Army will comply with the National Historic Preservation Act (16 USC § 470, as amended), and any other applicable laws and regulations pertaining to historical or cultural resources, at its own cost and expense. Any historical or cultural resources (historical or prehistoric site or object) discovered by the Army, or any person working on behalf of the Army, in the Tidal Area, shall be reported immediately to CINCPACFLT or a designated local Navy representative. The Army shall suspend all operations in the immediate area of such discovery until a professional archeologist can evaluate the site and an appropriate treatment plan can be developed and implemented. Consultation with the California State Historic Preservation Officer and the Advisory Council on Historic Preservation shall be used in the development of the treatment plan. Further, the Army agrees to comply with all provisions of any current agreements between the Navy

and the Advisory Council on Historic Preservation and the California State Historic Preservation Officer and shall not undertake any activity that may violate such agreements consistent with paragraph 10 of this IUP. The Army's position will be solicited prior to final signature on any such future agreements and the Navy expressly agrees that any such agreements which it may enter into will consider to the extent allowed by law Army operational requirements in the Tidal Area. Finally, the Army agrees to comply with the Concord Naval Detachment's Cultural Resource Management Plan (CRMP) on the commencement date of this Permit.

m. The Army shall provide prior written notification to CINCPACFLT or a designated local Navy representative, of any articles, tools, equipment, or devices brought in the Tidal Area which contain radioactive materials. The Army is responsible for the removal of all such radioactive materials upon termination of this Permit.

n. All Army operations, restoration, and environmental clean-up will be in accordance with stated, Federal, DoD or other governing guidance.

o. The Army will allow public access to the Port Chicago National Memorial, located near Pier 1, which will be under the administration of the National Park Service (NPS). NPS and the Army will coordinate said access to avoid disruption of Army operations.

10. The Navy acknowledges that it has a number of existing agreements with third parties as referenced in this Permit. A listing of these third party agreements is provided as Exhibit D. The Navy will provide a copy of each such agreement listed in Exhibit D within thirty (30) calendar days of the execution date of this Permit. The Navy further agrees to provide at the Army's request any other agreements or information relevant to the Army's use, management or operation of the Tidal Area, whether or not referenced in this Permit or Exhibit D, within ten (10) calendar days of receiving such a request in writing from the Army. The Navy agrees to solicit the Army's position prior to authorizing the execution of any new third party agreements or modifications to existing agreements. Consultation with the Army on these matters will be sought, as possible, at the outset of any discussions with the relevant third party or parties. In this regard, to the extent allowed by law, the Navy agrees to refrain from entering into any additional third party agreements or to modify existing agreements affecting Detachment Concord if in view of the Army the effect of the new or modified agreement would degrade Army operations or wartime capacity requirements.

11. This Permit contains the entire agreement and understanding of the parties in respect to the Army's use, operation and management of facilities, equipment, buildings, and structures located in the Tidal Area. Amendments or waivers to this Permit require bilateral negotiation and the consent of the originating offices.

IN WITNESS WHEREOF, the parties hereto have, on the respective dates set forth below, duly executed this Permit as of the day and year first above written.

FOR THE DEPARTMENT OF THE NAVY

By _____

Deputy Assistant Secretary of the Navy (Installations and Facilities)

Date 29 Sep 99

FOR THE DEPARTMENT OF THE ARMY

By _____

Deputy Assistant Secretary of the Army (Installations and Housing)

Date 28 SEPT. 99

APPENDIX D

MEMORANDUM OF UNDERSTANDING FOR THE DESIGNATION OF A WETLAND PRESERVE ON DETACHMENT CONCORD

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DEPARTMENT OF THE NAVY
AND
THE U. S. FISH AND WILDLIFE SERVICE
RELATING TO
DESIGNATION OF WETLAND PRESERVE ON THE
NAVAL WEAPONS STATION, CONCORD, CALIFORNIA

The Commanding Officer, Naval Weapons Station, Concord, hereinafter referred to as the Station and the Regional Director, U. S. Fish and Wildlife Service hereinafter referred to as the Service

ACTING in pursuance of, or in furtherance of the purposes of the Fish and Wildlife Coordination Act (P.L. 86-797), the Migratory Bird Treaty Act (P.L. 65-186) and the Endangered Species Act (P.L. 93-205), and Executive Order 11990, Protection of Wetlands; and

RECOGNIZING: (1) that the wetlands on the Station are unique and valuable resources providing habitat for endangered species and for a wide variety of migratory waterfowl, waterbirds and other terrestrial and aquatic life; (2) that the number of such wetlands in the San Francisco Bay System have been dramatically reduced due to human development causing all such remaining wetlands to be highly significant and valuable resources such that preservation and maintenance of such areas would be in the national public interest; (3) that the Department of Interior being experienced in the preservation and management of such valuable resources, should provide assistance in the protection of these unique national natural resources,

DO HEREBY AGREE to the designation of a Wetland Preserve on six island and five mainland wetlands occurring on the Station,; as listed below and as shown on Figure 1.

Roe Island, Ryer Island, Freeman Island, Snag Island, Middle-Ground Island and Seal Islands, Hastings Marsh, Pier Marsh, Middle-Ground Marsh, East Marsh, North Area K Marsh.

AND DO FURTHER AGREE to pursue, as funding and personnel become available, the potential of an overlay National Wildlife Refuge on the properties comprising the Wetlands Preserve; said Refuge to be administered by the Service and attached to and managed thereof as a separate unit of the San Francisco Bay National Wildlife Refuge; said unit to be referred to as the Concord National Wildlife Refuge.

I. The Department of the Navy, acting through the Commanding Officer of the Station hereby agrees

A. to designate the above mainland and island wetland areas as a Wetland Preserve

B. to prepare and implement a management plan for the Preserve and to coordinate this management plan and its implementation with the Service to ensure proper protection of endangered species and other wetland resources.

C. to promote the recovery and preservation of threatened or endangered plants and animals, and to prepare plans for the management of these species in consonance with the management plan for the Preserve.

D. to conduct such studies, surveys, and other research, as determined by availability of funds and personnel, on the fish and wildlife resources of the Preserve and to coordinate such activities with the Service.

E. to recognize the value and significance of the wetland resources on the Preserve, to give priority to the protection and management of the Preserve, and to prevent, as far as feasible, any military activity which could adversely impact or otherwise be detrimental to the wetland resources of the Preserve.

F. to continue to uphold the Department of the Navy's obligations regarding protection of wetlands, migratory birds, and endangered species as required by the Endangered Species Act, the Migratory Bird Treaty Act and Executive Order 11990 Protection of Wetlands, and other obligations regarding the preservation and management of natural resources of the Preserve.

G. to allow access, as further specified in Section IV, to those personnel employed or authorized by the Service with the responsibility for carrying out the purposes of this Agreement.

II. The Service, acting through the Regional Director, hereby agrees

A. to provide technical assistance in preparation and implementation of the management plan for the Preserve.

B. to provide, where funds and personnel permit, assistance in conducting inventories, studies and other research on the fish and wildlife resources of the Preserve.

C. to require and ensure that all personnel under its supervision or authorization follow military safety and security regulations whenever entering the Station either for conducting activities on or in gaining access to the Preserve.

III. It is further understood and agreed:

A. that the paramount use of the Preserve be for the purposes of the Station in consonance with its use and activity on adjacent property.

B. that the Navy may enter into agreements with educational, research, and scientific organizations, and government organizations in carrying out its responsibilities under this agreement, provided that it shall agree to

coordinate such activities with the Service to ensure the activities contribute to proper management and protection of the Preserve.

IV. Access

Access by Service employees or their authorized representatives may be permitted on all of the Islands except Seal Islands, and to all mainland marshes by special permission and on a case by case basis. All access to Seal Islands is strictly forbidden for safety and security reasons. Access to any area may be restricted at any time as determined to be necessary by the Commanding Officer of the Station. All personnel desiring access to the mainland marshes must check in at the main gate of the Station on a daily basis to obtain a permit. Access will be permitted for the purposes of:

A. conducting necessary management activities on the Preserve.

B. conducting research to obtain information relating to the proper management and protection of the fish and wildlife resources on the Preserve.

D. other activities consonant with the intent and purposes of this agreement.

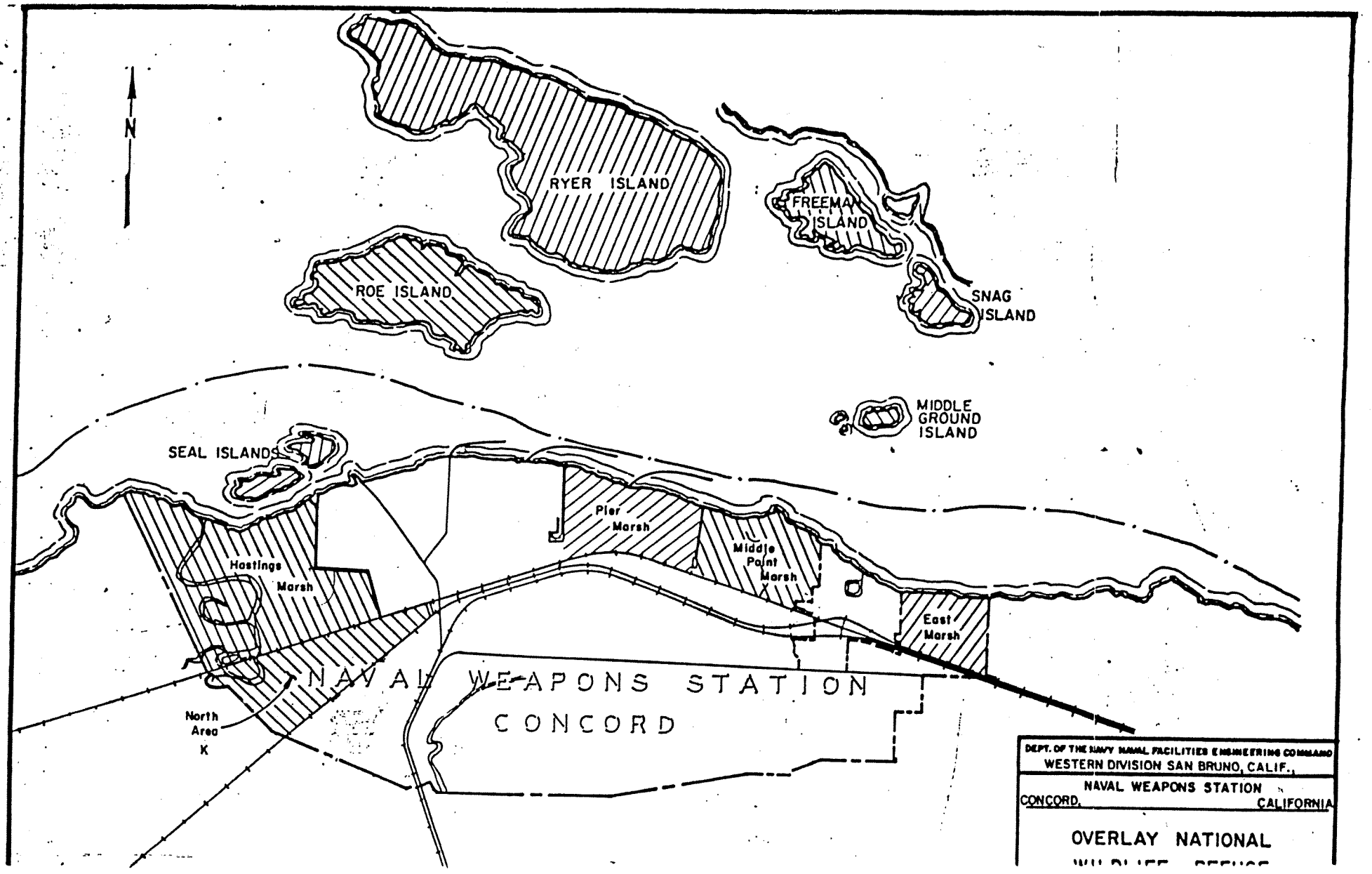
This Agreement shall remain in effect until terminated or modified by mutual written agreement of the signatory parties. Compliance with this Memorandum of Understanding is subject to the availability of funds and personnel. This Agreement is effective upon the date of the last signature below.

G. G. Mayo
Commanding Officer
Naval Weapons Station, Concord

1 Feb. 1984
Date

Lawrence W. DeSoto
Regional Director
U. S. Fish and Wildlife Service

1 Feb 1984
Date


N
RYER ISLAND
FREEMAN ISLAND
ROE ISLAND
SNAG ISLAND
MIDDLE GROUND ISLAND
SEAL ISLANDS
Pier Marsh
Middle Point Marsh
Hastings Marsh
East Marsh
NAVAL WEAPONS STATION
CONCORD
North Area K
DEPT. OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
WESTERN DIVISION SAN BRUNO, CALIF.,
NAVAL WEAPONS STATION
CONCORD, CALIFORNIA
OVERLAY NATIONAL

APPENDIX E

METHODOLOGY FOR WILDLIFE SURVEYS AT DETACHMENT CONCORD

Table 1. General methodology, periodicity, and frequency of wildlife surveys at Detachment Concord: 1998-1999.

Animal Group	General Methodology	Survey periods and frequency
Large Mammals	• Evening spotlight surveys along driving routes (n = 13 zones of observation: Map 2). • Use of infrared camera monitoring systems in areas that cannot be driven. • Identification of tracks/scat when observed.	• ≥ 4 surveys each season (n = 17 surveys). • Continuous monitoring with Trail Master.
Rodents	• Use of Sherman live-traps set in grids or transects within all representative environments (n = 31 trapping locations, Map 1).	• Sampling occurred seasonally among all representative environments:, sum 98'(n =19), fall 98'(n =23), win 98-99'(n =19), spr 99'(n =18), sum 99'(n = 11).
Bats	• Use of ultrasonic detectors to identify areas of bat use and evaluate levels of activity (n = 18 sites). Surveys conducted at water sources and building structures throughout Detachment Concord. • Mist netting to identify species where bats are detected.	• Continuous surveys to identify areas of activity followed by mist netting efforts where bats are detected.
Owls	• Evening playback call surveys at specified stations (n = 25 stations, Map 1). • Daytime surveys in areas that have the potential to support burrowing owl habitat. • Nest searching	• February to March 1999, 2 surveys per station. • Continuous surveys. • January to April, 1999.
Raptors	• Automobile surveys along specified routes in the Tidal and Inland Areas (n = 13 observation zones: Map 2). • Nest searching	• Six surveys each season (3 Tidal Area/3 Inland Area). Total no. surveys = 24. • March to June, 1999
Songbirds, shorebirds, and waterfowl	• Variable-circular point surveys (n = 32), variable-width transect surveys (n = 3 sites), and area-restricted searches (n = 3 sites) (Map 1). • Nest searching	• Each site once per month. • April to August, 1999
Black rail surveys	• Playback call surveys at listening stations set in tidal marshes and along waterways (n = 55 stations) (Map 1).	• April to July1999, ≥ 2 surveys at each listening station.

Table 1. General methodology, periodicity, and frequency of wildlife surveys at Detachment Concord: 1998-1999.

Animal Group	General Methodology	Survey periods and frequency
Amphibians and reptiles	• Area-restricted searches at sites (n = 22, Map 1) likely to support populations of particular amphibians and reptiles: permanent and ephemeral water sources, rocky outcrops, etc. Day and evening surveys will be conducted. • Canoe surveys (n = 8) for western pond turtles along sloughs and channels of tidal marshes. • Funnel trap arrays	• Each location will be surveyed at least once per season and during periods when certain species are more likely to be active (e.g., high humidity). • May to July, 1999. • Summer 1999

3.1 Methodology

3.1.1 Songbirds, shorebirds, and waterfowl

Permanent bird survey points and transects were established at 16 Inland and 22 Tidal Area study locations (Map 1). These locations represented the variety of plant communities and physical conditions at Detachment Concord. Twenty-five of the 38 bird sampling locations were placed at points surveyed during previous studies to allow comparisons through time. The remaining 14 sites were randomly placed within the range of environments present. Bird survey points are shown geographically on Map 1.

Three methods were used to study bird populations at Detachment Concord: general bird surveys, variable-width transect surveys (sites 5, 15, 24B), and variable-circular plot surveys, and area restricted searches (sites 26-28: see section 3.1.3). These methods were used to determine species presence, richness, and abundance across environments and seasons. General bird surveys consisted of spending approximately 3-6 hours in each representative environment (e.g. riparian, pine plantation, grassland, salt marsh) each season (3-month interval) and recording all species encountered. This method in conjunction with monthly surveys allowed a thorough determination of seasonal bird species richness. Additionally, general bird surveys increased the potential for observing breeding behaviors (e.g., nest building, incubation, carrying food) during spring and summer.

Because general bird surveys are not suited for abundance estimates, the variable-circular plot and variable-width transect methods (Emlen 1977) were implemented to determine abundance of individual species and total bird abundance at each study location. Thirty-eight study locations were selected across Detachment Concord for sampling throughout the 1-year study period. Points were established at 35 study locations and transects (500-m) were established at 3 locations (site #'s: 5, 15, 24B) . Transects were used in areas of low, open vegetation such as grasslands and pickleweed marsh where point counts do not adequately sample the bird community. Point counts consisted of an 8-minute observation period following a 2-minute initial waiting period. Transect surveys consisted of one observer walking a 500-m transect line at a rate of approximately 1-km per hour and recording all birds seen or heard. Bird surveys began at sunrise and continued until 2 hours

after sunrise. This time period allowed 3-4 surveys on a given morning. Data recorded during bird surveys included date, site number, species, number of individuals, distance from the observer to individual birds, method of detection (e.g., sight, sound), and behavior (e.g., singing, foraging, aggression). Birds flying over the area during a survey were recorded as such. Weather data, including temperature, wind speed, and cloud cover were recorded at the beginning of each survey. Surveys were not conducted at wind speeds greater than 15-mph.

Shorebirds and waterfowl

Because shorebirds and waterfowl tend to form flocks and congregate in particular areas, area restricted searches were conducted in locations where individuals were likely to form dense congregations or where point or transect surveys would provide inadequate sampling. Area restricted searches consisted of counting all birds observed within a defined area. This type of sampling was conducted at Seal Creek Marsh (sites 26-28: Map 1). Seal Creek Marsh is located west of Taylor Bridge and south of Waterfront Road (Figure 4). Seal Creek marsh contains large areas of open brackish water that were previously known to support dense congregations of waterfowl and shorebird species. Counts of individuals of all species observed in these areas were conducted on a monthly basis over a 1 year period.

Each study location was surveyed once per month over a period of 1 year from September 1998 to August 1999. During summer 1998, observers conducted general bird surveys at each site and became familiar with distance calibration and bird identification in the field (e.g., sight and sound). Bird survey data were grouped and analyzed by site, environment, species, and season (3-month interval). Data from general bird surveys and records of incidental bird sightings supplemented the species list for each study location and Detachment Concord as a whole.

3.1.2 California black rails

Surveys for California black rails (BLRA) were conducted at 55 listening stations (Map 1) during early spring and fall 1999 in tidal marshes of Detachment Concord. These time periods represent the pre-nesting/nesting and post-nesting periods respectively. In each marsh area, a point was randomly chosen and subsequent points were placed 150-m intervals thereafter in directions that adequately traversed the marsh area. California black rails were

surveyed using a vocal response method known as playback-call surveys. Playback-call surveys consist of broadcasting pre-recorded vocalizations of BLRA's from a megaphone (approximately 90 dB) at specific points (listening stations). An index of BLRA abundance is determined from the frequency of response during surveys and the amount of suitable habitat within an area. Playback surveys were not conducted for California clapper rails. Presence and distribution of CLRA's was based upon spontaneous vocalizations heard while conducting other wildlife surveys within tidal marshes. Although playback call surveys would have provided a more thorough determination of CLRA presence, a special permit is required.

Twenty-nine BLRA listening stations were established and sampled during the pre-nesting period and 35 during the post-nesting period. Stations were separated by at least 150-m to avoid double sampling. Each station was sampled a minimum of 2 times. Surveys at each station consisted of an initial 1-minute listening period followed by a 1-minute broadcast series of *kic-kic-kerr* vocalizations previously recorded at Detachment Concord. Following playback, the observer listened for BLRA responses for 4-minutes (Legare et al. 1999). Data records included number of spontaneous vocalizations or responses to playback heard, type of vocalization (e.g., kic-kic-kerr, growl), and compass bearing of vocalization. Surveys were conducted up to 2 hours after sunrise and were conducted at wind speeds <15 mph. Within each marsh area, average number of detections among listening stations were used to determine an index of abundance.

California black rail listening stations and response locations will be incorporated into the Detachment Concord GIS database. This information can be used for future monitoring efforts and will allow an analysis of BLRA distribution relative to vegetation communities and tidal flows. Examination of the vegetation communities used by black rails will allow a more thorough estimation of the black rail population at Detachment Concord.

3.1.3 Raptors

Owls

Playback-call surveys for owls were conducted from February through March of 1999 in both the Tidal and Inland Areas at Detachment Concord. Survey stations were established at 16 Inland and 9 Tidal Area locations (Map 1). Listening stations were established in

representative environments across Detachment Concord (e.g. riparian corridors, tidal marsh) and were incorporated into the GIS database. At each station, calls of great horned, barn, short-eared, and screech owls were broadcast using a tape recorder connected to a 15-watt power horn. After an initial 2-minute listening period, calls of each species were broadcast for 1 minute and followed by a 2-minute listening period. Data records included date of survey, listening station, time, species, number of individuals, compass bearing, and estimated distance to a responding owl. Analysis of data included comparisons of response rates among owl species, stations, and environments. Results from owl playback surveys were compiled along with other owl data (spotlight surveys, breeding bird surveys) to develop an understanding of owl distribution and abundance at Detachment Concord.

Throughout this study, observers searched for burrowing owls in environments where potential habitat existed. Burrowing owls are often found in grasslands and rangelands associated with low growing vegetation and presence of burrowing animals such as California ground squirrels. Portions of the Inland and Tidal Areas encompass this type of environment. Date, time, exact location, and environmental characteristics of each burrowing owl sighting were recorded.

Vultures, kites, hawks, eagles, and falcons

Since raptors are large, mobile birds that are difficult to adequately sample from fixed points, we conducted monthly automobile surveys along roads of the Tidal and Inland Areas. Automobile surveys provided an efficient means to determine seasonal species use, distribution, and relative abundance of raptors. Two persons, an observer/driver and an observer/recorder, conducted monthly surveys along approximately 36-km of road in both the Tidal and Inland Areas each month. Routes driven within the Tidal and Inland Areas traversed all representative environments at Detachment Concord. Data recorded during surveys included survey date, time, number of individuals of each species observed, and zone of observation. Map 2 shows observation zones in which raptors were recorded and abundance estimates were calculated. These zones are polygons of land area delineated by similarity in environmental conditions or are spatially distinct. Incidental sightings of raptors, including nest site locations and breeding behavior were recorded.

During the breeding season, raptor nest searches were conducted throughout the Tidal and Inland Areas. All behaviors indicative of breeding, such as carrying food or nest material, were recorded.

3.2 Results

3.2.1 Songbirds, shorebirds, and waterfowl

Surveys for birds and other wildlife from July 1998 to September 1999 resulted in the detection of 155 bird species (Table 3). The complete list of species observed at Detachment Concord include those detected during point and transect counts, general bird surveys, and incidentally. During summer 1998, general bird surveys were conducted at 36 study sites (Appendix B). Point and transect counts were conducted at 37 sites during fall 1998 (Appendix C), 38 sites during winter 1998-1999 (Appendix D), 38 sites during spring 19999 (Appendix E), and 38 sites during summer 1999 (Appendix F). Four letter bird symbols used throughout this report are defined in Appendix A.

During summer (July to August) of 1998 and 1999, 100 bird species were observed at Detachment Concord. Results show 8 species were observed only during summer or spring (Table 3). These species are western grebe (*Aechmophorus occidentalis*), willet (*Catoptrophorus semipalmatus*), marbled godwit (*Limosa fedoa*), short-eared owl (*Asio flammeus*), Caspian tern (*Sterna caspia*), Allen's hummingbird (*Selasphorus sasin*), western kingbird (*Tyrannus verticalis*), brown-headed cowbird (*Molothrus ater*), and Bullock's oriole (*Icterus bullockii*). Western kingbirds, Bullock's orioles, and brown-headed cowbirds were confirmed as breeding at Detachment Concord.

Several bird species were observed only during the spring or fall migratory periods (Table 3). From September 1998 to November 1999, 123 bird species were observed at Detachment Concord. Of these, 5 species were observed only during the fall season: orange-crowned warbler (*Vermivora celata*), yellow warbler (*Dendroica petechia*), wrentit (*Chamaea fasciata*), golden-crowned kinglet (*Regulus satrapa*), and fox sparrow (*Passerella ailiaca*). One hundred and nineteen bird species were observed in Spring 1999 (March to May 1998). Of these, 7 were observed only during spring: black-chinned hummingbird (*Archilochus alexandri*), rufous hummingbird (*Selasphorus rufus*), Townsend's warbler

4.1 Methodology

4.1.1 Small mammals (rodents)

Small mammal trapping grids were established at 16 Inland and 15 Tidal Area locations (Map 1). These locations represent the variety of environments and range of habitats likely used by small mammals of Detachment Concord. Sampling locations were selected based on locations identified in previous natural resource studies. This sampling scheme will allowed useful comparisons to previous trapping results. Each individual trap location was permanently marked to allow constancy during all seasons. Trapping occurred at all locations each season unless weather conditions limited the number of trap nights available. Authorization for field personnel to trap and handle small mammals at Detachment Concord was given by the California Department of Fish and Game (scientific collecting permit, authorization #13).

Trapping at each location consisted of placing 20, large folding Sherman live-traps at 10-m intervals on a 4 x 5 or a 2 x 10-m grid pattern. A 2 x 10-m grid was used in riparian areas where a 4 x 5-m grid would not adequately represent the environment.

Each sampling session consisted of 3 consecutive trap nights at 3 to 6 study locations (60-120 traps). Traps were baited and opened 1-2 hours prior to sunset and checked within 2 hours after sunrise. Traps were kept closed during daylight hours. Traps were baited with a mixture of oats and peanut butter and a piece of polyester batting was placed in each trap for insulation. At tidal marsh locations, a piece of cedar shingle was placed below each trap to avoid water exposure. Additionally, traps at wetland locations were placed on vegetation to avoid water exposure at high tides.

Captured animals were identified to species, sexed, aged (juvenile, sub-adult, adult), weighed, measured for species identification when necessary (ear, hind foot, tail, and body), marked for identification of recaptures with a red permanent felt-tipped marker, and released at the point of capture. Results were reported as trap success percentages for individual species and total number of small mammals captured at each study location/season using the following formulas:

TSP = Trap Success Percentage = (number of captures/ET)*100

Effective Trapnights = ET = number of traps set – ½(number of sprung but empty traps)

Special techniques for salt marsh harvest mice

Trapping in environments likely to support salt marsh harvest mice required an Endangered Species permit from the United States Fish and Wildlife Service (USFWS Permit #: TE797315-2). This permit was issued after the summer sampling period. Thus, trapping in wetland areas commenced in the fall season.

Since the western harvest mouse (*Reithrodontomys megalotis*) and salt marsh harvest mouse are similar in appearance, additional body measurements were taken in order to distinguish between these two species. These measurements include ventral fur color of the tail, tail width 20-mm from the base of the tail, bi-coloration of tail (e.g. unicolor versus bicolor), shape of tail tip (blunt versus pointed), and overall fur coloration. According to Shellhammer (1984), the tail characteristics provide the most reliable means for differentiating between the western and salt marsh harvest mouse.

4.1.2 Large mammals

Large nocturnal mammals were surveyed using two methods: evening spotlight surveys and infrared trail monitoring using camera units. Both survey types are used to detect nocturnal mammals but differ with respect to the type of results each method can produce.

Evening spotlight surveys were used to inventory the presence and relative abundance of nocturnal animals along roads in the Tidal and Inland Areas. All general areas of Detachment Concord were surveyed at least 2 times per season. Spotlight surveys were conducted by at least 2 persons (driver/observer, spotlight/observer) using a 150,000 candlepower spotlight to illuminate areas surrounding a given driving route. During a survey, approximately 36-km of roads in either the Tidal or Inland Area was driven for 2-3 hours at speeds of 10-15 mph. Data on each observation included species, number of individuals, time of observation, and zone of observation. Map 2 shows the zones in which spotlight data were recorded. There are 13 zones of observation, each of which contains similar environmental features relative to other zones or is spatially distinct from other areas

(e.g., East Marsh, Middle Point Marsh; Map 2, Figure 8). These zones are identical to those used during previous surveys conducted by Jones and Stokes (1982). Replicating methodology allowed comparisons through time. Data analysis will include tabulation of species detections by zone, month, and season. Additional incidental sightings of mammals will be recorded by zone of detection.

Species that occur mainly along waterways or within marshes could be undersampled by the sole use of spotlight surveys. Thus, use of infrared trail monitoring systems (Trail Master) and tracking were implemented to sample from areas inaccessible by spotlight surveys. A number of species previously recorded at Detachment Concord, such as long-tailed weasels, have rarely been observed. This is likely due to the inability of spotlight and other evening surveys to capture their presence.

Infrared camera units were placed at locations where visible trails used by wildlife or scat were present. Once set, these systems were left in place for 5 to 7 days. The Trail Master system consists of a monitor that emits an invisible infrared beam across a specified area. Movement and heat triggers the monitor to record an event and trigger an attached camera system. Data collected through infrared monitoring included date and time of events, the specific location, and characteristics of the surrounding area. This monitoring system supplemented data obtained from spotlight surveys by increasing the potential of observing mammal species that are elusive or that have restricted distributions.

Bats

The presence and seasonal distribution of bat species were surveyed at Detachment Concord using two methods: ultrasonic detection and mist netting. Initially, locations that could potentially support bat activity were surveyed using an ultrasonic detector (heterodyne). Locations at Detachment Concord that have the potential to support bat activity include water sources, abandoned structures, bridges, and areas of high insect abundance. Heterodynes register sound in the frequency range of 10 –120 kHz. While flying, bats emit a series of high frequency sounds within this range that are inaudible to the human ear.

Bat surveys were conducted at 2-3 locations each month throughout the duration of this study. Locations where bats have the potential to occur include rattlesnake Canyon,

Cistern Pond, Indian Springs, Diablo Creek, freshwater marshes, Taylor Bridge, tidal marshes, rock quarry, and the housing area. Surveys began 30 minutes prior to sunset and continued until 2 hours after sunset. Although bats can be active throughout the night, peak activity generally occurs within 2 hours after sunset. Bat passes were enumerated using a hand held counter. Data included survey period, site location and description, and number of bat passes. Maps were developed showing areas where bat activity was present at Detachment Concord.

Although detection with a heterodyne confirms the presence of bats it does not identify the species which is present. Thus, mist netting was implemented to allow identification of species. A Memorandum of Understanding was obtained from the California Department of Fish and Game which authorized field personnel to capture and handle bats. Mist nets were set 30 minutes prior to sunset and left open until 2 hours after sunset. Bats captured were measured and identified to species. Measurements included weight, body length, forearm length, and ear length. All other notable physical characteristics, such as ear shape and coloration were recorded.

4.2 Mammal Results

Twenty-three mammal species were observed at Detachment Concord July 1998 to August 1999 at Detachment Concord. Common and scientific names of species observed are presented in Table 13.

4.2.1 Small mammals (rodents)

Summer 1998

From July-to August 1998, small mammal populations were sampled from 16 Inland and 3 Tidal Area (sites 29, 30, 35) study locations. Trapping was not conducted in tidal marsh during summer 1998 where the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) was likely to occur. The appropriate permits were granted in the fall and small mammal trapping commenced in fall 1998.

Five rodent species were captured during summer live-trapping sessions. These species are house mice (*Mus musculus*), deer mice (*Peromyscus maniculatus*), western harvest mice (*Reithrodontomys megalotis*), Norway rats (*Rattus norvegicus*), and California

5.1 Methodology

Seasonal surveys for amphibians and reptiles were conducted within all representative environments at Detachment Concord. These include riparian corridors, ephemeral perennial fresh water sources, marshes (fresh, salt, and brackish), , eucalyptus grove, grasslands, oak savanna, and rocky outcrops. Special attention was given to those areas likely to harbor sensitive species such as red-legged frogs and tiger salamanders including ephemeral pools, ponds, and freshwater marshes. Twenty-two sites were sampled on a seasonal basis in 1998 and 1999 (Map 1). Characteristics of the 22 fixed survey sites and associated sampling protocols are presented in Table 23. Proximity to an ephemeral or perennial water source was the primary factor in fixed survey site selection since sensitive amphibian species likely to occur at Detachment Concord require water during their life cycle. Searches for amphibian and reptile species were also conducted at randomly selected locations throughout the 1-year study period to allow complete documentation of amphibian and reptile species that may occur at Detachment Concord. These randomly selected sites were often visited only once throughout the study period. Results from random locations are presented as location of sighting, species observed, and date of sighting. Canoe and ground surveys for western pond turtles along sloughs and channels of the Tidal Area were conducted during the spring and summer seasons. All channels and sloughs of the Tidal Area that were wide enough to permit movement of a canoe were sampled 2 times.

Seasonal surveys ($\underline{n}$ = 22 sites) for amphibians and reptiles at fixed locations were conducted using area-restricted searches. At each location, a well defined area of each site was searched using a predetermined protocol (Table 23). Characterization of each site allowed repeated searching of a specific area and comparison of results across seasons. Using this methodology, comparisons with future monitoring efforts will be possible. Data records from fixed-area searches include detection location, date, survey time, identification and number of each species recorded, and presence of life stages (e.g., eggs, tadpoles, juveniles). Data analysis consisted of summarizing seasonality of amphibian and reptile species presence, activity, and abundance across Detachment Concord.

Results from canoe surveys along channels and sloughs of Detachment Concord will be presented as location, species identification, number of individuals observed, and date of observation.

5.2 Results

Common and scientific names of amphibian and reptile species observed at Detachment Concord are provided in Table 24. Amphibian and reptile fixed survey sites are shown in Map 1. Common place names of survey areas are presented in Figures 13 and 14 and are referenced throughout the results section. Seven amphibian and 15 reptile species were observed at Detachment Concord from July 1998 to September 1999. Two amphibian species and 5 reptile species observed were not previously documented at Detachment Concord. These are California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), ringneck snake (*Diadophis punctatus*), California whipsnake (*Masticophus lateralis*), western skink (*Eumeces skiltonianus*), Gilbert skink (*E. gilberti*), and pond slider (*Pseudemys scripta*). Species considered rare or uncommon during this study include ringneck snake, California whipsnake, bullfrog (*Rana catesbeiana*), and Gilbert skink. A single ringneck snake was observed adjacent to site 41 (Map 1) within Tidal Area grassland hills (Figure 14). A single California whipsnake was observed adjacent to site 29 within the Tidal Area. One bullfrog was observed at Cistern Pond (site 1) of the Inland Area. No other bullfrogs were detected at Detachment Concord. Gilbert skink was found only within the southeastern section of the Inland Area (5AT) at Detachment Concord.

5.2.1 Amphibians

Red-legged frogs

Red-legged frogs were observed at 10 of the 22 locations surveyed from August 1998 to September 1999 (Table 25). Random surveys at non-fixed locations show red-legged frogs extend above the Indian Springs sampling area (sites 4A-4C, Map 1). Red-legged frogs were not detected within the Tidal Area. Previous studies at Detachment Concord show red-legged frogs occurred at 2 locations, Cistern Pond and Indian Springs. Number of red-legged frogs observed throughout this study was greatest at Cistern Pond (01) and Indian Springs (4A-4C) relative to all other sites (Table 25). Sampling was conducted at each red-legged

APPENDIX F

LETTERS RECEIVED DURING SCOPING PERIOD

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay National Wildlife Refuge Complex
Post Office Box 524
Newark, California 94560

Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, CA 94066-5006
Att: Mr. Sam Dennis (Code 5031)

January 12, 2001

Dear Mr. Dennis:

The U. S. Fish and Wildlife Service (Service), San Francisco Bay National Wildlife Refuge Complex submits the following information for consideration in the early stages of your Integrated Natural Resources Management Planning process for the Naval Weapons Station, Seal Beach, Detachment Concord.

1. We would like to discuss an overlay National Wildlife Refuge on the six islands and five mainland wetlands as was originally described in our Memorandum of Understanding (1984). The partnership used to establish Seal Beach NWR within Seal Beach Naval Weapons Station could serve as a pattern.

2. Ivette Loredo, one of our biologists, wrote her masters thesis based on two studies of the California tiger salamander as part of a Navy Environmental Assessment concerning ground squirrel removal in the early-mid 1990's in the Upland Area. Two abstracts are enclosed. If you need more information concerning her work please let us know.

3. The CALFED Bay-Delta Program Ecosystem Restoration Program Plan includes the Suisun Marsh/North San Francisco Bay Ecological Unit which encompasses your six islands and borders your mainland wetlands. We presume you have this information but will assist if necessary.

We appreciate your consideration of this information. Our point of contact is Chris Bandy, Alameda and Antioch Dunes Refuge Manager at (510) 792-0222.

Sincerely,

Margaret Kolar

Margaret Kolar
Project Leader

Encl: 1. Abstract; Reproductive ecology of a population of the California tiger salamander.
2. Abstract; Microhabitat use and migration behavior of the California tiger salamander.

Reproductive Ecology, Microhabitat Use, and Migration Behavior of the California Tiger Salamander

BY

Ivette Loredo-Prendeville
B.A. (University of California, Santa Barbara) 1990

THESIS
Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

Ecology

in the

OFFICE OF GRADUATE STUDIES

of the

UNIVERSITY OF CALIFORNIA
DAVIS

Approved:

Committee in Charge

1995

REPRODUCTIVE ECOLOGY OF A POPULATION OF THE CALIFORNIA TIGER SALAMANDER

ABSTRACT.- Life history variation and breeding behavior of the California tiger salamander, Ambystoma californiense, were documented by studying a population in Contra Costa County, California for two winter breeding seasons and three summer metamorphosis seasons between 1992 and 1994. Initiation of adult breeding migrations followed major storm systems; in both years, males arrived to the breeding pond first and stayed longer than females. Breeding population sizes of males and females varied annually and appeared to be determined by different mechanisms. Within a season, variation in weekly numbers of migrating adults was attributable only to rainfall; variation in numbers of emigrating juvenile could not be attributed to any measured environmental parameters. Sexual dimorphism in adults is expressed through longer tails in males. Annual numbers of juveniles produced varied substantially with near complete reproductive failure in 1994. Timing and mean size at metamorphosis showed substantial annual variation. Larval growth rates were sigmoidal.

MICROHABITAT USE AND MIGRATION BEHAVIOR OF THE CALIFORNIA TIGER SALAMANDER

ABSTRACT.- Microhabitat use by adult and juvenile California tiger salamanders, Ambystoma californiense, was examined by tracking individuals as they left a breeding pond until settlement. Adults primarily settled into ground squirrel burrows, whereas juveniles settled into either ground squirrel burrows or soil crevices. Distributions of migration distances upon the first night leaving the breeding pond were skewed toward shorter distances and were generally similar for juveniles and adults, however, adults moved a greater mean distance. Average rate of movement was higher in adults than in juveniles. This study demonstrates a commensal relationship between the California tiger salamanders, a rare species, and California ground squirrels, Spermophilus beecheyi, a pest species. The California ground squirrel is subject to density reduction over much of the range of the California tiger salamander, reducing habitat availability for the salamander.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

IN REPLY REFER TO:
PPN 2788

November 27, 2000

U. S. Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
ATTN: Sam Dennis
800 Commodore Drive
San Bruno, California 94066-5006

Dear Mr. Dennis:

Thank you for the opportunity to review the Notice of Preparation for an Environmental Assessment related to the Integrated Natural Resources Management Plan (INRMP). The INRMP is for the management of the Naval Weapons Station, Seal Beach, Detachment Concord. The enclosures provided in this letter are intended to assist you in the early environmental review of this proposal. Future consultation with the U.S. Fish and Wildlife Service (Service) may be required under the provisions of the Fish and Wildlife Coordination Act or the Endangered Species Act, if project activities are anticipated to affect federally listed endangered species or impact jurisdictional wetlands.

Enclosure A provides a list of sensitive species that may occur in or near the project site and general survey guidelines. The Service recommends that surveys be completed by a qualified biologist on the proposed project site to confirm the presence or absence of special-status species or their habitats.

Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. The Council on Environmental Quality developed regulations for implementing the National Environmental Policy Act (NEPA), and defines mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain that the best way to mitigate for the adverse biological impacts is avoidance when at all possible.

We encourage you to use these guidelines to develop a comprehensive environmental document that addresses these needs. If you have any questions regarding these comments, please contact Richard Smith in the Wetlands Branch at (916) 414-6580.

Sincerely,

for Dale A. Pierce
Acting Field Supervisor

Enclosures

cc: ARD (ES), Portland, OR
Reg. Mgr., CDFG, Region 3, Yountville, CA
(w/o enclosures)

ENCLOSURE A

Endangered Species. This enclosure identifies those listed, proposed, and/or candidate species that may occur in the proposed project area. Information and maps concerning candidate species in California may be obtained from the California Natural Diversity Data Base, a program administered by the California Department of Fish and Game. Requests for information should be addressed to the Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814. The marketing manager may be contacted by calling (916) 324-0562. You may request additional information from the Chief, California Department of Fish and Game, Non-Game Heritage Program, at (916) 324-8348.

Listed species are fully protected under the mandates of the Endangered Species Act (Act), as amended. Section 9 of the Act and its implementing regulations prohibit the "take" of a federally listed fish and wildlife species by any person, as defined by the Act. Take is defined by the Act "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such species. Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR § 17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures. If a Federal agency is involved with the permitting, funding, or carrying out of this project, initiation of formal consultation is required between that agency and the Service pursuant to section 7 of the Act if it is determined that the proposed project may affect a federally listed species. Federal agencies must confer if they determine that the continued existence of a proposed species may be jeopardized by the project. Such consultation or conference could result in a biological opinion that addresses anticipated effects of the project to listed and proposed species. The biological opinion may authorize a limited level of incidental take for federally listed species.
If a Federal agency is not involved with the project, and federally listed species may be taken as part of the project, then an "incidental take" permit pursuant to section 10(a) of the Act should be obtained. The Service may issue such a permit upon completion by the permit applicant of a satisfactory conservation plan for the listed species that may be affected by the project.

We recommend that appropriately designed surveys for listed, proposed, or candidate species be undertaken by qualified biologists. Surveys for plants should not be restricted to the identified species; instead, a complete botanical inventory of the project site should be conducted. Botanical surveys should be conducted at intervals throughout the spring and summer, in order to maximize the likelihood of encountering each species during the season most appropriate for accurate identification. Surveys should be based on field inspection, and not on prediction of occurrence based on habitat or physical features of the site. Guidelines for conducting adequate botanical surveys are available from the Natural Heritage Division of the California Department of Fish and Game at (916) 322-2493.

The results of all biological surveys should be published in the environmental impact report. The report should include a brief discussion of survey methods (including sampling methods and timing of surveys), results (including a list of all species encountered as well as maps of vegetation

types, populations of plant species, and breeding, nesting or burrowing sites or other habitat components important to animal species), and conclusions. If it is concluded that a given sensitive species is not present, the justification for this conclusion should be fully explained.

Should these surveys determine that listed, proposed, or candidate species may be affected by the proposed project, the Service recommends that the project proponent, in consultation with this office and the California Department of Fish and Game, develop a plan that mitigates for the project's direct and indirect impacts to these species and compensates for project-related loss of habitat. The mitigation plan also should be included in the environmental impact report.

One of the benefits of considering candidate species as well as listed and proposed species early in the planning process is that by exploring alternatives, it may be possible to avoid conflicts that could develop, should a candidate species become listed before the project is complete. In addition, in instances where the Service addresses proposed projects under its Fish and Wildlife Coordination Act authority, we must also analyze the impacts on candidate species and make recommendations to mitigate any adverse effects.

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Selected Quads Listed Below
Detachment Concord INRMP
October 26, 2000

QUAD : 481C HONKER BAY

Listed Species

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E) *

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

California clapper rail, *Rallus longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

delta green ground beetle, *Elaphrus viridis* (T)

Plants

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

Antioch Dunes evening-primrose, *Oenothera deltoides ssp. howellii* (E)

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

black rail, *Laterallus jamaicensis coturniculus* (CA)

Suisun song sparrow, *Melospiza melodia maxillaris* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

San Joaquin dune beetle, *Coelus gracilis* (SC)

Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)

Plants

Suisun Marsh aster, *Aster lentus* (SC)

heartscale, *Atriplex cordulata* (SC)

delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)

Mason's lilaeopsis, *Lilaeopsis masonii* (SC)

QUAD : 482D VINE HILL

Listed Species

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E)

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

California clapper rail, *Rallus longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

delta green ground beetle, *Elaphrus viridis* (T)

California freshwater shrimp, *Syncaris pacifica* (E)

Plants

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

black rail, *Laterallus jamaicensis coturniculus* (CA)

Suisun song sparrow, *Melospiza melodia maxillaris* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)

Plants

delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)

Mason's lilaeopsis, *Lilaeopsis masonii* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(MB)	*Migratory Bird*	Migratory bird
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
(*)	*Extirpated*	Possibly extirpated from this quad.
(**)	*Extinct*	Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

Endangered and Threatened Species that May Occur in or be Affected by
Projects in the Area of the Following California Counties
October 26, 2000

CONTRA COSTA COUNTY

Listed Species

Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)
San Joaquin kit fox, *Vulpes macrotis mutica* (E)
riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E) *
riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

Birds

California brown pelican, *Pelecanus occidentalis californicus* (E)
California clapper rail, *Rallus longirostris obsoletus* (E)
California least tern, *Sterna antillarum (=albifrons) browni* (E)
Aleutian Canada goose, *Branta canadensis leucopareia* (T)
western snowy plover, *Charadrius alexandrinus nivosus* (T)
bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)
giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

tidewater goby, *Eucyclogobius newberryi* (E)
Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)
winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)
Critical habitat, delta smelt, *Hypomesus transpacificus* (T)
delta smelt, *Hypomesus transpacificus* (T)
Central California Coastal steelhead, *Oncorhynchus mykiss* (T)
Central Valley steelhead, *Oncorhynchus mykiss* (T)
Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)
Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T)
Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

Lange's metalmark butterfly, *Apodemia mormo langei* (E)
Conservancy fairy shrimp, *Branchinecta conservatio* (E)
longhorn fairy shrimp, *Branchinecta longiantenna* (E)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

callippe silverspot butterfly, *Speyeria callippe callippe* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Plants

large-flowered fiddleneck, *Amsinckia grandiflora* (E)

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

Contra Costa wallflower, *Erysimum capitatum ssp. angustatum* (E)

Antioch Dunes evening-primrose, *Oenothera deltoides ssp. howellii* (E)

Critical habitat, Antioch Dunes evening-primrose, *Oenothera deltoides ssp. howellii* (E)

pallid manzanita (Alameda manzanita), *Arctostaphylos pallida* (T)

Santa Cruz tarplant, *Holocarpha macradenia* (T)

Contra Costa goldfields, *Lasthenia conjugens* (E) *

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

salt marsh vagrant shrew, *Sorex vagrans halicoetes* (SC)

Berkeley kangaroo rat, *Dipodomys heermanni berkeleyensis* (SC) *

Birds

Swainson's hawk, *Buteo Swainsoni* (CA)
little willow flycatcher, *Empidonax traillii brewsteri* (CA)
black rail, *Laterallus jamaicensis coturniculus* (CA)
bank swallow, *Riparia riparia* (CA)
American peregrine falcon, *Falco peregrinus anatum* (D)
Black-Crowned Night Heron, *Nycticorax nycticorax* (MB)
tricolored blackbird, *Agelaius tricolor* (SC)
grasshopper sparrow, *Ammodramus savannarum* (SC)
Bell's sage sparrow, *Amphispiza belli belli* (SC)
short-eared owl, *Asio flammeus* (SC)
western burrowing owl, *Athene cunicularia hypugea* (SC)
American bittern, *Botaurus lentiginosus* (SC)
ferruginous hawk, *Buteo regalis* (SC)
Costa's hummingbird, *Calypte costae* (SC)
Lawrence's goldfinch, *Carduelis lawrencei* (SC)
Vaux's swift, *Chaetura vauxi* (SC)
lark sparrow, *Chondestes grammacus* (SC)
olive-sided flycatcher, *Contopus cooperi* (SC)
hermit warbler, *Dendroica occidentalis* (SC)
white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)
Pacific-slope flycatcher, *Empidonax difficilis* (SC)
common loon, *Gavia immer* (SC)
saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
loggerhead shrike, *Lanius ludovicianus* (SC)
Lewis' woodpecker, *Melanerpes lewis* (SC)
Suisun song sparrow, *Melospiza melodia maxillaris* (SC)
Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)
San Pablo song sparrow, *Melospiza melodia samuelis* (SC)
long-billed curlew, *Numenius americanus* (SC)
white-faced ibis, *Plegadis chihi* (SC)
rufous hummingbird, *Selasphorus rufus* (SC)
Allen's hummingbird, *Selasphorus sasin* (SC)
red-breasted sapsucker, *Sphyrapicus ruber* (SC)
Bewick's wren, *Thryomanes bewickii* (SC)
California thrasher, *Toxostoma redivivum* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Ciervo aegialian scarab beetle, *Aegialia concinna* (SC)

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

San Joaquin dune beetle, *Coelus gracilis* (SC)

Antioch cophuran robberfly, *Cophura hurdi* (SC)

Antioch efferian robberfly, *Efferia antiochi* (SC)

Bridges' Coast Range shoulderband snail, *Helminthoglypta nickliniana bridgesi* (SC)

Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

Middlekauf's shieldback katydid, *Idiostatus middlekaufi* (SC)

Marin elfin butterfly, *Incisalia mossii* (SC)

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)

molestan blister beetle, *Lytta molesta* (SC)

Hurd's metapogon robberfly, *Metapogon hurdi* (SC)

Antioch mutillid wasp, *Myrmosula pacifica* (SC)

San Francisco lacewing, *Nothochrysa californica* (SC)

yellow-banded andrenid bee, *Perdita hirticeps luteocincta* (SC)

Antioch sphecid wasp, *Philanthus nasilis* (SC)

Plants

Suisun Marsh aster, *Aster lentus* (SC)

brittlescale, *Atriplex depressa* (SC)

valley spearscale, *Atriplex joaquiniana* (SC)

Mt. Diablo bird's-beak, *Cordylanthus nidularius* (SC)
interior California larkspur, *Delphinium californicum ssp. interius* (SC)
recurved larkspur, *Delphinium recurvatum* (SC)
fragrant fritillary, *Fritillaria liliacea* (SC)
Diablo helianthella (=rock-rose), *Helianthella castanea* (SC)
Brewer's dwarf-flax, *Hesperolinon breweri* (SC)
Carquinez goldenbush, *Isocoma arguta* (SC)
Northern California black walnut, *Juglans californica var. hindsii* (SC)
delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)
Mason's lilaeopsis, *Lilaeopsis masonii* (SC)
little mousetail, *Myosurus minimus ssp. apus* (SC)
Mt. Diablo phacelia, *Phacelia phacelioides* (SC)
rock sanicle, *Sanicula saxatilis* (SC)
most beautiful (uncommon) jewelflower, *Streptanthus albidus ssp. peramoenus* (SC)
Mt. Diablo jewelflower, *Streptanthus hispidus* (SC)
alkali milk-vetch, *Astragalus tener var. tener* (SC) *
heartscale, *Atriplex cordulata* (SC) *
diamond-petaled poppy, *Eschscholzia rhombipetala* (SC) *
pappose spikeweed, *Hemizonia parryi ssp. congdonii* (SC) *
caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC) **
Livermore tarplant, *Deinandra bacigalupii* (SC)

SOLANO COUNTY

Listed Species

Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)
riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E) *
riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

Birds

California brown pelican, *Pelecanus occidentalis californicus* (E)
California clapper rail, *Rallus longirostris obsoletus* (E)
Aleutian Canada goose, *Branta canadensis leucopareia* (T)
western snowy plover, *Charadrius alexandrinus nivosus* (T)
bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

Conservancy fairy shrimp, *Branchinecta conservatio* (E)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

callippe silverspot butterfly, *Speyeria callippe callippe* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Critical habitat, delta green ground beetle, *Elaphrus viridis* (T)

delta green ground beetle, *Elaphrus viridis* (T)

Plants

Suisun thistle, *Cirsium hydrophilum var. hydrophilum* (E)

salt marsh bird's-beak, *Cordylanthus maritimus ssp. maritimus* (E)

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

Contra Costa goldfields, *Lasthenia conjugens* (E)

Solano grass, *Tuctoria mucronata* (E)

Colusa grass, *Neostapfia colusana* (T)

showy Indian clover, *Trifolium amoenum* (E)

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)
greater western mastiff-bat, *Eumops perotis californicus* (SC)
small-footed myotis bat, *Myotis ciliolabrum* (SC)
long-eared myotis bat, *Myotis evotis* (SC)
fringed myotis bat, *Myotis thysanodes* (SC)
long-legged myotis bat, *Myotis volans* (SC)
Yuma myotis bat, *Myotis yumanensis* (SC)
San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)
San Joaquin pocket mouse, *Perognathus inornatus* (SC)
Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

Birds

Swainson's hawk, *Buteo Swainsoni* (CA)
little willow flycatcher, *Empidonax traillii brewsteri* (CA)
black rail, *Laterallus jamaicensis coturniculus* (CA)
bank swallow, *Riparia riparia* (CA)
American peregrine falcon, *Falco peregrinus anatum* (D)
Black-Crowned Night Heron, *Nycticorax nycticorax* (MB)
grasshopper sparrow, *Ammodramus savannarum* (SC)
short-eared owl, *Asio flammeus* (SC)
western burrowing owl, *Athene cunicularia hypugea* (SC)
American bittern, *Botaurus lentiginosus* (SC)
ferruginous hawk, *Buteo regalis* (SC)
Vaux's swift, *Chaetura vauxi* (SC)
lark sparrow, *Chondestes grammacus* (SC)
olive-sided flycatcher, *Contopus cooperi* (SC)
white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)
Pacific-slope flycatcher, *Empidonax difficilis* (SC)
common loon, *Gavia immer* (SC)
saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
loggerhead shrike, *Lanius ludovicianus* (SC)
Suisun song sparrow, *Melospiza melodia maxillaris* (SC)
San Pablo song sparrow, *Melospiza melodia samuelis* (SC)
long-billed curlew, *Numenius americanus* (SC)
white-faced ibis, *Plegadis chihi* (SC)
rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)
Bewick's wren, *Thryomanes bewickii* (SC)
California thrasher, *Toxostoma redivivum* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)
northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
southwestern pond turtle, *Clemmys marmorata pallida* (SC)
California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)
western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)
river lamprey, *Lampetra ayresi* (SC)
Pacific lamprey, *Lampetra tridentata* (SC)
longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)
Sacramento anthicid beetle, *Anthicus sacramento* (SC)
San Joaquin dune beetle, *Coelus gracilis* (SC)
Ricksecker's water scavenger beetle, *Hydrochara ricksecker*i (SC)
California linderiella fairy shrimp, *Linderiella occidentalis* (SC)
San Francisco lacewing, *Nothochrysa californica* (SC)

Plants

Suisun Marsh aster, *Aster lentus* (SC)
alkali milk-vetch, *Astragalus tener var. tener* (SC)
heartscale, *Atriplex cordulata* (SC)
brittlescale, *Atriplex depressa* (SC)
valley spearscale, *Atriplex joaquiniana* (SC)
hispid bird's-beak, *Cordylanthus mollis ssp. hispidus* (SC)
recurved larkspur, *Delphinium recurvatum* (SC)
fragrant fritillary, *Fritillaria liliacea* (SC)
adobe lily, *Fritillaria pluriflora* (SC)
Brewer's dwarf-flax, *Hesperolinon breweri* (SC)
Carquinez goldenbush, *Isocoma arguta* (SC)
delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)
legenere, *Legenere limosa* (SC)

Mason's lilaeopsis, *Lilaeopsis masonii* (SC)
little mousetail, *Myosurus minimus ssp. apus* (SC)
Gairdner's yampah, *Perideridia gairdneri ssp. gairdneri* (SC)
Ferris's milk-vetch, *Astragalus tener var. ferrisiae* (SC) *
pappose spikeweed, *Hemizonia parryi ssp. congdonii* (SC) *
Northern California black walnut, *Juglans californica var. hindsii* (SC) *

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	Other species of concern to the Service.
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
*	*Extirpated*	Possibly extirpated from the area.
**	*Extinct*	Possibly extinct
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below discussed in your environmental documents for the proposed project.

Project Description. The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed and work to be done as a part of the project should be included. The document should identify any new access roads, equipment staging areas, and gravel processing facilities which are needed. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment. The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreages of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979). The Service's National Wetland Inventory maps would be one starting point for this effort.

The document should present and analyze a full range of alternatives to the proposed project. At least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to wetlands should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate for each species whether or not it is a resident or migrant, and the period(s) of the year it would be expected in the project area.

Environmental Consequences. The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures, pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxics, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

The cumulative impacts of the project, when viewed in conjunction with other past, existing, and foreseeable projects, need to be addressed. Cumulative impacts to fish, wildlife, wetlands and other habitats, and water quality should be included.

Mitigation Planning. Under provisions of the Fish and Wildlife Coordination Act, the Service advises the U.S. Army Corps of Engineers on projects involving dredge and fill activities in "waters of the United States", of which wetlands and some riparian habitats are subcategories. Since portions of this proposal may ultimately require a Corps permit, the Service will subsequently be involved under the Coordination Act. Therefore, if you have not done so already, we suggest that you or your representative consult the Corps regarding onsite wetlands and related habitats that may fall under their jurisdiction, and include this information in the draft document. When reviewing Corps public notices, the Service generally does not object to projects meeting the following criteria:

1. They are ecologically sound;

2. The least environmentally damaging reasonable alternative is selected;

3. Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;

4. All important recommended means and measures have been adopted, with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and

5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects which do not meet all of the above criteria, and where there is likely to be a significant fish and wildlife resource loss.

When projects impacting waterways or wetlands are deemed acceptable to the Service, we recommend full mitigation for any impacts to fish and wildlife. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: 1) Avoiding the impact; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; and 5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain that the best way to mitigate for adverse biological impacts is to avoid them altogether.

The document should describe all measures proposed to avoid, minimize, or compensate for impacts to fish and wildlife and their habitats. The measures should be presented in as much detail as possible to allow us to evaluate their probable effectiveness.

Because of their very high value to migratory birds, and their ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage (whichever is greater).

For unavoidable impacts, to determine the mitigation credits available for a given mitigation project, we evaluate what conditions would exist on the mitigation site in the future in the absence of the mitigation actions, and compare those conditions to the conditions we would expect to develop on the site with implementation of the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal in terms of plant species diversity, shrub and tree canopy cover, stems/acre, tree height, etc. The ultimate success of the project should be judged according to these same measurements at the mitigation site.

Criteria should be developed for assessing the progress of the project during its developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction. Success criteria should be geared toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded habitat measurements at a "model" site (plant cover, density, species diversity, etc.).

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because wetland ecosystems are driven by suitable hydrological conditions, additional information must be developed on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

The plan must include a timeframe for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat values would result, and more mitigation would be required to offset this loss.

Generally, monitoring of the mitigation site should occur annually for at least the first five years, biennially for years 6 through 11, and every five years thereafter until the mitigation has met all success criteria. Remediation efforts and additional monitoring should occur if success criteria are not met during the first five years. Some projects will require monitoring throughout the life of the project. Reports should be prepared after each monitoring session.

The plan should require the preparation of "as-built" plans. Such plans provide valuable information, especially if the mitigation effort fails. Similarly, a "time-zero" report should be mandated. This report would describe exactly what was done during the construction of the mitigation project, what problems were encountered, and what corrections or modifications to the plans were undertaken.

The plan should detail how the site is to be maintained during the mitigation establishment period, and how long the establishment period will be. It will also be important to note what entity will perform the maintenance activities, and what entity will ultimately own and manage the site. In addition, a mechanism to fund the maintenance and management of the site should be established and identified. A permanent easement should be placed on the property used for the mitigation that would preclude incompatible activities on the site in perpetuity.

Finally, in some cases, a performance bond may be required as part of the mitigation plan. The amount of the bond should be sufficient to cover the costs of designing and implementing an adequate mitigation plan (and purchasing land if needed) should the proposed plan not succeed.

Reference

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Washington, D.C. 103 pp.

ATTACHMENT 1

CONTRA COSTA
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November 7, 2000

Sam Dennis, Project Manager
Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-5006

Subject: Integrated Natural Resources Management Plan: Natural and Cultural Resources Information at Naval Weapons Station, Seal Beach, Detachment Concord

Dear Mr. Dennis:

Enclosed are selected portions from environmental documentation on Contra Costa Water District (CCWD) projects within or adjacent to the Concord Naval Weapons Station. This responds to your October 20, 2000 request for information pertaining to natural and cultural resources at the Concord facility. All of the documentation enclosed is contained within original California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) documents provided to or by the U.S. Navy at the time the projects were proposed. Also enclosed is a current copy of the Interim Service Area Map which covers the entire CCWD service area boundaries and provides information on listed species occurrences and potential habitat areas. The following is a brief summation of each of the six selected information items:

Attachment 1: CEQA Initial Study of the Port Chicago Highway Pipeline Project (July 1994).

This document was prepared by a consultant (Brown and Caldwell) for CCWD. Appendix A (7 pages) is a "Biological Study for the Port Chicago Highway Pipeline Realignment" describing vegetation types and listed species in the project area. Appendix B (7 pages) provides the results of an "Archaeological Reconnaissance for the Port Chicago Pipeline Project" prepared by Mills Associates. References and Sources used in the entire Initial Study are also attached.

Attachment 2: CEQA Addendum to the Adopted Mitigated Negative Declaration (October 1997).

This document was prepared by a consultant (Robert Bein, William Frost & Associates) for CCWD. Pages II-2 and III-3 provide a brief identification of biological resources and

conclusions of a revised Port Chicago Highway Pipeline alignment, U.S. Fish and Wildlife Service Endangered Species Act (ESA) clearance dated August 5, 1997, and letters from the biological resources consultant (EDAW) to the Service re avoidance and mitigation measures to preserve seasonal pools (total 13 selected pages, including maps).

Attachment 3: Record of NEPA Categorical Exclusion for the Port Chicago Highway Pipeline Project.

This document (6 pages) was prepared by the environmental planning staff at the Environmental Planning Branch at the Navy's Western Division Naval Facilities Engineering Command, San Bruno, CA. The conclusion that the project would not result in adverse environmental impact was supported by references to the previous CEQA documentation (above) and Service clearance and the State Historic Preservation Officer (SHPO) concurrence of "no effect" on historical, archaeological, or paleontological resources.

Attachment 4: Multi-Purpose Pipeline Project Draft EIR/S (September 1998).

This document was prepared by consultants (primarily Environmental Science Associates or ESA) on a major pipeline project (Multi-Purpose Pipeline or MPP), generally along the Contra Costa Canal right-of-way, designed to increase conveyance capacity and reliability of the CCWD raw water delivery from the San Joaquin Delta to the various treatment plants. The project summary (including alternatives, impacts and mitigation measures), table of contents, and vegetation/wildlife resources (Chapter 11) and cultural resources (Chapter 13) and Appendix B.1 are provided. The excerpts from the Draft EIR/S are extensive (104 pages, not bound); however, examination will show that resources within the Naval Weapons Station area should be readily identified.

Attachment 5: Multi-Purpose Pipeline Design Project Addendum - Navy Alignment (August 2000).

This combined CEQA/NEPA document was prepared by a consultant (ESA) to address a revised MPP alignment through the Concord Naval Weapons Station in order to avoid design and construction challenges inherent along the Canal alignment (i.e., the original preferred project) because of flatter topography and more favorable soil conditions. The selections (total 19 pages) include a brief vegetation/wildlife (pages 8-10) and cultural resources discussion (page 10), including a report on the archaeological literature and field review along the modified alignment.

Attachment 6: Interim Service Area Map (June 2000), including Methodology and Table 1 (relating key listed species to potential habitat).

This is a large (60 inches by 27 inches) folded map prepared by a consultant (David Magney Environmental Consulting) for CCWD and the U.S. Bureau of Reclamation

identifying both federally-listed species and vegetation patterns (potential habitat) within the CCWD service area. This map is produced annually by CCWD in response to a Los Vaqueros Project Biological Opinion requirement. A number of listed species occurrences (from California Department of Fish and Game Natural Diversity Data Base) are shown in both the tidal and inland areas of the Concord Naval Weapons Station.

If you have any questions on the selected information provided, or need full copies of the environmental documents represented above, please call me (925/688-8119) for arrangements.

Sincerely,

Dennis Pisila
Senior Planner

Attachments 1-6 (as identified above)

APPENDIX G

DOCUMENTED PLANT SPECIES AT DETACHMENT CONCORD

APPENDIX G
DOCUMENTED PLANT SPECIES AT DETACHMENT CONCORD

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Dicotyledonae		
Anacardiaceae-Sumac Family		
Schinus molle	Peruvian pepper tree	I
Toxicodendron diversilobum	poison oak	N
Apiaceae-Carrot Family		
Conium maculatum	poison hemlock	I
Foeniculum vulgare	fennel	I
Asclepiadaceae-Milkweed Family		
Asclepias fascicularis	narrow-leaf milkweed	N
Asteraceae-Sunflower Family		
Achillea millefolium	yarrow	N
Achyrachaena mollis	blow-wives	N
Anthemis cotula	mayweed	I
Artemisia californica	California sagebrush	N
Artemisia douglasiana	mugwort	N
Baccharis pilularis	coyote brush	N
Baccharis salicifolia	mule fat	N
Carduus pycnocephalus	Italian thistle	I
Centaurea calcitrapa	purple star-thistle	I

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Centaurea solstitialis	yellow star-thistle	I
Chamomilla suaveolens	pineapple weed	I
Cichorium intybus	chicory	I
Conyza canadensis	horseweed	N
Cotula coronopifolia	brass buttons	I
Cynara cardunculus	artichoke thistle	I
Grindelia sp.		
Hemizonia sp.		
Heterotheca grandiflora	telegraph weed	N
Lactuca serriola	prickly lettuce	I
Senecio vulgaris	groundsel	I
Silybum marianum	milk thistle	I
Sonchus asper	prickly sow thistle	I
Tragopogon porrifolius	salsify	I
Wyethia sp.		
Xanthium spinosum	spiny cocklebur	N
Xanthium strumarium	cocklebur	N
Brassicaceae-Mustard Family		
Brassica rapa	field mustard	I
Capsella bursa-pastoris	shepherd's purse	I
Hirschfeldia incana		I
Lepidium latifolium	broadleaf peppergrass	I
Lepidium nitidum	peppergrass	N
Raphanus sativus	radish	I
Rorippa nasturtium-aquaticum	water cress	N
Boraginaceae-Borage Family		
Amsinckia menziesii	rancher's fireweed	N
Heliotropium curassavicum	Heliotropium	N
Plagiobothrys sp.	popcorn flower	N
Caprifoliaceae-Honeysuckle Family		
Sambucus mexicana	blue elderberry	N
Caryophyllaceae-Pink Family		
Stellardia media	common chickweed	I
Chenopodiaceae-Goosefoot Family		
Salsola tragus	Russian thistle, tumbleweed	I

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Convolvulaceae-Morning-Glory Family		
Convolvulus arvensis	bindweed/orchard morning-glory	I
Cucurbitaceae-Gourd Family		
Marah fabaceous	California man-root	N
Euphorbiaceae-Spurge Family		
Eremocarpus setigerus	turkey mullein	N
Fabaceae-Legume Family		
Lathyrus jepsonii var. *californicus*	wild pea	N
Lotus corniculatus	birdfoot trefoil	I
Lotus purshianus var. *purshianus*		N
Lupinus bicolor	miniature lupine	N
Medicago polymorpha	California burclover	I
Medicago sativa	alfalfa, lucerne	I
Melilotus alba	white sweetclover	I
Melilotus indica	sourclover	I
Pickeringia montana		N
Vicia sativa	vetch	I
Vicia villosa	winter vetch	I
Fagaceae-Oak Family		
Quercus agrifolia	Coast live oak	N
Quercus douglassii	blue oak	N
Quercus lobata	valley oak	N
Geraniaceae-Geranium Family		
Erodium cicutarium	storksbill	I
Erodium moschatum	storksbill	I
Geranium dissectum	geranium	I
Geranium molle	geranium	I
Hippocastanaceae-Buckeye Family		
Aesculus californica	California buckeye	N
Hydrophyllaceae-Waterleaf Family		
Nemophila menziesii	baby blue-eyes	N
Phacelia sp.		N
Juglandaceae-Walnut Family		
Juglans californica	California walnut	N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Lamiaceae-Mint Family		
Marrubium vulgare	horehound	I
Mentha arvensis	mint	N
Lauraceae-Laurel Family		
Umbellularia californica	California bay	N
Limnanthaceae-Meadowfoam Family		
Limnanthes alba		N (?)
Lythraceae-Loosestrife Family		
Lythrum hyssopifolium		I
Malvaceae-Mallow Family		
Malva neglecta	common mallow	I
Malva parviflora	cheeseweed	I
Myrtaceae-Myrtle Family		
Eucalyptus globulus	blue gum	I
Oleaceae-Olive Family		
Fraxinus dipetala	California ash	N
Olea europaea	European olive	I
Onagraceae-Evening Primrose Family		
Clarkia concinna	red ribbons	N
Epilobium canum	California fuchsia	N
Epilobium sp.	willow herb	N
Oxalidaceae-Oxalis Family		
Oxalis pres-caprae	Bermuda buttercup	I
Papaveraceae-Poppy Family		
Eschscholtzia californica	California poppy	N
Plantaginaceae-Plantain Family		
Plantago lanceolata	English plantain	I
Plantago major	common plantain	I
Polygonaceae-Buckwheat Family		
Polygonum sp. (airport)		
Rumex conglomeratus	dock	I
Rumex crispus	curly dock	I
Rumex salicifolius	willow dock	N
Portulacaceae-Purslane Family		
Calandrinia ciliata	red maids	N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Claytonia perfoliata	miner's lettuce	N
Primulaceae-Primrose Family		
Anagallis arvensis	scarlet pimpernel	I
Ranunculaceae-Buttercup Family		
Ranunculus californicus	California buttercup	N
Rhamnaceae-Buckthorn Family		
Ceanothus sp	California lilac	N
Roseaceae-Rose Family		
Prunus sp.		
Pyracantha angustifolia	firethorn	I
Rosa californica	California rose	N
Rubus discolor	Himalayan blackberry	I
Rubiaceae-Madder Family		
Galium aparine	goose grass	N
Salicaceae-Willow Family		
Populus fremontii	Fremont cottonwood	N
Salix exigua	narrow-leaved willow	N
Saxifragaceae-Saxifrage Family		
Lithophragma affine		N
Scrophularaceae-Figwort Family		
Bellardia trixago		I
Castilleja exserta	purple owl's clover	N
Mimulus guttatus	monkeyflower	N
Scrophularia californica	California figwort	N
Triphysaria eriantha	johnny-tuck	N
Veronica sp.		
Simaroubaceae-Simarouba Family		
Ailanthus altissima	tree of heaven	I
Solanaceae-Nightshade Family		
Datura sp.	jimson weed	?
Nicotiana glauca	tree tobacco	I
Solanum americanum	nightshade	N
Urticaceae-Nettle Family		
Urtica dioica	stinging nettle	N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Inland Area		
Violaceae-Violet Family		
Viola sp.		
Viscaceae-Mistletoe Family		
Phoradendron sp.		N
Vitaceae-Grape Family		
Vitis californica	California grapevine	N
Monocotyledonae		
Arecaceae-Palm Family		
Phoenix dactylifera	date palm	I
Washingtonia filifera	California fan palm	N
Cyperaceae-Sedge Family		
Cyperus eragrostis	nutsedge	N
Scirpus americanus		N
Scirpus californicus		N
Scirpus maritimus		N
Iridaceae-Iris Family		
Sisyrinchium bellum	blue-eyed grass	N
Juncaceae-Rush Family		
Juncus balticus		N
Juncus phaeocephalus		N
Liliaceae-Lily Family		
Brodiaea elegans	elegant *Brodiaea*	N
Brodiaea sp.		
Calochortus sp.		
Chlorogalum pomideranium	soap plant	N
Dichelostemma capitatum	blue dicks	N
Tritelia laxa	Ithuriel's spear	N
Poaceae-Grass Family		
Aegilops triuncialis	barbed goatgrass	I
Arundo donax	giant reed grass	I
Avena barbata	slender wild oat	I
Avena fatua	wild oat	I
Bromus diandrus	ripgut grass	I
Bromus hordeaceus		I

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive / Exotic (I) Plant
Inland Area		
Cortaderia selloana	pampas grass	I
Crypsis schoenoides	swamp grass	I
Cynodon dactylon	Bermuda grass	I
Distichlis spicata	salt grass	N
Echinochloa crus-galli		I
Elytrigia pontica	tall wheatgrass	I
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I
Hordeum sp.		
Lolium multiflorum	Italian rye grass	I
Leymus triticoides		N
Melica californica	California melic	N
Paspalum dilatatum	Dallis grass	I
Phalaris sp.		
Poa annua	annual bluegrass	I
Polypogon monspeliensis	annual beard grass	I
Taeniantherum caput-medusae		I
Typhaceae-Cattail Family		
Typha angustifolia	narrow-leaved cattail	N
Typha latifolia	broad-leaved cattail	N
Ferns and Allies		
Pteridaceae-Brake Family		
Adiantum jordanii	California maiden-hair	N
Pellaea andromedifolia	coffee fern	N
Pentagramma triangularis	goldback fern	N
Tidal Area		
Dicotyledonae		
Aizoaceae- Fig-Marigold Family		
Carpobrotus edulis		I
Anacardiaceae-Sumac Family		
Shinus molle	Peruvian pepper tree	I
Toxicodendron diversilobum	Western poison oak	N
Apiaceae-Carrot Family		
Eryngium sp.		

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Tidal Area		
Foeniculum vulgare	fennel	I
Oenanthe sarmentosa		N
Asclepiadaceae-Milkweed Family		
Asclepias fascicularis	narrow-leaf milkweed	N
Asteraceae-Sunflower Flower		
Achillea millefolium	yarrow	N
Artemisia douglasiana	mugwort	N
Aster chilensis	common California aster	N
Aster lentus	Suisun marsh aster	N
Aster subulatus	slender aster	N
Baccharis douglassii	salt-marsh baccharis	N
Baccharis pilularis	coyote brush	N
Centaurea calcitrapa	purple star-thistle	I
Centaurea solstitialis	yellow star-thistle	I
Cotula coronopifolia	brass-buttons	I
Grindelia stricta var. *angustifolia*	marsh gumplant	N
Jaumea carnosa		N
Xanthium strumarium	cocklebur	N
Boraginaceae-Borage Family		
Amsinckia menziesii	rancher's fireweed	N
Heliotropium curassavicum		N
Brassicaceae-Mustard Family		
Brassica campestris	field mustard	I
Brassica nigra	black mustard	I
Capsella bursa-pastoris		I
Lepidium latifolium		I
Raphanus sativus	radish	I
Rorippa nasturtum-aquaticum	water cress	N
Caryophylaceae-Pink Family		
Spergularia marina	sandspurry	N
Chenopodiaceae-Goosefoot Family		
Atriplex triangularis	spearscale	N
Salicornia virginica		N
Convolvulaceae-Morning-Glory Family		
Calystegia sepium	hedge bindweed	N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Tidal Area		
Convolvulus arvensis	bindweed	I
Cuscutaceae-Dodder Family		
Cuscuta salina	salt marsh dodder	N
Euphorbiaceae-Spurge Family		
Eremocarpus setigerus	turkey mullien	N
Fabaceae-Legume Family		
Astragalus sp.		?
Lathyrus jepsonii var. *jepsonii*	delta tule pea	N
Lotus corniculatus	birdfoot trefoil	I
Lotus purshianus var. *purshianus*		N
Lupinus bicolor	miniature lupine	N
Medicago polymorpha	California burclover	I
Melilotus alba	white sweetclover	I
Melilotus indica	sourclover	I
Trifolium pratense	red clover	N
Vicia sativa		I
Frankeniaceae-Frankenia Family		
Frankenia salina	alkali heath	N
Geraniaceae-Geranium Family		
Erodium moschatum		I
Geranium dissectum		I
Lamiaceae-Mint Family		
Mentha spicata	spearmint	I
Stachys albens		N
Lythraceae-Loosestrife Family		
Lythrum hyssopifolium		I
Malvaceae-Mallow Family		
Malva parviflora	cheeseweed	I
Malvella leprosa	alkali mallow	N
Moraceae-Mulberry Family		
Ficus carica	edible fig	I
Myrtaceae-Myrtle Family		
Eucalyptus sp.		
Onagraceae-Evening Primrose Family		
Epilobium ciliatum ssp. *ciliatum*		N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Tidal Area		
Plantaginaceae-Plantain Family		
Plantago lanceolata	English plantain	I
Plantago major	broadleaf plantain	I
Polygonaceae-Buckwheat Family		
Polygonum aviculare	common knotweed	I
Rumex crispus	curly dock	I
Rumex salicifolius	willow dock	N
Primulaceae-Primrose Family		
Anagallis arvensis	scarlet pimpernel	I
Rosaceae-Rose Family		
Potentilla anserina ssp. *pacifica*		N
Prunus sp.		
Rosa californica	California rose	N
Rubiaceae-Madder Family		
Gallium trifidum var. *pacificum*		N
Salicaceae-Willow Family		
Populus fremontii	Fremont's cottonwood	N
Salix laevigata	red willow	N
Salix lasiolepis	willow	N
Saururaceae-Lizard's-tail Family		
Anemopsis californica	yerba mansa	N
Scrophulariaceae-Figwort Family		
Bellardia trixago		I
Cordylanthus mollis ssp. *mollis*	soft bird's-beak	N
Mimulus guttatus		
Scrophularia californica	California figwort	N
Triphysaria eriantha	johnny-tuck	N
Solanaceae-Nightshade Family		
Solanum nigrum		I
Vitaceae-Grape Family		
Parthenocissus sp.	Virginia creeper	I
Monocotyledonae		
Alismataceae-Water-plantain Family		
Alisma sp.	water plantain	?

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive/Exotic (I) Plant
Tidal Area		
Arecaceae-Palm Family		
Phoenix dactylifera	date palm	I
Washingtonia filifera	California fan palm	I
Cyperaceae-Sedge Family		
Cyperus eragrostis	nutsedge	N
Eleocharis obtusa	spikerush	N
Scirpus acutus var. *occidentalis*	tule	N
Scirpus americanus		N
Scirpus californicus		N
Scirpus cernus	low club-rush	N
Scirpus maritimus		N
Iridaceae-Iris Family		
Iris pseudacorus		I
Sisyrinchium bellum	blue-eyed-grass	N
Juncaceae-Rush Family		
Juncus balticus		N
Juncus bufonis	toad rush	N
Juncus effusus	common rush	N
Juncaginaceae-Arrow-grass Family		
Triglochin maritima	seaside arrow-grass	N
Liliaceae-Lily Family		
Asparagus officinalis		I
Triteleia laxa	Ithuriel's spear	N
Poaceae-Grass Family		
Arundo donax	giant reed-grass	I
Avena barbata	slender wild oat	I
Avena fatua	wild oat	I
Bromus diandrus	ripgut grass	I
Bromus hordeaceus		I
Cortaderia selloana	pampas grass	I
Cynodon dactylon	Bermuda grass	I
Distichlis spicata	saltgrass	N
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I
Lolium multiflorum	Italian ryegrass	I
Phragmites australis	common reed	N

Table G-1
Documented Plant Species of the Inland Area and Tidal Area, Detachment Concord: 1998-1999 *(continued)*

Scientific Name	Common Name	Native (N) or Invasive / Exotic (I) Plant
Tidal Area		
Polypogon monspeliensis	annual beard grass	I
Typhaceae-Cattail Family		
Typha angustifolia	narrow-leaved cattail	N
Typha latifolia	broad-leaved cattail	N

Source: US Navy 1999d

APPENDIX H

CALIFORNIA NATURAL DIVERSITY DATABASE

California Department of Fish and Game
Natural Diversity Data Base
List of Species and Status

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
ALAMEDA WHIPSNAKE MASTICOPHIS LATERALIS EURYXANTHUS	Threatened/ Threatened	G4T2/ S2		
AMERICAN BADGER TAXIDEA TAXUS	None/ None	G5/ S4		SC
ANTIOCH DUNES EVENING-PRIMROSE OENOTHERA DELTOIDES SSP HOWELLII	Endangered/ Endangered	G5T1/ S1.1	1B/ 3-3-3	
APHANISMA APHANISMA BLITOIDES	Species of Concern/ None	G2/ S1.1	1B/ 2-2-2	
ARIZONA CARLOWRIGHTIA CARLOWRIGHTIA ARIZONICA	None/ None	G4/ S1.3	2/ 3-2-1	
ARIZONA SPURGE CHAMAESYCE ARIZONICA	None/ None	G5/ S1.3	2/ 2-1-1	
ARROYO CHUB GILA ORCUTTI	None/ None	G2/ S2		SC
ARROYO TOAD BUFO MICROSCAPHUS CALIFORNICUS	Endangered/ None	G5?T3? / S2S3		SC
AYENIA AYENIA COMPACTA	None/ None	G4/ S3.3	2/ 2-1-1	
BAJA CALIFORNIA BIRDBUSH ORNITHOSTAPHYLOS OPPOSITIFOLIA	None/ Candidate	G4/ S1.1	2/ 3-3-1	
BAJA NAVARRETIA NAVARRETIA PENINSULARIS	None/ None	G3?/ S2.2	1B/ 2-2-2	
BANK SWALLOW RIPARIA RIPARIA (NESTING)	None/ Threatened	G5/ S2S3		
BAREFOOT BANDED GECKO COLEONYX SWITAKI	None/ Threatened	G1/ S1		
BEARDED POPCORN-FLOWER PLAGIOBOTHRYS HYSTRICULUS	None/ None	GH/ SH	1A/ *	
BELDING'S SAVANNAH SPARROW PASSERCULUS SANDWICHENSIS BELDINGI	None/ Endangered	G5T3/ S3		
BERKELEY KANGAROO RAT DIPODOMYS HEERMANNI BERKELEYENIS	None/ None	G5TH/ SH		
BIG TARPLANT BLEPHARIZONIA PLUMOSA SSP PLUMOSA	None/ None	G4T1/ S1.1	1B/ 3-3-3	

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Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BLOCHMAN'S DUDLEYA DUDLEYA BLOCHMANIAE SSP BLOCHMANIAE	Species of Concern/ None	G3T2/ S2.1	1B/ 2-3-2	
BORREGO BEDSTRAW GALIUM ANGUSTIFOLIUM SSP BORREGOENSE	Species of Concern/ Rare	G5T2/ S2.3	1B/ 3-1-3	
BORREGO VALLEY PEPPER-GRASS LEPIDIUM FLAVUM VAR FELIPENSE	Species of Concern/ None	G5T1/ S1.2	1B/ 3-2-3	
BRAND'S PHACELIA PHACELIA STELLARIS	None/ None	G1G2/ S1.1	1B/ 3-3-2	
BREWER'S WESTERN FLAX HESPEROLINON BREWERI	Species of Concern/ None	G2/ S2.2	1B/ 2-2-3	
BRIDGES' COAST RANGE SHOULDERBAND (SNAIL) HELMINTHOGLYPTA NICKLINIANA BRIDGESI	None/ None	G2T1/ S1		
BROWN TURBANS MALPERIA TENUIS	None/ None	G4?/ S1.3	2/ 3-1-1	
BURROWING OWL ATHENE CUNICULARIA (BURROW SITES)	None/ None	G4T2/ S2		SC
CALIFORNIA ADOLPHIA ADOLPHIA CALIFORNICA	None/ None	G3/ S3.1	2/ 1-3-1	
CALIFORNIA BLACK RAIL LATERALLUS JAMAICENSIS COTURNICULUS	None/ Threatened	G4T1/ S1		
CALIFORNIA BROWN PELICAN PELECANUS OCCIDENTALIS CALIFORNICUS (NESTING COLONY)	Endangered/ Endangered	G4T3/ S1S2		
CALIFORNIA CLAPPER RAIL RALLUS LONGIROSTRIS OBSOLETUS	Endangered/ Endangered	G5T1/ S1		
CALIFORNIA HORNED LARK EREMOPHILA ALPESTRIS ACTIA	None/ None	G4G5T3 / S3		SC
CALIFORNIA LEAST TERN STERNA ANTILLARUM BROWNI (NESTING COLONY)	Endangered/ Endangered	G4T2T3 / S2S3		
CALIFORNIA ORCUTT GRASS ORCUTTIA CALIFORNICA	Endangered/ Endangered	G2/ S2.1	1B/ 3-3-2	

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CALIFORNIA RED-LEGGED FROG RANA AURORA DRAYTONII	Threatened/ None	G4T2T3 / S2S3		SC
CALIFORNIA TIGER SALAMANDER AMBYSTOMA CALIFORNIENSE	Endangered/ None	G2G3/ S2S3		SC
CAPER-FRUITED TROPIDOCARPUM TROPIDOCARPUM CAPPARIDEUM	Species of Concern/ None	GH/ SH	1A/ *	
CARQUINEZ GOLDENBUSH ISOCOMA ARGUTA	Species of Concern/ None	G1/ S1.1	1B/ 3-3-3	
CLIFF SPURGE EUPHORBIA MISERA	None/ None	G5/ S3.2	2/ 2-2-1	
COAST PATCH-NOSED SNAKE SALVADORA HEXALEPIS VIRGULTEA	None/ None	G5T3/ S2S3		SC
COAST WOOLLY-HEADS NEMACAULIS DENUDATA VAR DENUDATA	None/ None	G4T2/ S2.2	1B/ 2-2-2	
COASTAL BRACKISH MARSH	None/ None	G2/ S2.1		
COASTAL CACTUS WREN CAMPYLORHYNCHUS BRUNNEICAPILLUS COUESI	None/ None	G5T2?/ S2?		SC
COASTAL CALIFORNIA GNATCATCHER POLIOPTILA CALIFORNICA CALIFORNICA	Threatened/ None	G2T2/ S2		SC
COASTAL DUNES MILK-VETCH ASTRAGALUS TENER VAR TITI	Endangered/ Endangered	G1T1/ S1.1	1B/ 3-3-3	
COASTAL WESTERN WHIPTAIL CNEMIDOPHORUS TIGRIS MULTISCUTATUS	None/ None	G5T3?/ S2S3		
COLORADO VALLEY WOODRAT NEOTOMA ALBIGULA VENUSTA	None/ None	G5T?Q/ SH		
CONGDON'S TARPLANT CENTROMADIA PARRYI SSP CONGDONII	Species of Concern/ None	G5T1/ S1.1	1B/ 3-3-3	
CONTRA COSTA GOLDFIELDS LASTHENIA CONJUGENS	Endangered/ None	G1/ S1.1	1B/ 3-3-3	
CONTRA COSTA MANZANITA ARCTOSTAPHYLOS MANZANITA SSP LAEVIGATA	None/ None	G5T2/ S2	1B/ 3-2-3	

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COOPER'S HAWK ACCIPITER COOPERII (NESTING)	None/ None	G4/ S3		SC
CORONADO SKINK EUMECES SKILTONIANUS INTERPARIETALIS	None/ None	G5T2T3 / S1S2		SC
COULTER'S GOLDFIELDS LASTHENIA GLABRATA SSP COULTERI	Species of Concern/ None	G4T3/ S2.1	1B/ 2-3-2	
COULTER'S SALTBUSH ATRIPLEX COULTERI	None/ None	G2/ S2.2	1B/ 2-2-2	
COVES'S CASSIA SENNA COVESII	None/ None	G5?/ S2.2	2/ 2-2-1	
CURLY HERISSANTIA HERISSANTIA CRISPA	None/ None	G5/ S1.3?	2/ 3-1-1	
CUYAMACA CYPRESS CUPRESSUS STEPHENSONII	Species of Concern/ None	G1/ S1.2	1B/ 3-3-3	
CUYAMACA LAKE DOWNINGIA DOWNINGIA CONCOLOR VAR BREVIOR	Species of Concern/ Endangered	G4T1/ S1.1	1B/ 3-3-3	
CUYAMACA LARKSPUR DELPHINIUM HESPERIUM SSP CUYAMACAE	Species of Concern/ Rare	G4T2/ S2.1	1B/ 2-2-3	
CUYAMACA RASPBERRY RUBUS GLAUCIFOLIUS VAR GANDERI	Species of Concern/ None	G5TH/ SH	1B/ 3-1-3	
DEAN'S MILK-VETCH ASTRAGALUS DEANEI	Species of Concern/ None	G2/ S2.1	1B/ 3-3-3	
DECUMBENT GOLDENBUSH ISOCOMA MENZIESII VAR DECUMBENS	None/ None	G5T3?/ S2.2	1B/ 2-2-2	
DEHESA NOLINA NOLINA INTERRATA	Species of Concern/ Endangered	G2/ S1.2	1B/ 3-3-2	
DEL MAR MANZANITA ARCTOSTAPHYLOS GLANDULOSA SSP CRASSIFOLIA	Endangered/ None	G5T1/ S1.1	1B/ 3-3-2	
DEL MAR MESA SAND ASTER CORETHROGYNE FILAGINIFOLIA VAR LINIFOLIA	Species of Concern/ None	G4T1/ S1.1	1B/ 3-3-3	
DELICATE CLARKIA CLARKIA DELICATA	None/ None	G2G3/ S2.2	1B/ 2-2-2	

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DELTA MUDWORT LIMOSELLA SUBULATA	None/ None	G4?/ S2.1	2/ 2-3-1	
DELTA TULE PEA LATHYRUS JEPSONII VAR JEPSONII	Species of Concern/ None	G5T2/ S2.2	1B/ 2-2-3	
DESERT BEAUTY LINANTHUS BELLUS	None/ None	G2G3/ S2.3?	2/ 2-1-1	
DESERT FAN PALM OASIS WOODLAND	None/ None	G3/ S3.2		
DESERT PUPFISH CYPRINODON MACULARIUS	Endangered/ Endangered	G1/ S1		
DESERT SPIKE-MOSS SELAGINELLA EREMOPHILA	None/ None	G4/ S2.2?	2/ 3-2-1	
DIABLO HELIANTHELLA HELIANTHELLA CASTANEA	Species of Concern/ None	G3/ S3.2	1B/ 2-2-3	
DOUBLE-CRESTED CORMORANT PHALACROCORAX AURITUS (ROOKERY SITE)	None/ None	G5/ S3		SC
DUNN'S MARIPOSA LILY CALOCHORTUS DUNNII	Species of Concern/ Rare	G2/ S2.1	1B/ 2-2-2	
ELEPHANT TREE BURSERA MICROPHYLLA	None/ None	G4/ S2.3	2/ 3-1-1	
ENCINITAS BACCHARIS BACCHARIS VANESSAE	Threatened/ Endangered	G1/ S1.1	1B/ 2-3-3	
FAIRYDUSTER CALLIANDRA ERIOPHYLLA	None/ None	G5/ S2.3	2/ 2-1-1	
FELT-LEAVED MONARDELLA MONARDELLA HYPOLEUCA SSP LANATA	None/ None	G5?T2/ S2.2	1B/ 2-2-2	
FLAT-SEEDED SPURGE CHAMAESYCE PLATYSPERMA	Species of Concern/ None	G3/ S1.2?	1B/ 3-2-2	
FLAT-TAILED HORNED LIZARD PHRYNOSOMA MCALLI	None/ None	G2/ S2		SC
FRAGRANT FRITILLARY FRITILLARIA LILIACEA	Species of Concern/ None	G2/ S2.2	1B/ 2-2-3	
FREMONT BARBERRY BERBERIS FREMONTII	None/ None	G5/ S2?	3/ ?-?-1	

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Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
GAMBEL'S WATER CRESS RORIPPA GAMBELII	Endangered/ Threatened	G1/ S1.1	1B/ 3-3-2	
GANDER'S CRYPTANTHA CRYPTANTHA GANDERI	Species of Concern/ None	G2/ S1.1	1B/ 3-3-2	
GANDER'S PITCHER SAGE LEPECHINIA GANDERI	Species of Concern/ None	G2/ S2.2	1B/ 3-1-2	
GANDER'S RAGWORT SENECIO GANDERI	Species of Concern/ Rare	G2/ S2.2	1B/ 3-2-3	
GLOBOSE DUNE BEETLE COELUS GLOBOSUS	None/ None	G1/ S1		
GOLDEN EAGLE AQUILA CHRYSAETOS (NESTING AND WINTERING)	None/ None	G4/ S3		SC
GOLDEN VIOLET VIOLA AUREA	None/ None	G3G4/ S2S3	2/ 2-2-1	
GOLDEN-SPINED CEREUS BERGEROCACTUS EMORYI	None/ None	G3/ S2.1	2/ 2-2-1	
HAIRY STICKLEAF MENTZELIA HIRSUTISSIMA	None/ None	G3?/ S2S3	2/ 2-1-1	
HALL'S BUSH MALLOW MALACOTHAMNUS HALLII	None/ None	G1Q/ S1.2	1B/ 3-2-3	
HALL'S MONARDELLA MONARDELLA MACRANTHA SSP HALLII	None/ None	G5T3/ S3.3	1B/ 2-1-3	
HARWOOD'S MILK-VETCH ASTRAGALUS INSULARIS VAR HARWOODII	None/ None	G5T3/ S2.2?	2/ 2-2-1	
HEART-LEAVED PITCHER SAGE LEPECHINIA CARDIOPHYLLA	Species of Concern/ None	G2/ S2.2	1B/ 3-2-2	
HOSPITAL CANYON LARKSPUR DELPHINIUM CALIFORNICUM SSP INTERIUS	Species of Concern/ None	G3T2/ S2?	1B/ 3-2-3	
JACUMBA MILK-VETCH ASTRAGALUS DOUGLASII VAR PERSTRICTUS	Species of Concern/ None	G5T2/ S2.2	1B/ 2-2-2	
JAEGER'S MILK-VETCH ASTRAGALUS PACHYPUS VAR JAEGERI	Species of Concern/ None	G?T1/ S1.1	1B/ 3-3-3	
LAGUNA MOUNTAINS ALUMROOT HEUCHERA BREVISTAMINEA	None/ None	G2/ S2.3	1B/ 3-1-3	

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Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
LAGUNA MOUNTAINS GOLDENBUSH ERICAMERIA CUNEATA VAR MACROCEPHALA	None/ None	G5T2?/ S2.3	1B/ 2-1-3	
LAKESIDE CEANOTHUS CEANOTHUS CYANEUS	Species of Concern/ None	G2/ S2.2	1B/ 3-2-2	
LARGE-BLOTCHED SALAMANDER ENSATINA ESCHSCHOLTZII KLAUBERI	None/ None	G5T2T3 / S2S3		SC
LARGE-FLOWERED FIDDLENECK AMSINCKIA GRANDIFLORA	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	
LEAFY BUCKWHEAT ERIOGONUM FOLIOSUM	None/ None	G3/ SH	1B/ 3-2-2	
LEAST BELL'S VIREO VIREO BELLII PUSILLUS (NESTING)	Endangered/ Endangered	G5T2/ S2		
LEMON LILY LILIUM PARRYI	Species of Concern/ None	G3/ S2.1	1B/ 2-2-2	
LIGHT-FOOTED CLAPPER RAIL RALLUS LONGIROSTRIS LEVIPES	Endangered/ Endangered	G5T1/ S1		
LITTLE MOUSETAIL MYOSURUS MINIMUS SSP APUS	Species of Concern/ None	G5T2Q/ S2.2	3/ 2-3-2	
LONG-SPINED SPINEFLOWER CHORIZANTHE POLYGONOIDES VAR LONGISPINA	Species of Concern/ None	G5T3/ S2.2	1B/ 2-2-2	
LOS ANGELES POCKET MOUSE PEROGNATHUS LONGIMEMBRIS BREVINASUS	None/ None	G5T1?/ S1?		SC
MANY-STEMMED DUDLEYA DUDLEYA MULTICAULIS	Species of Concern/ None	G2/ S2.1	1B/ 1-2-3	
MARITIME SUCCULENT SCRUB	None/ None	G2/ S1.1		
MASON'S LILAEOPSIS LILAEOPSIS MASONII	Species of Concern/ Rare	G3/ S3.1	1B/ 2-3-3	
MESQUITE BOSQUE	None/ None	G3/ S2.1		
MEXICAN FLANNELBUSH FREMONTODENDRON MEXICANUM	Endangered/ Rare	G3?/ S2.1	1B/ 3-3-2	
MEXICAN HULSEA HULSEA MEXICANA	None/ None	G3G4/ S1.3	2/ 3-1-1	

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Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
MIMIC TRYONIA (=CALIFORNIA BRACKISHWATER SNAIL) TRYONIA IMITATOR	None/ None	G2G3/ S2S3		
MISSION CANYON BLUECUP GITHOPSIS DIFFUSA SSP FILICAULIS	Species of Concern/ None	G5T4Q/ S1.1	3/ ?-3-3	
MOHAVE TUI CHUB GILA BICOLOR MOHAVENSIS	Endangered/ Endangered	G4T1/ S1		
MOJAVE MIXED STEPPE	None/ None	G3/ S2.2		
MOJAVE RIPARIAN FOREST	None/ None	G1/ S1.1		
MOJAVE TARPLANT DEINANDRA MOHAVENSIS	Species of Concern/ Endangered	G2/ S2.3	1B/ 2-1-3	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
MORENO CURRANT RIBES CANTHARIFORME	Species of Concern/ None	G1/ S1.3	1B/ 3-1-3	
MOST BEAUTIFUL JEWEL-FLOWER STREPTANTHUS ALBIDUS SSP PERAMOENUS	Species of Concern/ None	G2T2/ S2.2	1B/ 2-2-3	
MOUNT LAGUNA ASTER MACHAERANTHERA ASTEROIDES VAR LAGUNENSIS	Species of Concern/ Rare	G5T2T3 / S1.1	2/ 3-3-1	
MOUNTAIN SPRINGS BUSH LUPINE LUPINUS EXCUBITUS VAR MEDIUS	Species of Concern/ None	G4T2/ S2.3	1B/ 2-1-2	
MOUNTAIN YELLOW-LEGGED FROG RANA MUSCOSA	Proposed Endangered/ None	G5/ S2S3		SC
MT. DIABLO BIRD'S-BEAK CORDYLANTHUS NIDULARIUS	Species of Concern/ Rare	G1/ S1.2	1B/ 3-3-3	
MT. DIABLO BUCKWHEAT ERIOGONUM TRUNCATUM	None/ None	GH/ SH	1A/ *	
MT. DIABLO FAIRY-LANTERN CALOCHORTUS PULCHELLUS	None/ None	G2/ S2.1	1B/ 2-2-3	
MT. DIABLO JEWEL-FLOWER STREPTANTHUS HISPIDUS	Species of Concern/ None	G1/ S1.2	1B/ 3-1-3	
MT. DIABLO MANZANITA ARCTOSTAPHYLOS AURICULATA	None/ None	G2/ S2.2	1B/ 3-1-3	

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Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
MT. DIABLO PHACELIA PHACELIA PHACELIOIDES	Species of Concern/ None	G1/ S1.2	1B/ 3-2-3	
MUD NAMA NAMA STENOCARPUM	None/ None	G4G5/ S1S2	2/ 3-2-1	
MUNZ'S SAGE SALVIA MUNZII	None/ None	G3/ S2.2	2/ 2-2-1	
NEVIN'S BARBERRY BERBERIS NEVINII	Endangered/ Endangered	G2/ S2.2	1B/ 3-3-3	
NORTHERN HARRIER CIRCUS CYANEUS (NESTING)	None/ None	G5/ S3		SC
NORTHERN RED-DIAMOND RATTLESNAKE CROTALUS RUBER RUBER	None/ None	G4T3T4 / S2?		SC
NORTHWESTERN SAN DIEGO POCKET MOUSE CHAETODIPUS (=PEROGNATHUS) FALLAX FALLAX	None/ None	G4T3?/ S2S3		SC
NUTTALL'S LOTUS LOTUS NUTTALLIANUS	Species of Concern/ None	G1/ S1.1	1B/ 3-3-2	
NUTTALL'S SCRUB OAK QUERCUS DUMOSA	Species of Concern/ None	G2/ S1.1	1B/ 2-3-2	
OIL NESTSTRAW STYLOCLINE CITROLEUM	Species of Concern/ None	G1/ S1.1	1B/ 3-3-3	
ORANGE-THROATED WHIPTAIL CNEMIDOPHORUS HYPERYTHRUS	None/ None	G5/ S2		SC
ORCUTT'S BIRD'S-BEAK CORDYLANTHUS ORCUTTIANUS	Species of Concern/ None	G2?/ S1.1	2/ 3-3-1	
ORCUTT'S BRODIAEA BRODIAEA ORCUTTII	Species of Concern/ None	G3/ S3.1	1B/ 1-3-2	
ORCUTT'S DUDLEYA DUDLEYA ATTENUATA SSP ORCUTTII	Species of Concern/ None	G4T2/ S1.1	2/ 3-3-1	
ORCUTT'S HAZARDIA HAZARDIA ORCUTTII	Species of Concern/ None	G1G2/ S1.1	1B/ 3-3-2	
ORCUTT'S LINANTHUS LINANTHUS ORCUTTII	Species of Concern/ None	G4/ S2.3	1B/ 2-1-2	
ORCUTT'S SPINEFLOWER CHORIZANTHE ORCUTTIANA	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	

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ORCUTT'S WOODY-ASTER XYLORHIZA ORCUTTII	Species of Concern/ None	G3/ S2.2	1B/ 2-2-2	
OTAY MANZANITA ARCTOSTAPHYLOS OTAYENSIS	Species of Concern/ None	G2/ S2.1	1B/ 3-2-3	
OTAY MESA MINT POGOGYNE NUDIUSCULA	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-2	
OTAY MOUNTAIN CEANOTHUS CEANOTHUS OTAYENSIS	None/ None	G1/ S1.2	1B/ 3-2-2	
OTAY MOUNTAIN LOTUS LOTUS CRASSIFOLIUS VAR OTAYENSIS	Species of Concern/ None	G5T1/ S1.1	1B/ 3-3-2	
OTAY TARPLANT DEINANDRA CONJUGENS	Threatened/ Endangered	G1/ S1.1	1B/ 3-3-2	
PACIFIC POCKET MOUSE PEROGNATHUS LONGIMEMBRIS PACIFICUS	Endangered/ None	G5T1/ S1		SC
PALE BIG-EARED BAT CORYNORHINUS TOWNSENDII PALLESCENS	None/ None	G5T3T4 / S2S3		SC
PALLID BAT ANTROZOUS PALLIDUS	None/ None	G5/ S3		SC
PALMER'S FRANKENIA FRANKENIA PALMERI	None/ None	G3G4/ S1.1	2/ 3-3-1	
PALMER'S GOLDENBUSH ERICAMERIA PALMERI SSP PALMERI	Species of Concern/ None	G4T2T3 / S1.1	2/ 3-2-1	
PARISH'S DESERT-THORN LYCIUM PARISHII	None/ None	G3?/ S2S3	2/ 2-1-1	
PARISH'S MEADOWFOAM LIMNANTHES GRACILIS SSP PARISHII	Species of Concern/ Endangered	G3T2/ S2.2	1B/ 2-2-3	
PARRY'S TETRACOCCUS TETRACOCCUS DIOICUS	Species of Concern/ None	G3/ S2.2	1B/ 3-2-2	
PAYSON'S JEWEL-FLOWER CAULANTHUS SIMULANS	Species of Concern/ None	G3/ S3.2	4/ 1-2-3	
PEIRSON'S MILK-VETCH ASTRAGALUS MAGDALENAE VAR PEIRSONII	Threatened/ Endangered	G3G4T2 / S2.2	1B/ 2-2-2	
PEIRSON'S PINCUSHION CHAENACTIS CARPHOCLINIA VAR PEIRSONII	None/ None	G5T1/ S1.3	1B/ 2-1-3	

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PENINSULAR BIGHORN SHEEP OVIS CANADENSIS CREMNOBATES	Endangered/ Threatened	G4T1/ S1		
PENINSULAR MANZANITA ARCTOSTAPHYLOS PENINSULARIS SSP PENINSULARIS	None/ None	G2T2/ S2?	2/ 3-1-1	
PENINSULAR RANGE SHOULDERBAND (SNAIL) HELMINTHOGLYPTA TRASKI COELATA	None/ None	G1G2T1 / S1		
POCKETED FREE-TAILED BAT NYCTINOMOPS FEMORASACCUS	None/ None	G4/ S2S3		SC
PRAIRIE FALCON FALCO MEXICANUS (NESTING)	None/ None	G5/ S3		SC
QUINO CHECKERSPOT BUTTERFLY EUPHYDRYAS EDITHA QUINO	Endangered/ None	G5T1/ S1		
RAINBOW MANZANITA ARCTOSTAPHYLOS RAINBOWENSIS	None/ None	G2/ S2.1	1B/ 3-3-3	
RAMONA HORKELIA HORKELIA TRUNCATA	None/ None	G3/ S2.3	1B/ 3-1-2	
RAYLESS RAGWORT SENECIO APHANACTIS	None/ None	G3?/ S1.2	2/ 3-2-1	
RIVERSIDE FAIRY SHRIMP STREPTOCEPHALUS WOOTTONI	Endangered/ None	G1/ S1		
ROBINSON'S PEPPER-GRASS LEPIDIUM VIRGINICUM VAR ROBINSONII	None/ None	G5T2?/ SH	1B/ 3-2-2	
ROBUST MONARDELLA MONARDELLA VILLOSA SSP GLOBOSA	None/ None	G5TH/ SH?	1B/ 3-2-3	
ROCK NETTLE EUCNIDE RUPESTRIS	None/ None	G3/ S2.2?	2/ 3-2-1	
ROCK SANICLE SANICULA SAXATILIS	Species of Concern/ Rare	G2/ S2.2	1B/ 3-2-3	
SACRAMENTO SPLITTAIL POGONICHTHYS MACROLEPIDOTUS	Threatened/ None	G2/ S2		SC
SALT MARSH BIRD'S-BEAK CORDYLANTHUS MARITIMUS SSP MARITIMUS	Endangered/ Endangered	G3T2/ S2.1	1B/ 2-2-2	
SALT-MARSH HARVEST MOUSE REITHRODONTOMYS RAVIVENTRIS	Endangered/ Endangered	G1G2/ S1S2		

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SALTMARSH COMMON YELLOWTHROAT GEOTHLYPIS TRICHAS SINUOSA	None/ None	G5T2/ S2		SC
SAN BERNARDINO BLUE GRASS POA ATROPURPUREA	Endangered/ None	G2/ S2.2	1B/ 2-2-3	
SAN BERNARDINO MOUNTAINS OWL'S-CLOVER CASTILLEJA LASIORHYNCHA	Species of Concern/ None	G2/ S2.2	1B/ 2-2-3	
SAN DIEGO AMBROSIA AMBROSIA PUMILA	Proposed Endangered/ None	G1/ S1.1	1B/ 3-3-2	
SAN DIEGO BARREL CACTUS FEROCACTUS VIRIDESCENS	Species of Concern/ None	G4/ S3.1	2/ 1-3-1	
SAN DIEGO BLACK-TAILED JACKRABBIT LEPUS CALIFORNICUS BENNETTII	None/ None	G5T3?/ S3?		SC
SAN DIEGO BUR-SAGE AMBROSIA CHENOPODIIFOLIA	None/ None	G5/ S2.1	2/ 3-3-1	
SAN DIEGO BUTTON-CELERY ERYNGIUM ARISTULATUM VAR PARISHII	Endangered/ Endangered	G5T2/ S2.1	1B/ 2-3-2	
SAN DIEGO COUNTY ALUMROOT HEUCHERA RUBESCENS VAR VERSICOLOR	None/ None	G4T2T3 / S1.3?	2/ 3-1-1	
SAN DIEGO DESERT WOODRAT NEOTOMA LEPIDA INTERMEDIA	None/ None	G5T3T4 / S3S4		SC
SAN DIEGO FAIRY SHRIMP BRANCHINECTA SANDIEGONENSIS	Endangered/ None	G1/ S1		
SAN DIEGO GOLDENSTAR MUILLA CLEVELANDII	Species of Concern/ None	G2/ S2.2	1B/ 2-3-2	
SAN DIEGO GUMPLANT GRINDELIA HIRSUTULA VAR HALLII	None/ None	G5T2/ S2.2	1B/ 2-2-3	
SAN DIEGO HORNED LIZARD PHRYNOSOMA CORONATUM BLAINVILLEI	None/ None	G4T3T4 / S2S3		SC
SAN DIEGO MARSH-ELDER IVA HAYESIANA	Species of Concern/ None	G3?/ S2.2?	2/ 2-2-1	
SAN DIEGO MESA CLAYPAN VERNAL POOL	None/ None	G2/ S2.1		
SAN DIEGO MESA HARDPAN VERNAL POOL	None/ None	G2/ S2.1		
SAN DIEGO MESA MINT POGOGYNE ABRAMSII	Endangered/ Endangered	G2/ S2.1	1B/ 2-3-3	

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SAN DIEGO MILK-VETCH ASTRAGALUS OOCARPUS	Species of Concern/ None	G2/ S2.2	1B/ 3-2-3	
SAN DIEGO MOUNTAIN KINGSNAKE LAMPROPELTIS ZONATA PULCHRA	None/ None	G4T1T2 / S1S2		SC
SAN DIEGO RINGNECK SNAKE DIADOPHIS PUNCTATUS SIMILIS	None/ None	G5T2?/ S2?		
SAN DIEGO SAND ASTER CORETHROGYNE FILAGINIFOLIA VAR INCANA	None/ None	G4T1/ S1.1	1B/ 3-3-2	
SAN DIEGO SUNFLOWER HULSEA CALIFORNICA	None/ None	G2/ S2.1	1B/ 2-1-3	
SAN DIEGO THORN-MINT ACANTHOMINTHA ILICIFOLIA	Threatened/ Endangered	G1/ S1.1	1B/ 2-3-2	
SAN FELIPE MONARDELLA MONARDELLA NANA SSP LEPTOSIPHON	Species of Concern/ None	G4G5T2 / S2.2	1B/ 3-2-2	
SAN JOAQUIN KIT FOX VULPES MACROTIS MUTICA	Endangered/ Threatened	G4T2T3 / S2S3		
SAN JOAQUIN POCKET MOUSE PEROGNATHUS INORNATUS INORNATUS	None/ None	G4T2T3 / S2S3		
SAN MIGUEL SAVORY SATUREJA CHANDLERI	None/ None	G4/ S3.2?	1B/ 2-2-2	
SANDY BEACH TIGER BEETLE CICINDELA HIRTICOLLIS GRAVIDA	None/ None	G5T4/ S1		
SANTA ROSA MOUNTAINS LINANTHUS LINANTHUS FLORIBUNDUS SSP HALLII	None/ None	G4T1/ S1.3	1B/ 3-1-3	
SEA DAHLIA COREOPSIS MARITIMA	None/ None	G3/ S2.2	2/ 2-2-1	
SERPENTINE BUNCHGRASS	None/ None	G2/ S2.2		
SHAW'S AGAVE AGAVE SHAWII	Species of Concern/ None	G3/ S1.2	2/ 3-3-1	
SHORT-EARED OWL ASIO FLAMMEUS (NESTING)	None/ None	G5/ S3		SC
SHORT-LEAVED DUDLEYA DUDLEYA BREVIFOLIA	Species of Concern/ Endangered	G1Q/ S1.1	1B/ 3-3-3	

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SILVERY LEGLESS LIZARD ANNIELLA PULCHRA PULCHRA	None/ None	G4QT3/ S3		SC
SINGLE-LEAVED SKUNKBRUSH RHUS TRILOBATA VAR SIMPLICIFOLIA	None/ None	G5T?/ S1.3?	2/ 3-1-1	
SLENDER WOOLLY-HEADS NEMACAULIS DENUDATA VAR GRACILIS	None/ None	G4T3?/ S2S3	2/ 2-2-1	
SLENDER-LEAVED IPOMOPSIS IPOMOPSIS TENUIFOLIA	None/ None	G3G4/ S2.3?	2/ 2-1-1	
SLENDER-POD JEWEL-FLOWER CAULANTHUS STENOCARPUS	Species of Concern/ Rare	G?Q/ S?	/	
SMALL-LEAVED ROSE ROSA MINUTIFOLIA	Species of Concern/ Endangered	G3/ S1.1	2/ 3-3-1	
SMOOTH TARPLANT CENTROMADIA PUNGENS SSP LAEVIS	Species of Concern/ None	G5T2/ S2.1	1B/ 2-3-3	
SNAKE CHOLLA OPUNTIA CALIFORNICA VAR CALIFORNICA	Species of Concern/ None	G3T2/ S1.1	1B/ 3-3-2	
SOFT BIRD'S-BEAK CORDYLANTHUS MOLLIS SSP MOLLIS	Endangered/ Rare	G2T1/ S1.1	1B/ 3-2-3	
SONORAN COTTONWOOD WILLOW RIPARIAN FOREST	None/ None	G2/ S1.1		
SOUTH COAST SALTSCALE ATRIPLEX PACIFICA	Species of Concern/ None	G3G4/ S2.2	1B/ 3-2-2	
SOUTHERN CALIFORNIA RUFOUS-CROWNED SPARROW AIMOPHILA RUFICEPS CANESCENS	None/ None	G4T2T3 / S2S3		SC
SOUTHERN COAST LIVE OAK RIPARIAN FOREST	None/ None	G4/ S4		
SOUTHERN COASTAL SALT MARSH	None/ None	G2/ S2.1		
SOUTHERN COTTONWOOD WILLOW RIPARIAN FOREST	None/ None	G3/ S3.2		
SOUTHERN DUNE SCRUB	None/ None	G1/ S1.1		
SOUTHERN FOREDUNES	None/ None	G2/ S2.1		
SOUTHERN INTERIOR CYPRESS FOREST	None/ None	G2/ S2.1		

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SOUTHERN JEWEL-FLOWER STREPTANTHUS CAMPESTRIS	None/ None	G2/ S2.3	1B/ 2-1-2	
SOUTHERN MARITIME CHAPARRAL	None/ None	G1/ S1.1		
SOUTHERN RIPARIAN FOREST	None/ None	G4/ S4		
SOUTHERN RIPARIAN SCRUB	None/ None	G3/ S3.2		
SOUTHERN SKULLCAP SCUTELLARIA BOLANDERI SSP AUSTROMONTANA	None/ None	G4T2/ S2.2?	1B/ 2-2-3	
SOUTHERN SYCAMORE ALDER RIPARIAN WOODLAND	None/ None	G4/ S4		
SOUTHERN TARPLANT CENTROMADIA PARRYI SSP AUSTRALIS	Species of Concern/ None	G5T2/ S2.1	1B/ 3-3-2	
SOUTHERN WILLOW SCRUB	None/ None	G3/ S2.1		
SOUTHWESTERN POND TURTLE CLEMMYS MARMORATA PALLIDA	None/ None	G4T2T3 / S2		SC
SOUTHWESTERN WILLOW FLYCATCHER EMPIDONAX TRAILLII EXTIMUS (NESTING)	Endangered/ None	G5T1/ S1		
SPEARLEAF MATELEA PARVIFOLIA	None/ None	G5?/ S2.2	2/ 3-1-1	
SPREADING NAVARRETIA NAVARRETIA FOSSALIS	Threatened/ None	G2/ S2.1	1B/ 2-3-2	
STEPHENS' KANGAROO RAT DIPODOMYS STEPHENSI	Endangered/ Threatened	G2/ S2		
STICKY DUDLEYA DUDLEYA VISCIDA	Species of Concern/ None	G2/ S2.2	1B/ 2-2-3	
STICKY GERAEA GERAEA VISCIDA	None/ None	G3/ S2.3?	2/ 2-1-1	
SUISUN MARSH ASTER ASTER LENTUS	Species of Concern/ None	G2/ S2.2	1B/ 2-2-3	
SUISUN SONG SPARROW MELOSPIZA MELODIA MAXILLARIS	None/ None	G5T2/ S2		SC
SUMMER HOLLY COMAROSTAPHYLIS DIVERSIFOLIA SSP DIVERSIFOLIA	Species of Concern/ None	G3T2/ S2.2	1B/ 2-2-2	

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TECATE CYPRESS CUPRESSUS FORBESII	Species of Concern/ None	G2/ S1.1	1B/ 3-3-2	
TECATE TARPLANT DEINANDRA FLORIBUNDA	Species of Concern/ None	G3/ S2.2	1B/ 2-2-2	
THREAD-LEAVED BRODIAEA BRODIAEA FILIFOLIA	Threatened/ Endangered	G2/ S2.1	1B/ 3-3-3	
TIDEWATER GOBY EUCYCLOGOBIUS NEWBERRYI	Endangered/ None	G2G3/ S2S3		SC
TIGER BEETLE CICINDELA GABBII	None/ None	G3G4/ S1		
TIGER BEETLE CICINDELA LATESIGNATA LATESIGNATA	None/ None	G3T3/ S1		
TIGER BEETLE CICINDELA SENILIS FROSTI	None/ None	G4T1/ S1		
TORREY PINE PINUS TORREYANA SSP TORREYANA	Species of Concern/ None	G1T1/ S1.2	1B/ 3-2-3	
TORREY PINE FOREST	None/ None	G1/ S1.1		
TRICOLORED BLACKBIRD AGELAIUS TRICOLOR (NESTING COLONY)	None/ None	G3/ S3		SC
TWO-STRIPED GARTER SNAKE THAMNOPHIS HAMMONDII	None/ None	G3?/ S2		SC
UNARMORED THREESPINE STICKLEBACK GASTEROSTEUS ACULEATUS WILLIAMSONI	Endangered/ Endangered	G5T1/ S1		
VALLEY NEEDLEGRASS GRASSLAND	None/ None	G1/ S3.1		
VARIEGATED DUDLEYA DUDLEYA VARIEGATA	Species of Concern/ None	G2/ S2.2	1B/ 2-2-2	
VELVETY FALSE LUPINE THERMOPSIS CALIFORNICA VAR SEMOTA	Species of Concern/ None	G4T2Q/ S2.1	1B/ 2-2-3	
WANDERING (=SALTMARSH) SKIPPER PANOQUINA ERRANS	None/ None	G2G3/ S1		
WARNER SPRINGS LESSINGIA LESSINGIA GLANDULIFERA VAR TOMENTOSA	Species of Concern/ None	G4?T2/ S2.3	1B/ 2-1-3	

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WART-STEMMED CEANOTHUS CEANOTHUS VERRUCOSUS	Species of Concern/ None	G3/ S2.2	2/ 2-2-1	
WESTERN SNOWY PLOVER CHARADRIUS ALEXANDRINUS NIVOSUS (NESTING)	Threatened/ None	G4T2/ S2		SC
WESTERN SPADEFOOT SCAPHIOPUS HAMMONDII	None/ None	G3?/ S3?		SC
WESTERN YELLOW-BILLED CUCKOO COCCYZUS AMERICANUS OCCIDENTALIS (NESTING)	None/ Endangered	G5T2T3 / S1		
WHITE-TAILED KITE ELANUS LEUCURUS (NESTING)	None/ None	G5/ S3		
WIGGINS'S CHOLLA OPUNTIA WIGGINSII	None/ None	G3Q/ S1.2?	3/ 3-1-2	
WILLOW FLYCATCHER EMPIDONAX TRAILLII (NESTING)	None/ Endangered	G5/ S1S2		
WILLOWY MONARDELLA MONARDELLA LINOIDES SSP VIMINEA	Endangered/ Endangered	G5T3/ S2.1	1B/ 2-3-2	
WOVEN-SPORED LICHEN TEXOSPORIUM SANCTI-JACOBI	Species of Concern/ None	G2?/ S1.1	/	
YELLOW WARBLER DENDROICA PETECHIA BREWSTERI (NESTING)	None/ None	G5T2/ S2		SC
YELLOW-BREASTED CHAT ICTERIA VIRENS (NESTING)	None/ None	G5/ S3		SC

APPENDIX I

AGREEMENT FOR THE COOPERATIVE MANAGEMENT OF TULE ELK AT DETACHMENT CONCORD

AGREEMENT FOR THE COOPERATIVE MANAGEMENT OF TULE ELK
AT NAVAL WEAPONS STATION CONCORD
BY AND BETWEEN
WESTERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND,
NAVAL WEAPONS STATION, CONCORD, BOTH THE DEPARTMENT
OF THE NAVY, AND CALIFORNIA DEPARTMENT OF
FISH AND GAME

This Cooperative Management Agreement is made and entered into on this 14th day of December, 1982, by and between the Western Division , Naval Facilities Engineering Command, U. S. Department of the Navy, San Bruno (hereinafter called WESTNAVFACENGCOM), Naval Weapons Station, Concord U. S. Department of the Navy, Concord (hereinafter called WPNSTA Concord), and the California Department of Fish and Game, Sacramento (hereinafter called the Department).

WITNESSETH:

WHEREAS, WESTNAVFACENGCOM and the Department entered into Agreement NF(R)-33094 to allow tule elk (Cervus elaphus nannodes) to occupy WPNSTA Concord lands, and

WHEREAS, Agreement NF(R)-33094 expired by its own terms on 9 November 1982, and

WHEREAS, WESTNAVFACENGCOM, WPNSTA Concord, and the Department are desirous of continuing the management of the Concord tule elk herd in a cooperative capacity, and

WHEREAS, the parties hereto desire to cooperate in studies and continuing management by means of this Cooperative Management Agreement,

NOW, THEREFORE, it is mutually agreed and understood as follows:

1. This Cooperative Management Agreement replaces Agreement NF(R)-33094 in its entirety commencing on the date stated above.

ENCLOSURE (1)

2. Upon its completion, and agreement by the three parties listed above, this Cooperative Management Agreement will become a part of the Management Plan For the Concord Tule Elk Herd (hereinafter referred to as the Management Plan) for the purposes of guiding the management of, regulating the size of, and establishing the maximum size of the tule elk herd at WPNSTA Concord. Further, the parties agree to provide aide and support in the management of the Concord tule elk herd as outlined in Exhibit A attached hereto.

3. The Department will be responsible for the removal of all surplus tule elk, which includes, but is not limited to:

a. rounding-up and live capture of the excess tule elk to be removed, the number of which will be specified and agreed upon in advance by all three parties;

b. care and feeding of any Concord tule elk that must be placed within the holding facilities located at WPNSTA Concord;

c. such surplus animal removals will occur no later than six (6) months following notification by WESTNAVFACENGCOM that a surplus exists within the Concord tule elk herd, and on a date agreed upon by all three parties.

4. The responsibilities of dealing with sick tule elk lie with all three parties. WPNSTA Concord will notify the Department and WESTNAVFACENGCOM, Natural Resources Management Branch, that an obviously sick/diseased tule elk exists within the Concord herd. The decision to dispatch any such tule elk is to be made by the Department. If the appropriate Department personnel cannot inspect the tule elk in question, WESTNAVFACENGCOM (Natural Resources Management Branch) will visually inspect the subject animal(s), initiate a verbal discussion with the appropriate

Department personnel who may then authorize the dispatch of the sick animal. All Concord tule elk dispatched in accordance with the above conditions will: 1) be followed up by written confirmation to all three parties; and 2) be transported, immediately following death, to the Department's Wildlife Investigations Laboratory by Department personnel. If Department personnel are unavailable to transport dispatched Concord tule elk, WESTNAVFACENGCOM and WPNSTA Concord personnel will make a reasonable effort to transport such animals to the Wildlife Investigations Laboratory. Failing transport, such animals will be field necropsied immediately following death. A necropsy report will be submitted to the Department within two (2) weeks.

5. WESTNAVFACENGCOM will notify the Department of all mortalities that are suitable for necropsy analysis. Both WESTNAVFACENGCOM and Department personnel will make a reasonable effort to transport the carcass to the Department's Wildlife Investigations Laboratory. If the carcass cannot be transported, a reasonable effort will be made by WESTNAVFACENGCOM, WPNSTA Concord, and Department personnel to perform a field necropsy.

6. Any obtained tule elk material, whole carcasses or parts thereof, will remain the property of the Department. WESTNAVFACENGCOM and WPNSTA Concord will be allowed to retain specified parts of Concord tule elk following a written request to, and approval thereof by the Department.

7. This agreement will be in effect indefinitely, but may be modified or amended by mutual agreement by the authorized representatives of the three parties; provided, however, that the Commanding Officer of WPNSTA Concord, upon written notice to WESTNAVFACENGCOM and the Department shall have the right to terminate this Management Agreement in whole or in part at any time when, in the opinion of the Commanding Officer of WPNSTA Concord, the

primary mission of WPNSTA Concord or other requirements of the national defense make it necessary to do so. Only mutual agreement by WPNSTA Concord, WESTNAVFACENGCOM, and the Department may terminate this agrement for other reasons.

This Cooperative Management Agreement has been executed by and on behalf of the parties hereto, as of the first date written above.

14 Dec 82
DATE

P. BLUNDELL, CAPT, USN
Commanding Officer
Naval Weapons Station, Concord
Concord, California

14 Dec 82
DATE

J. E. HEATH, CDR, CEC, USN
Facilities Planning and Real Estate Departmer
Western Division, Naval Facilities
Engineering Command
San Bruno, California

12/14/82
DATE

E. C. FULLERTON
Director, Department of Fish and Game
State of California
Sacramento, California

EXHIBIT A
TO THE
AGREEMENT FOR THE COOPERATIVE MANAGEMENT OF TULE ELK AT
NAVAL WEAPONS STATION CONCORD
BY AND BETWEEN
WESTERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND,
NAVAL WEAPONS STATION CONCORD, BOTH THE DEPARTMENT
OF THE NAVY, AND CALIFORNIA DEPARTMENT OF
FISH AND GAME

Specific Responsibilities for the Management
of Tule Elk
at Naval Weapons Station, Concord

1. WESTNAVFACENGCOM will:

1) Provide personnel, within the limmits of availiability, to carry out the Management Plan, including:

(a) conduct censuses of the Concord tule elk herd as specified in the Management Plan;

(b) coordinate all research activites associated with the Concord tule elk herd, including the annual December meeting;

(c) coordinate activities associated with the increased public awarness and education as outlined in the Management Plan.

2) Provide personnel, within the limits of availability, to assist the Department with;

(a) laboratory/field necropsies of Concord tule elk;

(b) surplus animal removal operations;

(c) site surveys, investigations, project plans formulation, and contract procurement if funds are available.

3) Reimburse the Department in an amount not to exceed $500.00 for each separate operation for all drugs and damaged remote injection syringes used during research initiated, conducted, or supervised by WESTNAVFACENGCOM. This will not apply to surplus animal removal or research initiated, conducted, or

supervised by the Department as required by the terms of the basic Cooperative Management Agreement.

4) Supply, within the limits of available funding, a field necropsy kit that will be used by the principal and secondary investigators. The contents of said kit will be based upon the recommendations made by the Department.

2. WPNSTA Concord will:

1) Assist WESTNAVFACENGCOM in carrying out the Management Plan by providing personnel, within the limits of availability, to:

(a) conduct censuses of the Concord tule elk herd when requested by WESTNAVFACENGCOM;

(b) assist with the transportation and temporary storage of capture supplies and equipment;

(c) work on the increased public awarness and education goal of the Management Plan.

2) Provide personnel, within the limits of availability, to assist the Department with:

(a) field necropsies of Concord tule elk;

(b) surplus animal removal operations;

(c) site surveys, investigations, project plans formulation, and contract procurement if funds are available.

3) Maintain the existing tule elk holding facilities and loading chute, within the limits of available funding, for its use during surplus animal removal operations, capture-release operations for research, and other miscellaneous uses as determined necessary by all three parties.

3. The Department will:

1) Provide personnel, within the limits of availability, to assist WESTNAVFACENGCOM and WPNSTA Concord with:

(a) censuses of the Concord tule elk herd, upon request, when WESTNAVFACENGCOM and WPNSTA Concord personnel are unable to do so;

(b) laboratory/field necropsies of Concord tule elk;

(c) various aspects of research to be conducted by WESTNAVFACENGCOM and WPNSTA Concord upon written request;

(d) development of the increased public awarness and education program as outlined in the Management Plan.

2) Upon written request, support WESTNAVFACENGCOM and WPNSTA Concord tule elk research by providing the following equipment or services, all based upon availability:

(a) temporary use of radio telemetry equipment;

(b) ear tags for marking Concord tule elk;

(c) perform routine blood chemistry and hair analysis.

4. For the purposes of management related investigations WESTNAVFACENGCOM, Natural Resources Management Branch, will designate one of its Fish and Wildlife Specialists (presently Steven D. Kovach) as principal investigator, and its other Fish and Wildlife Specialist (presently Patricia S. Worthing) as a secondary investigator. Furthermore, WPNSTA Concord will designate its Environmental Program Manager (presently David M. Sikes) as a secondary investigator. No other person, excluding designated Department personnel, will be involved with "hands on research" of the Concord tule elk unless and until the Department's Big Game Wildlife Management Program has been notified in writing by WESTNAVFACENGCOM.

APPENDIX J

AUDUBON COOPERATIVE SANCTUARY CERTIFICATION HANDBOOK FOR GOLF COURSES

APPENDIX J
AUDUBON COOPERATIVE SANCTUARY CERTIFICATION HANDBOOK FOR GOLF COURSES

The following is an excerpt from the Audubon Cooperative Sanctuary Certification Handbook for Golf Courses.

Audubon Cooperative Sanctuary
Program *for Golf Courses*

H Certification
I HANDBOOK

Welcome

Dear Audubon Cooperative Sanctuary Member:

Welcome to the Audubon Cooperative Sanctuary Program for Golf Courses. This handbook is designed to help you assess your property resources and then develop an environmental plan that fits your unique setting and needs. It also provides all the information you will need to document your efforts and achieve designation as a *Certified Audubon Cooperative Sanctuary*.

Audubon International will also award a personal *Certificate of Recognition in Environmental Planning* to the individual who is primarily responsible for completing the Site Assessment and Environmental Plan. An additional *Certificate of Recognition in Environmental Stewardship* will be awarded to the person who is principally responsible for completing all components of certification at a single golf course. This recognition may be used to promote your commitment to stewardship and competency in implementing a comprehensive environmental management program.

The Certification Handbook is divided into three sections:

- Step 1: Site Assessment and Environmental Plan
- Step 2: Implementing Your Plan
- Step 3: Submitting Documentation and Achieving Certification

Simply begin with Step 1, and then proceed to subsequent sections when you are ready. The background information and instructions provided in each section will give you specific information for achieving certification.

We look forward to getting to know you and your course and to helping you gain recognition for safeguarding the quality of the environment. Thanks for your participation!

Sincerely,

The Staff at Audubon International

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- Water Quality Management 45
- Outreach and Education 49

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Step 1: Site Assessment and Environmental Plan

Background Information

The Site Assessment and Environmental Plan is designed to help you take stock of your property resources and current conservation practices and develop a plan of action to guide your stewardship efforts. After you complete this step, we will also get to know your course and be able to work more closely with you as you implement conservation projects on your golf course.

There are two forms that you will fill out to complete this step:

Part I: Site Assessment- This form is designed to tell us about your golf course property and its significant natural resources. By filling out information regarding turf, natural areas, gardens, and water features, you will develop important baseline information about your golf course landscape.

Part II: Environmental Plan- This form will help you evaluate your current environmental management practices and determine appropriate conservation projects for your golf course. It includes goals, objectives, and environmental management practices that safeguard and enhance the quality of the environment.

Key Environmental Components

The Audubon Cooperative Sanctuary Program for Golf Courses is concerned with six key environmental areas relevant to golf course management. These components form the basis of our educational materials and are the focal points for achieving certification.

- Environmental Planning
- Wildlife and Habitat Management
- Chemical Use Reduction and Safety
- Water Conservation
- Water Quality Management
- Outreach and Education

Instructions

1. Fill out your Site Assessment first and then complete your Environmental Plan.

2. Fill out all the information as completely as you can. If you don't know an answer, simply move on and come back to it later. If you need more space to provide information, attach an additional sheet and identify the question it relates to. Feel free to contact us with questions.

3. Sign the *Statement of Support* at the end of the Environmental Plan. This will allow you personally, and your golf course, to receive a Certificate of Achievement in Environmental Planning.

4. If there is additional information, such as a brochure, photos, or a course description, that you would like to send us, please feel free to enclose it.

5. Make several copies of your Site Assessment and Environmental Plan. Keep a copy on record at the golf course and give a copy to each individual who signed your Statement of Support. Send one copy to Audubon International at:

   Audubon Cooperative Sanctuary System
   Audubon International
   46 Rarick Road
   Selkirk, NY 12158

   Questions? Contact us at **518-767-9051**, extension **12**, or via email at **acss@audubonintl.org.**

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Part II: Environmental Plan

Instructions

1. The Environmental Plan is divided into six sections—one for each component of the Audubon Cooperative Sanctuary Program. Each section consists of a series of goals and environmental management practices. The management practices listed help to ensure that the goals are achieved. To become *certified* as an Audubon Cooperative Sanctuary, all of the management practices listed must be in place. Thus, we ask that you use this opportunity to develop a plan for implementing them.

2. In each section, review each management practice and determine whether it is in place at your golf course. Check your response: *Yes, Partially Implemented,* or *No* (A description of each response follows below). Don't labor on each statement. If you're unsure what something means, chances are good that a "Yes" response is not appropriate.

3. For each management practice that you check *Partially Implemented* or *No,* you will fill out the last column *Planned Efforts*. Thus, you will plan to incorporate environmental management practices that are not in place or need improvement. These will form the basis for your Environmental Plan.

4. The environmental management practices included here apply to almost all golf courses. However, we recognize that many courses have unique circumstances that prevent certain environmental management practices from being implemented. If you believe that a management practice is not applicable to your course, please state why in the space provided under *Planned Efforts*, or make a note at the end of the section. You may also attach additional sheets if needed.

5. A space for notes is provided at the end of each section. You may use this space to provide additional details that will help us understand your conservation efforts or to make notes that will help you implement your plan.

A word to beginners

If environmental management is new to you, you may find that you will respond *"No"* or *"Partially Implemented"* to many of the management practices listed in the Environmental Plan. Don't be discouraged. Remember, this is not a test. The Environmental Plan presents a full range of environmental management practices and serves as a way to identify your current strengths, as well as future priorities and areas for improvement.

Responses

YES	Management practice is complete or ongoing. Management practice can be verified.
PARTIALLY IMPLEMENTED ***"Partial"***	Management practice has been started, but needs further attention and improvement.
NO	Management practice is not in place.
PLANNED EFFORTS	If the management practice is only partially implemented or not yet begun, please fill out a projected date that you will start the project or management practice and the date that you anticipate completing the project. For management practices that will be ongoing, please indicate a start date and write "ongoing." If you believe that the management practice is not applicable to your course, please state why in the space provided.

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Step 2: Implementing Your Plan

Introduction

Once you have developed your environmental plan, it's time to take action. Review and highlight items in your environmental plan that are only partially implemented or not in place. These are the management practices or projects that you should focus attention on. Follow your timeline to implement and maintain stewardship projects.

Where do I get more information about how to implement projects?

Review *A Guide to Environmental Stewardship on the Golf Course* for instructions on how to carry out specific projects. You can also visit Audubon International's website and search through the many fact sheets and case studies available. Every two months you will receive our newsletter *Stewardship News.* This publication highlights member accomplishments and offers ongoing project ideas and information. If at any time you have questions or need assistance, you can contact Audubon International staff via phone, mail, email, or fax.

How to reach us:

mail: Audubon Cooperative Sanctuary System
Audubon International
46 Rarick Road
Selkirk, NY 12158

phone: 518-767-9051, ext. 12
fax: 518-767-9076
email: acss@audubonintl.org
website www.audubonintl.org

Where else can I go for help?

Many sources of expert advice and support are no further away than your local community. We suggest that you draw upon resources such as local environmental and community organizations, college or university staff and students, cooperative extension services, golfers, and your own professional association.

If you haven't already, gather a group of people who can help you implement projects or provide you with technical advice along the way. Forming a **Resource Advisory Group** is discussed in *A Guide to Environmental Stewardship on the Golf Course.*

What documentation can I begin to compile now for certification?

As you develop your Environmental Plan and begin to implement it, there are a variety of ways to document your activities. This documentation is needed to show us what you have done and to achieve designation as a *Certified Audubon Cooperative Sanctuary*. It is also beneficial in communicating your stewardship efforts to employees, members, and the public.

Review the list on the following page and begin to compile these items:

- Wildlife Inventory
- Photographs
- Property Map
- Integrated Pest Management Records
- Water Quality Test Results

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Compile these items as you implement projects:

☑ Wildlife Inventory

Compile a list of the mammals and birds you have seen or heard on the property. There is a checklist provided in the Wildlife and Habitat Management section of *A Guide to Environmental Stewardship on the Golf Course*. This list will be required documentation for certification in *Wildlife and Habitat Management*. Though not required, you may also choose to compile a list of reptiles and amphibians, plants, or other species. These lists also provide excellent documentation of your habitat enhancement efforts.

☑ Photographs

Take photos or slides to document what you are doing. These should include:

1. Natural areas, such as representative woods, wetlands, ponds, and gardens.
2. Maintenance facility, including: pesticide storage, mix and load areas, and equipment wash areas.
3. Representative water features.
4. Outreach and education activities- take photos of people in action implementing projects, resource committee members or meetings, tours if you host them, and your display.
5. *Before* and *After* photos of project work.

☑ Property Map

When you apply for certification in *Wildlife and Habitat Management*, you will be required to send us a map of the golf course that clearly shows various landscape features. Though there is no particular size requirement for your map, we recommend keeping it to 8-1/2 x 14 inches—or, if your course is quite large, make one 8-1/2 x 14 inch map per each nine holes of golf. You can do this by photocopying and reducing an existing course map, such as an irrigation map. If you have a scorecard that depicts an accurate layout, you may be able to photocopy and enlarge it to use as your reference map. Many superintendents have found it useful to prepare their map when developing their environmental plan. The map will prove a useful management tool to guide your efforts. Refer to the sample map on page 37.

Label the map of the golf course with the following features:

1. Overall layout of the course, with golf holes labeled;
2. All natural plant communities. Be sure to mark woods, meadows, gardens, wetlands, and other natural features clearly;
3. Water bodies, such as ponds, lakes, wetlands, and streams. Label shorelines where you maintain naturalized vegetation;
4. "No spray" and "Low-intensity management" zones that you have designated to protect sensitive habitats or water bodies.

☑ Integrated Pest Management Records

The certification section on *Chemical Use Reduction and Safety* includes four reference tables to help you easily describe various aspects of your IPM program. If you wish, review the tables now so that you are familiar with the type of information we'll be requesting for certification.

☑ Water Quality Test Results

Since baseline water quality testing is required for certification in *Water Quality Management*, you will need to send us a copy of test results for at least one round of testing. Please note: analyzing the results of the tests is up to you and whomever you work with to conduct the tests. If you need help in this area, please refer to the Water Quality Management section of *A Guide to Environmental Stewardship on the Golf Course.*

Step 3: Submitting Documentation and Achieving Certification

Introduction

Once your environmental program has been implemented, the next step is to document your efforts. Documentation will help you to evaluate and communicate the success of your environmental management program and achieve certification.

Equally important, documenting what you have done will contribute to a growing body of significant information on golf and the environment. This information is used to promote the positive environmental efforts of superintendents. It also provides support, encouragement, and new ideas for others who are beginning or expanding environmental management practices.

Top 10

Reasons To Get Certified

1. Do the right thing for the environment
2. Enjoy a new and rewarding aspect of your job and be able to share it with others.
3. Gain positive publicity for your golf course
4. Better organize and coordinate your environmental management efforts
5. Evaluate the impact of management practices on the environment
6. Track environmental improvements
7. Build your skill set and your resume
8. Promote your stewardship efforts
9. Be recognized as a leader among superintendents
10. Gain valuable feedback from Audubon International

What is required to achieve certification?

Achieving certification is not necessarily difficult or time consuming, but it does require that you submit information to verify your accomplishments. For each component of the program, we have provided a simple form for you to fill out. In addition, back-up documentation such as photographs, records, or a map may be requested to illustrate your stewardship activities. We hope that you will find that these documents also serve as a useful management guide for you, your staff, and future property managers.

Please Note:
You must achieve certification in Environmental Planning prior to requesting certification in other program components. Refer to Step 1: Site Assessment and Environmental Plan if you have not completed this step.

What happens when my course achieves certification?

Upon certification, your course will receive a Certified Audubon Cooperative Sanctuary art print for display, a camera-ready logo, and a press release. You will also have the opportunity to participate in special projects and promotional efforts designed for certified properties.

Once the course achieves certification, Audubon International also awards a *Certificate of Recognition in Environmental Stewardship* to the individual who was principally responsible for completing all certification components. This recognition is awarded only when an individual spearheads certification from environment planning to completion at a single golf course.

How long does certified status last?

Every two years, you will be expected to update us about your progress in each component of the program. This will help us to further promote your efforts and ensure that certification standards are being maintained. A recertification packet will be sent during the fall of the appropriate year to facilitate this process.

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APPENDIX K

PUBLIC AND AGENCY COMMENT LETTERS

EAST BAY REGIONAL PARKS FOR THE FUTURE PARK DISTRICT

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November 13, 2001

US Navy, Engineering Field Activity West
2001 Junipero Serra Boulevard, Suite 600
Daly City, CA 94014-1976
Attn: Mr. Richard Rugan

RE: Draft Integrated Natural Resources Management Plan and Environmental Assessment, Naval Weapons Station Seal Beach, Detachment Concord, California

Dear Mr. Rugan:

The East Bay Regional Park District has reviewed the Draft INRMP and offers the following comments. The District is a member of the Joint Use Committee, which submitted a *Proposal for Interim Civilian Use* to the Navy in October 1999, expressing strong community support for maintaining and enhancing natural resources at Detachment Concord, while allowing for trails, nature study and recreational use.

#1 The Draft INRMP contains a great deal of useful information on existing natural resources, as well as resource management issues and approaches at Detachment Concord. The District generally supports Alternative 1: the Ecosystem-based INRMP, as fulfilling, to the greatest extent, the Navy's resource management mandate under the Sikes Act and providing the most comprehensive and proactive plan for the stewardship of resources on the base. Specifically, we believe that full funding, full staffing for resource management and continuation of the managed grazing outlease program are essential to maintenance of resources at Detachment Concord, as well as the protection of people and property from fire danger. However, the District strongly disagrees with the conclusion (under Cumulative Effects, p. ES-16) that *both action alternatives and the No Action Alternative would not allow for public access as required in the* [EBRPD] *trail plan, because of safety concerns.*

#2 The INRMP states the following Outdoor Recreation Management Goal (6.3.12): *To support public access as approved by the Navy and where it does not conflict or interfere with Detachment Concord's military mission.* However, Figure 4-1, *Proposed Outdoor Recreation Areas,* shows virtually no public access in the Inland Area south of SR 4 (as was proposed by the District), and does not reflect the trail alignments presented in the Joint Use Proposal. Section 6.3.12 also states that, *Because of the military mission at Detachment Concord, the associated ESQD arcs, and various sensitive habitats in the Inland Area, public access and recreational opportunities are limited.* No evidence is presented for this statement, and we believe that the concern is not justified. Although such safety considerations may apply to the Tidal Area, which is still in active use by the Army, they are not valid concerns in the Inland Area, where munitions

2950 Peralta Oaks Court P.O. Box 5381 Oakland, CA 94605-0381

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#2 (continued

have been removed. The Navy's *Report to the United States Congress on the Potential for Joint Use and Outgrants, Weapons Support Facility, Seal Beach, California* (December 1999) states that, "The existing ESQD arcs would remain in effect *for potential reactivation*" (emphasis added), and that "Construction of permanent facilities within the ESQD arc areas would not be approved. However, temporary facilities may be permitted following additional study." The Navy's response does not suggest any limitation of outdoor activities, except that proposed trails would need to be further evaluated in relation to the arcs. The District believes that ESQD arcs should not apply for transient outdoor recreational uses in the Inland Area because munitions have been removed. Public Access, insofar as it is consistent with the military mission, is specifically mandated by the Sikes Act. In this case, where the base has been placed on reduced operating status and a Joint Use Study submitted to and reviewed by the Navy, the INRMP should more adequately address public access in relation to resource management.

#3

In a broader sense, the INRMP fails to adequately address resource management issues associated with joint use of Detachment Concord. The three INRMP management alternatives assume only the current status quo of Navy ownership. Management issues associated with joint use and public access are not examined; nor is the potential for cooperative management with other agencies (Contra Costa Sheriff, Fire Department, EBRPD) or volunteer citizens groups which might play a restoration / stewardship role, as was proposed in the Joint Use Study. If the INRMP is seriously intended "*to guide the natural resources management program at Detachment Concord from 2002 to 2006 and to provide a solid foundation from which to build the program beyond 2006*," it needs to more adequately address public access and resource management issues inherent in joint use and potential future transition to civilian management.

The East Bay Regional Park District appreciates the opportunity to comment on the Draft INRMP and looks forward to coordinating further with the Navy to develop the details of managing future open space and public access at Detachment Concord. Please address future documents to my attention, and do not hesitate to contact me at (510) 544-2623.

Sincerely,

Brian Wiese

Brian Wiese
Interagency Planning

cc: Congressman George Miller
Supervisor Mark DeSaulnier, Joint Use Committee (JUC)
Mr. Val Alexeeff, Contra Costa County, JUC staff
Mayor Laura Hoffmeister, Concord, JUC
Beverly Lane, EBRPD Board, JUC
Ted Radke, EBRPD Board, JUC

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November 16, 2001

Via Fax 650/244-2991

Richard Rugen, Natural Resources Manager
Naval Facilities Engineering Command
Engineering Field Activity, West
900 Commodore Drive, Building 205
San Bruno, California 94066-5006

Subject: Comment on Draft Integrated Natural Resources Management Plan and Environmental Assessment, Naval Weapons Station Seal Beach, Detachment Concord, California

Dear Mr. Rugen:

Thank you for the opportunity to review and comment on the Draft Integrated Natural Resources Management Plan (INRMP) and Environmental Assessment (EA) for the Concord Naval Weapons Station. The Plan area is within the existing service area boundaries of the Contra Costa Water District (CCWD).

The proposed action is to revise the existing 1989 Natural Resources Management Plan and practices at Detachment Concord consistent with the facility military purpose and the Sikes Act Improvement Act of 1997. The goal of the INRMP is to implement an ecosystem-based conservation program that provides for the enhancement of natural resources consistent with the military mission, integrates and coordinates all natural resource management activities, and provides for sustainable multipurpose use of natural resources, including public access for use of natural resources subject to safety and military considerations. The proposed INRMP focuses on a 5 year planning period.

The following CCWD comments and questions are both general and specific (locational) comments in the progression of the text.

General Comments and Questions.

#1 1. Please identify the Contra Costa Canal and Clayton Relift Canal on all maps and figures (as shown in Figures 3-7, 3-13a-c) in relation to the identified resources.

#2 2. As a matter of information, the Clayton Relift Canal has been closed for 20 years. The District has discussed the closure (or elimination) of this facility with the Navy.

Specific Comments

#3 Page ES-3: In the Public Involvement summary, it is stated that the Contra Costa Water District responded to a Navy notice on this project and that the previous comment letter is provided in Appendix F. CCWD's November 7, 2000 letter was not found in Appendix F. Another copy is provided here as Attachment 1.

#4 Page 3-20: The second paragraph describes the Contra Costa Canal; however it contains two errors. Please change "Bollam Treatment Plant" to **Bollman** Treatment Plant (in lines 3 and 5). In line 5, also change "20,000 residential customers" to **230,000** residential customers. In addition, the description of the Contra Costa Canal should differentiate between the main canal, which is in use, from the Clayton Relift Canal which is closed and no longer used to transport irrigation water supplies. This distinction could also be made on Figure 3-7, Surface Water Features, where both canals are identified.

#5 Page 6-11: The first bulleted Stewardship Strategy is to "install a means of escape within the Contra Costa Canal at select points, to enable tule elk that fall into the canal to escape." The Navy would be required to obtain a license and encroachment permit through CCWD for the proposed construction within the canal right-of-way. Please contact the CCWD Engineering Department (Steve Welch, Director) prior to preparing detailed plans and projected funding for escape facilities within the canal area.

#6 Page A-10: In the Summary of Management Strategies (Table A-2), under Grazing Outleases Management (Tidal), CCWD supports the last bulleted strategy to "ensure that cattle do not graze new pastures adjacent to the Contra Costa Water District canal from November 1 through April 15 each year to reduce risk of water contamination"

If you have any questions on the comments, or require further information on the CCWD, please contact Dennis Pisila at 925/688-8119.

Sincerely,

Richard A. Denton
Acting Director of Planning

RAD/DP

Attachment 1: CCWD letter dated November 7, 2000

John A. Keibel

3203 Clayton Road – Apt. 27, Concord, CA 94519
(925) 686-0525 ~ jakeibel@hotmail.com

November 9, 2001

Mr. Richard Rugen, Natural Resources Manager
US Navy, Engineering Field Activity West
2001 Junipero Serra Blvd., Suite #600
Daly City, CA 94014-1976

Dear Richard Rugen:

I wish to take this opportunity to comment on the *Draft Integrated Natural Resources Management Plan* (INRMP) *and Environmental Assessment, Naval Weapons Station Seal Beach, Detachment Concord* (NWSSB, Det. Concord), *California* dated October 2001.

My reaction to the INRMP is one of awe. You and your co-workers have assembled a monumental work and are to be commended. This will be a very useful tool whenever the needs of the military and the protection of natural resources at NWSSB, Det. Concord are weighed. The comments that follow are offered constructively:

#1

1. As Figures 3-9a and 3-9b (pages 3-29 and 3-31, respectively) show, there is a fresh water marsh—springs, stream and riparian corridor—around the western end of the runways and between the runways and East Olivera Road. I believe this marsh should appear in Figures 3-7 and 3-12 (pages 3-23 and 3-43, respectively) as well.

#2

2. Under "Cultural Resources" within the Executive Summary, page 15, the first sentence indicates that there is only "one archeological site in the Inland Area that may be eligible for the NRHP." I have shared some information relative to this point with those in charge of the *100% Draft Integrated Cultural Resources Management Plan* for NWSSB Det. Concord. Let me repeat it here.

   This past August two Inland Area cultural resources were identified and reported to the California Historical Resources Information System. One is the aboveground stone water cistern in the 4AT area. It was built during the years 1932 to 1935 for dairyman Ralph Bollman. The other, a sizeable Native American bedrock milling station, lies just southeast of the Bollman water cistern.

#2 continued

To the best of my knowledge, neither of these has been studied with any thought given to their eligibility for the NRHP. However, I suspect both are probable candidates for the NRHP.

So, there may be three archeological sites in the Inland Area eligible for the NRHP.

#3

3. You should consult with the National Park Service (Superintendent Glenn Fuller at the Eugene O'Neill National Historic Site in Danville, CA) regarding this comment.

On page 10 of the Executive Summary you address the matter of access to the Port Chicago National Memorial. In part, this reads, " ... public access annually to the Port Chicago Memorial." I believe it would be more accurate to say, " ... public access to the Port Chicago National Memorial as requested by the National Park Service and approved by the Navy."

#4

4. Finally, it pleased me to see that somehow or other you managed to use my California red-legged frog image on page 3-62.

It is clear to me that this document contains a wealth of important data valuable to natural resource manager, biologist, historian and the like. Therefore, I feel justified in requesting two copies of the final INRMP. One copy should be sent to the Concord Historical Society (P.O. Box 404, Concord, CA 94522). And I ask that you send a copy to me to serve as a reference for *The Port Chicago Legacy* [working title], a history I am writing on the town of Port Chicago and NWSSB, Det. Concord. This history will include documentation of the wildlife legacy the weapons station has created.

I thank you for taking the time to consider my comments. Since this INRMP is still in its draft form, I hope you will give thought to my comments (excluding the fourth comment) as you make your final revisions.

Yours truly,

John A. Keibel

John A. Keibel
Director of the Concord Historical Society, historian and photographer

GEORGE MILLER
7TH DISTRICT, CALIFORNIA

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DAVID TUCKER
DISTRICT DIRECTOR

3220 BLUME DRIVE
SUITE 281
RICHMOND, CA 94806
(510) 262-6500

1410 GEORGIA STREET
VALLEJO, CA 94590
(707) 645-1888

TTY (202) 225-1904

November 16, 2001

Richard Rugen
Natural Resources Manager
U.S. Navy, Engineering Field Activity West
2001 Junipero Serra Blvd., Suite 600
Daly City, CA 94104-1976

Dear Mr. Rugen:

I am writing to comment on the Draft Integrated Natural Resources Management Plan and Environmental Assessment for Naval Weapons Station, Seal Beach, Detachment Concord.

There is no mention of the joint use efforts by the Concord Naval Weapons Station Joint Use Committee in the document, which will have a great impact on public access to the inland area. Also, there was a great deal of public comment about proposed joint uses that included protecting the natural resources, and I would like to see a joint effort by the Navy and environmental groups to work on enhancement projects.

There are several mentions of efforts to protect or enhance natural resources but there is no mention of who is going to do it and what the time line is:

#1

Page ES 5, "As native oaks and other trees and planted, protect them by fencing to ensure establishment.:"

Page ES6, "Maintain the water quality and historic integrity of the Cistern Pond by restoring the windmill to an operative condition."

Page ES8, " Initiate program to plant wildlife windrows to benefit native species through assistance by the California Conservation Corps."

#2

On Page ES10 it states "Provide public access annually to the Port Chicago Memorial." What about providing on-going access to the memorial? It states it elsewhere in the document but it should be included here also.

#3

On Page 1-10 it states that the ESO is supported by the Environmental Site Manager located at

PRINTED ON RECYCLED PAPER

#3 (continued)

Detachment Concord. If I am correct, there is no longer such a person at the Naval Weapons Station.

#4

Lastly, the statement on Page ES4 that states "Maintain sufficient natural resources personnel to implement, manage, and monitor the management strategies of the INRMP." I am concerned that the Navy's definition of "sufficient" will not be my definition. I want to ensure that the natural resources are protected and not allowed to deteriorate, and under the reduced operating status of the facility there will not be an on-site environmental manager who is critical to this effort.

Thank you for allowing me to comment.

Sincerely,

George Miller

George Miller
Member of Congress
7th District, California

State of California - The Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

GRAY DAVIS, *Governor*

November 26, 2001

Mr. Richard Rugen
Natural Resources Manager
U. S. Navy
Engineering Field Activity, West
900 Commodore Drive
San Bruno, CA 94066-5006

Integrated Natural Resources Management Plan
Naval Weapons Station Seal Beach, Detachment Concord
City of Concord, Contra Costa County

Dear Mr. Rugen:

Department of Fish and Game (Department) personnel have reviewed the Naval Weapons Station Seal Beach, Detachment Concord, California (Detachment Concord) Draft Integrated Natural Resource Management Plan (INRMP). The INRMP was developed in accordance with the Sikes Act [16 USC 670a (2)], which requires that Detachment Concord develop its INRMP in cooperation with the Department. The Department had previously provided comments on the Administrative Draft. We have provided comments in the table format provided (see enclosure).

The Department understands that the INRMP "reflects the mutual agreement of the parties concerning conservation, protection and management of fish and wild life resources" consistent with the Sikes Act, and that we will receive a copy of the final INRMP, which will take into consideration our comments.

Thank you for providing the Department the opportunity to comment on this INRMP. Department personnel are available to address these concerns in greater detail. Please contact John Krause, Associate Wildlife Biologist, at (415) 454-8050; or Scott Wilson, Habitat Conservation Supervisor, at (707) 944-5584.

Sincerely,

Robert W. Floerke
Regional Manager
Central Coast Region

Enclosure

Comments on the Draft Integrated Natural Resources Management Plan and Environmental Assessment
Naval Weapons Station, Seal Beach, Detachment Concord
Concord, California

	Page #	Section/Figure/ Table/Appendix	Commentor	Comment	Response (Contractor)
#1	6-4	Section 6.3.1	CDFG	As requested in the review of the Administrative Draft comments provided previously, the Department recommends that Soil Management discuss implementation of erosion control and vegetation clearing measures in detail. Please describe specific existing and planned activities, including means of removal, i.e. manual, construction equipment, etc. The Department maintains that any vegetation clearing along riparian habitat corridors, including annual debris and noxious weed removal, ensure no net loss of wetland acreage or habitat value, consistent with Department policy and Federal guidance.	
#2	6-5	6.3.2	CDFG	The Department, as requested in the review of the Administrative Draft comments provided previously, maintains that the document should provide information regarding specific management actions for stock ponds currently being performed and those proposed. Activities proposed in the INRMP, including creek channelization and clearing of riparian vegetation could result in significant adverse affects to riparian habitat. The Department maintains the recommendation that alternatives be developed and consultation with CDFG be initiated for activities which may require channelization and clearing of vegetation in creeks.	
#3	6-7	6.3.3	CDFG	The Department previously commented, and continues to recommend, that new fencing be installed around all potential riparian and aquatic habitat where such fencing is absent, rather than be limited to fencing around stock ponds in lease 4B04 and the three areas noted in lease 4B01.	

	Page #	Section/Figure/ Table/Appendix	Commentor	Comment	Response (Contractor)
#4	6-7	6.3.4	CDFG	The Department previously commented, and continues to recommend, that the document include a statement that tree removal activities should be timed so as to not adversely affect breeding activities of migratory bird species described under the Migratory Bird Treaty Act. Pre-construction surveys should be performed during nesting season (Feb-Aug). If any large trees are used for nesting activities, those trees should be avoided.	
#5	6-13	6.3.9	CDFG	The Department recommends that the document include a statement that Detachment Concord may consult with the Department for all State-listed threatened, endangered or rare species, including activities which may affect stream utilizing/dependent species.	
#6	6-17	6.3.13	CDFG	The Department previously commented, and continues to recommend, that the document include alternatives for fire breaks/trails maintained for fire protection activities, including mowing, rather than discing.	
#7	6-24	6.4.8	CDFG	In addition to consultation with NMFS regarding tidal fisheries management, consultation with the Department is recommended for the outlet of Mt. Diablo/Seal Creek for potential impacts to eelgrass beds or other fisheries resources in the Bay-Delta.	
#8	6-24	6.4.9	CDFG	The Department previously commented, and continues to recommend, that the document includes provisions for consultation for all state-listed threatened, endangered or rare species, including activities which may affect stream utilizing/dependent species.	
#9	6-29	6.4.13	CDFG	The Department previously commented, and continues to recommend, that the document include alternatives for fire breaks/trails maintained for fire protection activities, including mowing, rather than discing.	
#10	Signature	-	CDFG	Central Coast Regional Manager's name is Robert Floerke. This is incorrectly spelled "Roger". Please correct this for the final page.	

DEPARTMENT OF TRANSPORTATION
P O BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
TDD (510) 286-4454

November 15, 2001

CC-4-6.76
CC004626
SCH# 2001104009

Mr. Richard Rugen
U.S. Department of the Navy-EFA West
2001 Junipero Serra Boulevard, #600
Daly City, CA 94014

Dear Mr. Rugen:

Integrated Natural Resources Management Plan – Environmental Assessment

Thank you for including the California Department of Transportation in the environmental review process for the above-referenced project. We have reviewed the Environmental Assessment, and have the following comments:

Any work or traffic control measures proposed within the State right-of-way (ROW) will require an encroachment permit. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans, clearly indicating State ROW, need to be submitted to the following address:

Sean Nozzari, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

If you have any questions regarding this letter, please call Rick Kuo of my staff at (510) 286-5988.

Sincerely,

RANDELL H. IWASAKI
Acting District Director

By Jean C.R. Finney

JEAN C. R. FINNEY
District Branch Chief
IGR/CEQA

c: Katie Shulte Joung (State Clearinghouse)

Commentor	Comment Number	Response
East Bay Regional Park District.		
	1	Under the current Navy policy with ordnance storage facilities, public access is not permitted and public access currently needs to be requested by the individuals and or agency for their intended site visit. It is possible that under the Reduced Operating Status and with the Joint Use Committee for this policy to change with the Inland Areas at the Detachment Concord and public access may be allowed in the future.
	2	Please see comment response above and again we wish to clarify that a change in Navy policy to allow for public access to an ordnance storage facility within (active or inactive) Explosive Safety Quantity Distance arcs needs to be formalized prior to public access within the Detachment Concord. The Navy is open to public access as long as it is in alignment with Navy policy and safety concerns. Upon confirmation of public access to the Detachment Concord by the Navy, public uses may be allowed. Any revisions to the INRMP for the Detachment Concord shall take these changes into account.
	3	The INRMP for the Detachment concord can only take into account the present military mission. Proposed changes to this national defense mission for the Detachment Concord as it implements its Reduced Operating Status may allow for future joint use, public access and/or co-operative management of the natural resources at Detachment concord. It is our current understanding that Joint Use proposals are to be evaluated by the Joint Use Committee and that upon completion of a Joint Use Study, these proposals shall be subject to their own environmental analysis and approval process. It if very possible that some of the Joint Use proposals may compliment strategies put forth in the INRMP for the Detachment Concord.
Contra Costa Water District		
	1	On figures which identify the Clayton Relift Canal, the name was corrected from Clayton Canal. These two canals are identified on all appropriate figures, it was not deemed necessary to have them on every figure.
	2	"(closed)" was added to figures depicting the Clayton Relift Canal.
	3	The Contra Costa Water District November 7, 2000 comment letter was added to Appendix F.
	4	Corrections were made as requested.
	5	Text was added to this strategy "This strategy is to be coordinated with the Contra Costa Water District Engineering Department."
	6	Thank you for your comment.
Mr. John Keibel		
	1	Figure 3-7 shows improved water systems, wetlands were not included. The GIS layers used separated streams, canals, and ditches from wetlands. Unfortunately we were unable to separately depict this marsh using the current GIS layers. Figure 3-12 shows broad classifications and was not created in a manner conducive to separately depicting this marsh.
	2	The information you have presented is very recent. The INRMP states that there is one known archeological site. There have been two reported as of August 2001, once these are recorded they will be included in the Integrated Cultural Resource Management Plan.
	3	The text regarding this issue was revised to provide clarification in both the Executive Summary and Section 1.
	4	Thank you for permission to use this photo. We have revised the document to credit you for the photograph.

Commentor	Comment Number	Response
Congressman George Miller		
	1	The Executive Summary describes the Goals and Objectives of the INRMP. Please refer to Sections 6 and 7 for details regarding specific management strategies and roles and responsibilities for implementation.
	2	The text within the document was revised to provide clarity. Public access to the memorial needs to be coordinated with the Navy and Army.
	3	Mr. Rudy Pontemayer is still the Environmental Site Manager located at Detachment Concord.
	4	The Environmental Site Manger position at Detachment Concord will be maintained to the best of our knowledge.
California Department of Fish and Game		
	1	Any planned activities for erosion control would go through the Navy's environmental review process. The Navy would be interested in coordinating such activities with the appropriate agencies. Additionally, strategies 1-4 under Soil Management are ongoing actions rather than new activities. Strategy #5 would under NEPA analysis as a construction project. Federal guidance includes Executive Order 11990 which ensures no net loss of wetlands.
	2	This INRMP is not a site specific implementation document. As individual projects occur, coordination and consultation with the appropriate agencies will be undertaken.
	3	The last strategy presented in Section 6.3.6 was revised to read "Where feasible for protection from cattle grazing, fence hillside drainages that support wetland vegetation and/or aquatic habitats.
	4	Please refer to Objective 4 in Section 6.3.7 and Objective 3 in Section 6.4.7 for strategies regarding the protection of migratory birds. These sections have been significantly expanded since the publication of this draft and include additional protection strategies.
	5	Comment noted – The INRMP recommends informal consultation with CDFG regarding activities which may affect natural resources. However, as a federal property, the Navy is not required to consult with CDFG unless federal law requires compliance with state law under the jurisdiction of CDFG.
	6	The Navy regulations required that fire breaks be free of combustible material. Mowing alone does not accomplish this.
	7	Please see response to comment #5
	8	Please see response to comment #5
	9	Please see response to comment #6
	10	This misspelling was corrected.
Department of Transportation		
	1	Thank you for this information.

APPENDIX L

AGENCY CONCURRENCE LETTERS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W2605
Sacramento, California 95825

IN REPLY REFER TO:
1-1-02-I-0921

February 14, 2002

Mr. Richard Rugen
Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 9406-5006

Subject: Amendment to Service Letter on Concurrence with the Integrated Natural Resources Management Plan for Naval Weapons Station Seal Beach, Detachment Concord, Contra Costa County, California

Dear Mr. Rugen:

This is a follow up to the U.S. Fish and Wildlife Service (Service)'s letter, dated September 14, 2001, regarding our concurrence with the Integrated Natural Resources Management Plan (INRMP) for Naval Weapons Station Seal Beach , Detachment Concord (Detachment Concord). In accordance with the Sikes Act Improvement Act of 1997 (Sikes Act), the INRMPs are prepared in cooperation with the Service and each appropriate state fish and wildlife agency, and the resultant document should reflect the mutual agreement of these parties concerning conservation, protection, and management of fish and wildlife resources.

After issuance of the September 14, 2001, letter, the Service and the Navy initiated discussions, which constituted informal consultation, for the purpose of reaching agreement on the issues pertaining to the effect of ongoing and future activities on Detachment Concord that may affect federally listed species. The Navy has agreed to continue with this informal consultation process and within 45 days of receipt of this letter the Navy will facilitate a more formal dialogue regarding any proposed activities at Detachment Concord, both to promote a better understanding of the Navy mission and to facilitate information exchange regarding conservation of listed species. The Navy acknowledges that future formal consultation regarding ongoing and proposed maintenance and management activities that may affect federally listed species at the Detachment Concord will be done after this informal consultation takes place.

The Detachment Concord INRMP is a programmatic document that guides current and future activities that involve the protection, conservation, and management of natural resources occurring at Detachment Concord over a 5-year planning horizon. As the Service is currently consulting with the Navy on these same management actions, we believe that consultation on the INRMP pursuant to section 7 of the Act is not necessary.

In accordance with the Sikes Act, the INRMP may be updated as often as necessary, and at least once every five years from initial approval. If these updates substantially change the management actions in a manner that causes effects to the listed species different than those presently being considered, then the Navy should reinitiate consultation with the Service on those actions.

We are pleased to work with the Navy to implement measures that will benefit the listed species as identified by our September 14, 2001, letter. As we move into the implementation phase of the Detachment Concord INRMP, our agencies should continue to work closely in the development of project details, project implementation, annual INRMP reviews/updates, and INRMP revision every five years. The Service is committed to providing adequate staff time to work with your staff on the above actions so that we can mutually work toward the conservation and protection of fish and wildlife resources at Detachment Concord.

If you have any questions, or need further clarification, please contact me or Dan Buford of my staff at 916-414-6600.

Sincerely

Cay C. Goude

Cay C. Goude
Acting Field Supervisor

cc:
Jan Larson, Director Env. Operations
CNO

State of California - The Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

GRAY DAVIS, *Governor*

November 26, 2001

Mr. Richard Rugen
Natural Resources Manager
U. S. Navy
Engineering Field Activity, West
900 Commodore Drive
San Bruno, CA 94066-5006

Integrated Natural Resources Management Plan
Naval Weapons Station Seal Beach, Detachment Concord
City of Concord, Contra Costa County

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Sincerely,

Robert W. Floerke
Regional Manager
Central Coast Region

Enclosure

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Concord, California

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DEPARTMENT OF THE ARMY
MILITARY TRAFFIC MANAGEMENT COMMAND
834TH U.S. ARMY TRANSPORTATION BATTALION
410 NORMAN AVENUE
CONCORD, CA 94520-1142

REPLY TO
ATTENTION OF:

March 13, 2002

Naval Facilities Engineering Command
Engineering Field Activity, West
900 Commodore Drive, Building 205
San Bruno, California 91066-5006
Attn: Mr. Richard Rugen

Dear Mr. Rugen,

As requested, I am writing to confirm the Military Ocean Terminal's (MOTCO) concurrence with and acceptance of the Integrated Natural Resources Management Plan as written for the Naval Weapons Station, Seal Beach Detachment Concord.

Please feel free to contact me at any time with any questions or for additional information at 925-246-4154.

Sincerely,

Hess Rouhafza
MOTCO Facilities Engineer