

CHAPTER 7

INTEGRATION, IMPLEMENTATION, AND ENFORCEMENT

The integration, implementation, and enforcement of programs and actions within this INRMP are key to the success of natural resource management and to the long term capability of Base lands to support the military mission. While integration, implementation, and enforcement are a part of all the programs in this INRMP, this chapter highlights initiatives geared specifically toward serving those functions. Included in this chapter are the (1) use of programmatic instructions; (2) environmental training, education, and awareness programs; (3) information management and Geographic Information Systems; (4) environmental planning and project support; (5) environmental inspection and compliance; and (6) enforcement mechanisms. The funding of programs and projects and the evaluation and update of the INRMP itself are also presented in this chapter as important elements to implementation. No single initiative listed in this chapter is capable of ensuring successful integration, implementation, or enforcement of natural resource programs, nor do any of these initiatives serve as a substitute for the established staff action process.

In general, the AC/S Environmental Security provides the coordination and management of natural and cultural resource programs on Camp Pendleton. This includes planning for, and coordinating the accomplishment of, established goals, objectives, and planned actions to support the ongoing military mission. Technical guidance is routinely provided by the AC/S ES regarding soil and wetland conservation; vegetation, fish and wildlife, and listed species management; outdoor recreation; cultural resources protection; and GIS data management. The AC/S ES also provides technical environmental advice on both military and nonmilitary NEPA documents, facility planning and construction (MILCON projects), maintenance activities, military operations, and other proposed actions that may affect natural and cultural resources. Information on the plants and wildlife present on Camp Pendleton is gathered, maintained, and disseminated by the AC/S ES. Site specific data developed as part of projects and actions conducted by tenants or other Base organizations or staff sections is reviewed for technical accuracy and incorporated with other data in support of that project and future activities. The AC/S ES serves as the lead for planning and resolving natural resource compliance issues such as wetland and endangered species regulatory requirements and serves as Camp Pendleton's primary point of contact in dealing with regulatory agencies responsible for enforcement of endangered species and Clean Water Act Section 404/401 requirements.

Over time, many factors upon which this INRMP is based are likely to change, including military mission requirements, the federal list of threatened and endangered species, knowledge of the ecology and requirements of the listed species, as well as an understanding of the nature of anthropogenic impacts to those species. The integration and implementation of this INRMP will follow an adaptive management approach that acknowledges uncertainty, monitors the various components of the plan, and learns from experience with the end goal of improving future management actions. Adaptive management can be described as a system for attaining "resilience in the face of surprise" (Lee 1993). Ultimately, the success of this

INRMP depends upon both its ability to conserve natural resources through time and its ability to accommodate the Base's present and future mission requirements. Simply stated, success depends upon adaptation.

7.1 PROGRAMMATIC INSTRUCTIONS

Programmatic instructions represent the published "general rules" which regulate and guide Base activities (e.g., military training, maintenance, construction, and outdoor recreation) and are disseminated by various methods including Base Orders, Base Bulletins, and as special conditions in documents approving recurring activities. By providing the operational framework for military and civilian users of the Base, PIs provide flexibility in concert with species/ecosystem conservation and help ensure avoidance and/or minimization of adverse impacts to federally listed species and other sensitive resources without burdening Camp Pendleton's primary land users with unnecessary technical detail. Camp Pendleton PIs also serve to provide the Service with the framework for issuance of Terms and Conditions within Biological Opinions. Both the PIs presented in Biological Assessments and Terms and Conditions within BOs are incorporated into appropriate implementing documents and Base directives.

Many PIs are applicable basewide and help minimize impacts to the environment in general (e.g., fire danger ratings); however, other PIs may be specific to actual locations of listed species (e.g., least Tern nesting sites) or to general areas of the Base (e.g., "Management Level" designations and range and training areas).

7.1.1 Base Orders

The Base Range and Training Regulations (BO P3500.1_) provide information, instructions and procedures governing the use of ranges, training areas, and airspace operated and controlled by Camp Pendleton. Included in this order are specific programmatic instructions that address how units training on and over Camp Pendleton are to operate under given conditions. Conditions addressed include the various Fire Danger Ratings, basewide environmental procedures, areas off limits to training, and natural resource considerations and restrictions.

The Base Regulations (BO P5000.2J) establish the responsibilities and procedures that govern the conduct of all persons and activities at Camp Pendleton. Within the Base Regulations is a chapter on Environmental Security with sections that outline the Base policies governing natural and cultural resources and environmental compliance and protection. Also within the Base Regulations is a section on housing regulations, including the Base's policy on the possession of pets (most exotic pets are prohibited basewide and housing areas adjacent to sensitive resources have restrictions on the possession of normal domestic household pets, such as dogs and cats).

7.1.2 Environmental Compliance and Protection Standard Operating Procedures (ECPSOP)

Commanders of Marine Corps installations are responsible for the publication of a single environmental compliance and protection standing operating procedures (ECPSOP) document. A single ECPSOP for an installation ensures continuity of effort and prevents conflicts in policies between the various environmental media programs. The ECPSOP is complementary to, but not redundant with, the Marine Corps Order P5090.2A (Marine Corps Environmental Compliance and Protection Manual) and contains material compiled from existing Base Orders, Standard Operating Procedures, etc.

7.1.3 Environmental Guidebook

The Camp Pendleton Environmental Guidebook is a quick-reference introduction to environmental issues, laws, and regulations confronting Marines, sailors, soldiers, and civilian employees on Camp Pendleton. The guidebook also provides points of contact for users of the Base to obtain further information.

7.1.4 Biological Opinion Terms and Conditions

The terms and conditions of USFWS Biological Opinions are nondiscretionary requirements that the Base must abide by for compliance under the federal Endangered Species Act. The Commanding General has an obligation to ensure that Biological Opinions and other nondiscretionary regulatory requirements are met and to notify the USFWS when such obligations are in conflict with training requirements.

7.1.5 Categorical Exclusions

Council on Environmental Quality (CEQ) and DoN regulations provide for the establishment of categorical exclusions (CXs) for actions that have been found to have no significant effect individually or cumulatively on the human environment and, therefore, for which neither an Environmental Assessment nor an Environmental Impact Statement is required. CXs apply to those kinds of actions that do not significantly affect the quality of the human environment, that result in no significant change from existing conditions at the site of the proposed action, or whose effect is primarily economic or social. A Decision Memorandum is used to document the use of a CX. The strict conditions associated with the use of CXs and the extensive array and locations of sensitive resources at Camp Pendleton has necessitated the inclusion of PIs in those Decision Memoranda. These PIs include project/location specific and general basewide instructions for avoiding impacts and ensuring that actions remain under the approved CX.

7.1.6 Architectural and Engineering Environmental Guidebook

The Air Station has published an Architectural and Engineering Environmental Guidebook for dissemination to contractors. The Architectural and Engineering Environmental Guidebook provides information, instructions, and procedures for environmentally sound designs and construction.

7.2 ENVIRONMENTAL TRAINING, EDUCATION, AND AWARENESS

The Environmental Training Branch within Environmental Security and the MCAS Environmental Department coordinate all environmental education and training at Camp Pendleton, including conducting periodic training needs assessments. The Environmental Training Branch prepares and presents education and training materials, conducts the senior commanders symposiums, and delivers the S3 and S4 training program. This Branch also tracks all environmental training programs being conducted on Base, and ensures all training materials and course content meet or exceed quality standards, as established by Marine Corps Headquarters and Camp Pendleton's Commanding General.

The Environmental Training Branch follows the United States Marine Corps' Comprehensive Environmental Training and Education Program. Devised in 1992, CETEP is a Headquarters Marine Corps sponsored program that was approved at the highest levels by both the USMC training (CG, MAGTEC) and environmental (Deputy Chief of Staff, Installations and Logistics) functional commands. CETEP was designed to incorporate the development and program management aspects of the USMC Systems Approach to Training (SAT) and principles of Total Quality Leadership (TQL) into a program and program-development process to address the environmental training challenge Marine Corps-wide. The ultimate goal of CETEP is to ensure that appropriate environmental instruction and information are provided at all levels of the Marine Corps in the most effective manner to achieve full compliance with all environmental training requirements.

The five major components of CETEP are:

1. General environmental awareness training for all,
2. Marine Corps job specific training for all Marine Corps personnel,
3. Environmental information for Commanding Generals/Officers,
4. Training for environmental professionals,
5. Assess environmental training needs and evaluate the adequacy of training policies and programs to meet those needs.

Educational and training programs at Camp Pendleton serve as proactive measures to prevent violations of natural resource related laws and regulations. A natural resources orientation program for new personnel is under development that will include: (1) a short presentation on natural resources, (2) emphasis on the importance of protection of federally listed threatened and endangered species and archeological and historical resources, and (3) a reminder about Camp Pendleton's policy prohibiting off road vehicle activity that is not specifically

authorized, including mountain bikes. Training programs will include educating existing and future Base personnel about natural resources and use of this INRMP.

7.3 ENVIRONMENTAL INSPECTION AND COMPLIANCE

All Marine Corps installations are required to participate in the HQMC-sponsored Environmental Compliance Evaluation Program. Benchmark ECEs are conducted every 3 years in order to periodically assess Marine Corps-wide compliance efforts. Camp Pendleton's Environmental Inspection and Compliance Program is consistent with Marine Corps guidance and policy, in this regard. It consists of both a Benchmark ECE assessment and performance of an annual Self-Audit Program by both MCB and MCAS Camp Pendleton.

7.3.1 Marine Corps: Environmental Compliance Evaluation (ECE)

The Marine Corps conducts internal environmental audits through its ECE Program. HQMC-sponsored Benchmark ECEs are conducted once every 3 years, with a formal Annual Validation of POA&M report provided during intervening years, as part of the installation's Self-Audit Program. The results will be used as a tool for the commander and the CMC to plan, program, budget, and execute initiatives to achieve compliance. Comparison of the Benchmark ECE results is made for overall trend analysis. HQMC has established the following goals for the ECE Program:

- To provide the commander with a tool to evaluate the command's environmental compliance
- To assess compliance levels and, as required, provide recommended corrective actions or improvements
- To provide a forum for the exchange of ideas and successes
- To provide the CMC with a broad evaluation of environmental compliance across the Marine Corps
- To provide a formal interface among installations, Fleet Marine Forces commanders, and the Inspector General of the Marine Corps
- To integrate environmental awareness into every facet and function of the Marine Corps way of life
- To improve overall compliance efforts through a continuous, integrated program

The ECE is an evaluation similar to those conducted by the Inspector General of the Marine Corps or Field Supply Maintenance Analysis Office and is designed to provide commanders with an assessment of their environmental compliance status. It assesses the command's level of compliance, identifies actions necessary to correct compliance deficiencies, provides follow up on the implementation of those proposed actions, and facilitates continuous improvement in compliance efforts through the Self-Audit Program

In order to standardize ECEs and ensure all environmental requirements are properly and thoroughly evaluated, a Windows-based automated database comprised of checklists for use by commanders and ECE teams was developed. This Automated Compliance Evaluation (ACE) software is the only authorized software for tracking Marine Corps compliance efforts. ACE is a large database comprised of several checklists. The ACE database presents known federal requirements applicable across Marine Corps installations, specific state and local requirements unique to each installation, and requirements specified in the ECE Manual. To avoid any misinterpretation of requirements, the ACE system uses the exact requirements from the applicable source document to formulate questions. ACE is intended to provide the commander with a vehicle to evaluate the command's environmental compliance position by identifying actual environmental requirements. As a listing of specific requirements, it can serve as a quick reference to the installation user. ACE can be modified by the installation user to fit specific Marine Corps commands/units and tenants or media evaluations. Installation- and command-unique requirements, such as Camp Pendleton's use of the local Air Pollution Control District's Rule 6, have been built directly into the ACE database for Camp Pendleton. The most important management feature of the ACE database is the generation of a POA&M for each ECE or inspection conducted. The CMC updates the installation-unique ACE software annually with each installation receiving a specific checklist based upon state and local requirements.

7.3.2 Annual Environmental Compliance Evaluation (Self-Audit Program)

Working in conjunction with the CMC sponsored ECE, MCB and MCAS Camp Pendleton each conduct an annual ECE as part of their Self-Audit Programs. These Self-Audit Programs serve as an internal plan for the Commanding General, MCB Camp Pendleton and the Commanding Officer, MCAS Camp Pendleton to assess compliance throughout their commands, including all tenant commands and activities. These Self-Audit Programs use the ACE software and the HQMC provided list of requirements as a tool to track compliance. The goal of these Self-Audit Programs is to assess compliance by annually visiting every permitted site and source, and every process potentially subject to an environmental requirement including all natural resource programs. These annual self-audits ensure that all requirements are met and ensure the effectiveness of environmental programs. The Inspection and Compliance Division of AC/S ES coordinates MCB Camp Pendleton's Self-Audit program and the MCAS Environmental Management Department coordinates the MCAS Camp Pendleton Self-Audit Program.

7.3.3 Annual Plan of Action and Milestones (POA&M) Process

An integral part of all evaluations conducted on Base is appropriate follow-up to ensure that corrective actions are completed. ACE allows the evaluated commander to develop and track the command's POA&M as part of the ECE documentation. Installation commanders must use this capability in developing and maintaining POA&Ms that result from the HQMC sponsored ECEs. Commanders are also encouraged to use the POA&M capability as part of their Self-Audit Programs. Once a year on the anniversary of the most recent Benchmark ECE, the installation commander will evaluate, update, and forward the POA&M to the

HQMC. This POA&M is the primary requirement and document supporting the "Annual Validation of ECE POA&M."

The Annual Validation of the Benchmark ECE POA&M meets the EPA recommendation to follow up formally on Benchmark ECE deficiencies. It replaces the Program Management Review and should not be confused with the Self-Audit Program. The installation commander will conduct an annual review and verification of the POA&M from the most recent Benchmark ECE. This process certifies that reviews and validation of the POA&M are complete. It includes copies of the updated POA&M and the environmental self-audit schedule of the installation's Commanding General's Inspection Program as enclosures.

7.3.4 Inspection and Compliance Oversight

The Inspection and Compliance Division (1) advises the AC/S ES, staff, and MCB Camp Pendleton, in general, on all matters involving environmental compliance; (2) ensures concurrent, parallel, and detailed planning of environmental compliance tasks; (3) conducts environmental compliance evaluations and inspections; and (4) monitors the status of compliance throughout the installation. The MCAS Camp Pendleton, Environmental Department provides the same functions and advice for MCAS Camp Pendleton.

The Inspection and Compliance Division and MCAS Environmental Department are responsible for the supervision, operation, and coordination of the following environmental compliance tasks aboard their installation in support of their installation's mission:

- Conduct installation self-Environmental Compliance Evaluations (ECEs).
- Coordinate all Headquarters Marine Corps sponsored ECEs.
- Conduct multimedia environmental compliance inspections and audits encompassing the following environmental media areas:
 - Air Quality Management
 - Drinking Water Systems
 - Emergency Planning and Response
 - Environmental Training and Education
 - Hazardous Waste Management
 - Underground Storage Tank Management
 - Water Pollution Abatement
 - National Environmental Policy Act Compliance
 - Environmental Permit Compliance (e.g., Air, hazardous waste, underground storage tanks, 404, etc.)
- Monitor environmental readiness across the installation.
- Monitor environmental policies and federal, state, and local laws and regulations for impacts to the Base mission.
- Advise and assist internal and external staffs, commands, and activities in all matters pertaining to environmental compliance.
- Provide interface and act as command representative during the conduct of all regulatory inspections aboard Camp Pendleton.

- Coordinate the installation response regarding notices of violation (NOVs) received by regulatory agencies, and report NOVs to higher headquarters, as required.
- Develop quantitative systems to conduct trend analysis and target areas of noncompliance.
- Coordinate the installation semiannual compliance Data Call submission to Headquarters Marine Corps (Code LFL-6).
- Provide interface with Camp Pendleton, tenant activity environmental coordinators, Headquarters Marine Corps, other DoD facilities, and regulatory agencies exercising oversight of Base compliance with environmental requirements.
- Provide management advice in regard to environmental policies, laws, and regulations.
- Review installation plans and projects for environmental compliance.
- Establish and maintain liaison with appropriate staff elements of higher, lower, and adjacent echelons on environmental matters.
- Establish and maintain liaison with the Base and COMCAB Inspector's offices to ensure inclusion of inspection reports into the Commanding General's Inspection Program.
- Exercise appropriate environmental, technical, and logistical coordination with executive, special, and other staffs of interested units.
- Assist internal staff in planning and implementing installation strategic plans.

7.4 ENFORCEMENT

Several organizations on Base provide enforcement capability to help ensure compliance with natural resource laws, regulations, and management initiatives. These include the Range Operations Division (AC/S O&T), Resource Enforcement and Compliance Branch (AC/S ES), Provost Marshal's Offices (AC/S ISS and MCAS), Semper Fit Division (AC/S MCCA), MCAS Environmental Department; and AC/S Environmental Security.

Violations documented by Base organizations responsible for compliance are referred to the Base Commanding General or the Commanding Officer MCAS for determination regarding reporting, investigation, adjudication, and corrective and/or punitive action. Law enforcement aboard the Base associated with individual actions beyond official federal duties, including poaching and any future recreational hunting and fishing programs, is the responsibility of the Provost Marshal's Office, or other entity as directed by the Commanding General, with technical assistance from the Natural Resources Department (AC/S ES). Occasionally, the services of state and federal fish and wildlife agency enforcement personnel are involved where their technical expertise or extra manpower is needed. Marine Corps policy is to permit access to installation lands by federal, state, and local conservation personnel for official purposes after proper safety and security measures are taken (MCO P5090.2A).

7.4.1 Range Operations Division, AC/S Operations and Training

The Range Operations Division, AC/S O&T is the on-site controlling agency for all ranges, training areas, and air/sea space, providing a safe, three dimensional, and realistic training environment with real time resolution of scheduling conflicts and control and coordination of training activities. As part of its management function, the Range Operations Division inspects ranges, training facilities, and training areas to ensure safe use and compliance with appropriate directives, including BO P3500.1_ (*Base Range and Training Regulations*), which includes the Fire Danger Rating System and programmatic instructions protecting sensitive natural resources.

7.4.2 Resource Enforcement and Compliance Branch, AC/S Environmental Security

The Resource Enforcement and Compliance Branch under the AC/S ES is staffed with Game Wardens and Deputy Game Wardens. The RECB is responsible for ensuring that fish and wildlife laws on Camp Pendleton are enforced in accordance with federal and state laws, Marine Corps Orders, annual Base Bulletins, and other applicable regulations. The RECB provides personnel who are authorized as federal officers to enforce state and federal Fish and Game regulations and administer the Base's hunting, fishing, camping, and other outdoor recreational programs.

The Conservation Supervisor/Game Warden Supervisor is Camp Pendleton's law enforcement official for federal and state laws and regulations pertaining to fish, wildlife, and natural resources. The Conservation Supervisor/Game Warden Supervisor appoints Game Wardens and Deputy Game Wardens as required. Game Wardens and Deputy Game Wardens are authorized to conduct searches pertinent to fish, wildlife and natural resources, in accordance with federal and state laws, BO P5821.1 (Standing Operating Procedures for Legal Matters), and other Base regulations.

Duties of the Game Warden within the RECB include:

- Enforcement of natural resource regulations
- Enforcement of campfire restrictions
- Administration of the hunting, fishing, and undeveloped camping programs
- Patrolling the Base
- Implementing habitat conservation programs
- Responding to inquiries or problems involving wildlife
- Recovering selected injured wildlife and road kills
- Confiscating exotic pets
- Giving educational and instructional briefs to users of the Base
- Monitoring the locations of the Base's resident bison herd

Federal Citations (DD Form 1805) are used for federal violations of Fish and Wildlife laws. A copy of DD Form 1805 is forwarded to the Staff Judge Advocate with a complete report

prepared by the issuing officer describing the circumstances surrounding the alleged violation. Personnel are not detained by Deputy Game Wardens after citations have been issued. Resource contraband is seized and noted on the citation and in the report. Citations are adjudicated in the Federal Court in San Diego.

A Camp Pendleton Base Citation may be used to cite military personnel for violations of Base, federal or state regulations. A copy of the Base Citation is forwarded to the Commanding Officer of the person being cited with a complete report prepared by the issuing officer (if requested) describing the circumstances surrounding the alleged violation. Commanding Officers have the authority to impose punitive and non-punitive punishment under the Uniform Code of Military Justice for violations of regulations.

7.4.3 Provost Marshal's Office (PMO)

The Provost Marshal's Offices of MCB and MCAS provide overall law enforcement and physical security for Camp Pendleton and enforce federal and state laws and military regulations. Military Police provide physical security for and patrol Camp Pendleton. Working in conjunction with Range Operations Division and Game Wardens, the Military Police enforce restrictions and closures of areas to nonmilitary activities and apprehend civilian and military personnel involved in unauthorized activities in natural resources and training areas.

7.4.4 Semper Fit Division, AC/S MCCS

The Semper Fit Division of AC/S MCCS operates the recreation program aboard Camp Pendleton including recreation at the beaches and developed campgrounds. Lifeguards and management personnel help limit patrons activities in accordance with PIs established to help avoid and/or minimize adverse impacts to sensitive resources located near beaches and recreation facilities. In addition, beach campgrounds have a volunteer night host residing on site who helps to provide after hours supervision.

7.4.5 NEPA, Permitting, and Mitigation Follow Up

Upon receipt of permits, Biological Opinions, and other consultation documents, it is the Base's responsibility to ensure that terms and conditions, mitigation, and other nondiscretionary requirements are implemented. The AC/S Environmental Security and MCAS Environmental Department serve as the lead organizations for conducting post NEPA follow up.

7.4.6 Resident Officer in Charge of Construction (ROICC)

The Resident Officer in Charge of Construction is the command under the Naval Facilities Engineering Command, Southwest Division that is responsible for the post contract award

administration of construction, maintenance, and repair projects. Among other responsibilities, the ROICC acts as the Contracting Officer empowered to obligate the federal government and to enforce the contractual requirements for which a given contractor is responsible. In as much as NEPA documentation, permit and mitigation requirements are often passed along to the construction, maintenance, or repair contractor, the ROICC enforces the contract requirements and therefore certain environmental requirements and/or actions.

7.5 INFORMATION MANAGEMENT AND GIS

The management of information and the application and accessibility of GIS based data are essential to the integration and implementation of natural resource (ecosystem) management and planning at Camp Pendleton. First equipped with GIS capabilities in 1994, the Base has further expanded and refined the application of this tool basewide. Comprehensive, well maintained, and accessible GIS based data enable managers, planners, military trainers, and other users of Camp Pendleton to avoid potential land use conflicts through the spatial representation, analysis, and modeling of activities, planned actions, and sensitive resource management.

As many of the training areas and locations of sensitive resources are not demarcated in the field, GIS based maps are currently the primary tool for implementing programmatic instructions and for integrating land use and natural resource management in general. This geospatial technology has also provided Camp Pendleton with the potential for facilitated, and increased accuracy in, communication of changes in land use and natural resources information. In addition to increased efficiency in daily operations, well maintained and accessible GIS based data also improves the likelihood of success for long term, master planning.

Natural resource information management is complex because ecosystems and spatial data are complex and the data necessary to develop composite pictures are inherently cross disciplinary. Ultimately, the utility and efficacy of GIS based planning and analysis for natural resource management, integration, and implementation requires assurances of the quality and integrity of the data; skilled and knowledgeable system administrators; and adequate accessibility to the necessary technology by Base users, managers, and planners.

7.5.1 GIS/Systems Information Organizations on Camp Pendleton

Several organizations on Base are GIS capable; however, only a few organizations generate the data for end users and serve as the primary administrators of GIS based information. Organizations that generate and manage GIS data on Camp Pendleton include the Public Works Office (AC/S Facilities), Range Operations Division (AC/S O&T), the IS Branch (AC/S ES), and the Environmental Department at MCAS (see Chapter 1 for brief descriptions of the role and functions of each organization).

7.5.2 Information/Data Management, Dissemination, and Integration

7.5.2.1 PUBLICATION OF NATURAL RESOURCE DATA

Natural resource data is made available to the Base community through the publication of several maps. The Base Special Training Map, published by the Defense Mapping Agency, illustrates general land use and environmental and natural resources on Camp Pendleton at a scale of 1:32,500 (1 inch represents 32,500 feet). While this map is useful as a general reference, it is only revised every few years (the most current version, as of the publication of this document, was revised in October 1997) and the geospatial representation of data is not highly accurate for localized planning. To provide more up-to-date natural resource and land use information for general Base distribution, the AC/S ES IS Branch publishes a Natural Resource Map and an Environmental Constraints Map. Although revised more frequently than the Base Special Training Map, the Natural Resources Map is printed at a similar scale and is for general planning purposes only. Alternatively, the Environmental Constraints Map is published semiannually, at a larger scale for use in the field (approximately 1:24,000), and in a black and white format for mass copying and distribution. The Environmental Constraints Map is the primary natural resource reference map for Range Control, military trainers, Fire Department personnel, and Base managers and planners.

IS Branch of AC/S ES is in the process of developing an intranet web site to increase access to environmental compliance and natural resources related information. This web site will be used to disseminate environmental guidance, policy, natural resource data, GIS maps, and other information to Base managers and land users.

7.5.2.2 TECHNICAL INTEGRATED INFORMATION CENTER (TIIC) “LIBRARY”

The Technical Integrated Information Center is still in the development stages. The plan for TIIC is to become a state-of-the-art resource center providing quality information resources, virtual library resources, and services to support the Environmental Security mission. One objective of the TIIC program is to provide automated management of all Camp Pendleton environmental documentation for compliance with NEPA and MCO P5090.2A, including Environmental Assessments, Categorical Exclusions, and Environmental Impact Statements.

7.5.2.3 GIS/IS USER NEEDS ASSESSMENT

In 1997, efforts were begun to incorporate GIS technology within all areas of the Base's environmental and natural resource program. In 1997/1998, a comprehensive GIS/IS User Needs Assessment was completed identifying program requirements for GIS. The assessment identified over 100 potential applications of GIS technology within the Base's environmental program. In addition, the assessment provided an analysis of the data requirements of the entire program in accordance with the existing Tri-Service Spatial Data Standards.

7.5.2.4 BASEWIDE GIS INTEGRATION

In 1998, efforts continued towards implementation of a shared basewide GIS program. As a cooperative effort, the Base Policy and Technical Workgroups have continued working to establish a framework for the organized, sustainable implementation of GIS technology throughout the Base. Current efforts include establishment of metadata standards in accordance with Executive Order 12906, network connectivity between data partners, and the setting of geospatial data standards.

7.5.2.5 DATA STANDARDIZATION

The U.S. Army Corps of Engineer's Computer-Aided Design and Drafting (CADD)/Geographic Information System Technology Center for Facilities, Infrastructure, and Environment has been assigned to develop Spatial Data Standards (SDS) for Facilities, Infrastructure, and Environment (SDSFIE). The SDSFIE has focused on the development of graphic and nongraphic standards for GIS implementations at Air Force, Army, Navy, and Marine Corps installations, U.S. Army Corps of Engineers Civil Works activities, and other government organizations.

The SDSFIE provide a standardized grouping of geographically referenced (i.e., geospatial) features or objects (i.e., real-world) depicted graphically on a map at their real-world location (i.e., coordinates). Each geospatial feature has an "attached" attribute table containing pertinent data about the geospatial feature.

The SDSFIE is the only "nonproprietary" GIS standard designed for use with the predominant commercially available off-the-shelf GIS and CADD (e.g., Environmental Systems Research Institute ArcInfo and ArcView; Intergraph MGE and GeoMedia; AutoDesk AutoCAD, Map and World; and Bentley MicroStation and GeoGraphics), and relational database software (e.g., Oracle and Microsoft Access). This nonproprietary design, in conjunction with its universal coverage, has propelled the SDS into the standard for GIS implementations throughout the DoD, as well as the de facto standard for GIS implementations in other federal, state, and local government organizations; public utilities; and private industry throughout the U.S. and the world.

The SDSFIE (along with the Facility Management Standards for Facilities, Infrastructure, and Environment [FMSFIE]) is distributed via CD-ROM and the Internet (<http://tsc.wes.army.mil>). A user friendly interactive Microsoft Windows-based software application installs the SDSFIE/FMSFIE "Browser" and "Generator" applications on desktop computers and networks. The "Browser" application provides viewing and printing capability. The "Generator" application generates Structured Query Language code for construction of the GIS database.

The CADD/GIS Technology Center annually updates and expands the SDSFIE. Prior to July 1999, the SDSFIE was known as the Tri-Service Spatial Data Standards and the FMSFIE was known as the Tri-Service Facility Management Standards. The SDS/FMS Release 1.90 and 1.95 were completed in December 1999 and April 2000, respectively. The

SDSFIE/FMSFIE Release 2.00 was completed in January 2001.

7.6 ENVIRONMENTAL PLANNING

Efficient and well coordinated planning is vital to the training mission of Camp Pendleton. The environmental portion of the planning process requires compliance with several interrelated laws and regulations designed to ensure that federal agencies assess, in detail, the potential environmental impacts of their actions that could significantly impact the quality of the environment. Project delays can cost the government both financially as well as in staff time and missed training opportunities. Environmental site review conducted late in the planning process, particularly due to endangered species and cultural resource mandates, can cause uncertainties and delays in project implementation. However, conducted early in the design and site selection process it can become a positive and flexible tool rather than a negative one.

The wide variety of land uses and organizations involved in land use decisions on Base requires that environmental and project planning processes are comprehensive and well integrated. The NEPA process (and the organizational structure to support this process) is key to ensuring the integration of land use and planned actions on Base. Initial planning stages of proposed actions must be integrated with the NEPA process “to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to preclude potential conflicts” (32 CFR Ch.1, Part 188). To accomplish this integration, land use and NEPA planning functions need to be assigned together, with as much accountability as possible. The Resource Planning Division of AC/S Environmental Security handles most environmental planning functions for MCB Camp Pendleton and the Environmental Department handles most environmental planning functions for MCAS Camp Pendleton.

Natural resource impact assessments are part of the NEPA process and help ensure that the planned projects are in compliance with federal laws and Base regulations. Mitigation planning is also essential for project support and the effective integration of land use and natural resource management. Beyond project specific planning, long term and master planning help to guide natural resource and land use integration through time, ensuring planned actions are consistent with basewide goals and objectives.

Base planning is integrated with the ECE process (Section 7.3, Environmental Inspection and Compliance) to assist commanders in identifying and correcting compliance gaps. The Commandant of the Marine Corps has issued policy which stresses the need to anticipate environmental issues and “take affirmative steps” to assure compliance (USMCB White Letter 9-91). He brings the responsibility and need to limit liability back to the planning process by suggesting the following steps, among others:

- Consider environmental issues during planning;
- Clearly designate responsibility for compliance;
- Provide staffing, organization, and training of those responsible for compliance; and
- Document environmental management efforts.

7.6.1 Planning Structure and Process

The primary planning tool used by Camp Pendleton to evaluate projects and actions potentially affecting the human environment and to coordinate these projects and actions with Camp Pendleton's environmental management programs is the NEPA. NEPA is the basic national charter for the protection of the environment (MCO P5090.2A) and requires federal agencies to assess, in detail, the potential environmental impacts of their actions that could significantly affect the quality of the environment. The AC/S Environmental Security administers the NEPA process for MCB Camp Pendleton and the MCAS Environmental Office administers the NEPA process for MCAS Camp Pendleton to ensure compliance. These offices have the duty to ensure NEPA compliance has been accomplished.

The NEPA process is intended to help decision makers make informed decisions that are based on an understanding of environmental consequences and take action that protects, restores, and enhances the environment. Agencies are to use a "systematic, interdisciplinary approach" that integrates the natural and social sciences and environmental design. While NEPA requires consideration of more than the natural environment, NEPA provides decision makers and managers with a process to identify and assess natural resource issues, constraints, and options.

NEPA requires a detailed statement of significant environmental impacts of major federal actions. For example, an action may be considered significant if it has a long term impact or potential risk because of its effect on a species protected under the federal ESA. The process identifies reasonable alternatives to proposed actions that might have less or no environmental effect. Individual and cumulative impacts must be considered. The following three-tiered approach is used to document impacts:

- Categorical Exclusions are used for actions that do not individually or cumulatively have a significant effect on the human environment and therefore do not require preparation of an environmental assessment (EA) or environmental impact statement (EIS).
- An EA is the analysis to be completed when the government is uncertain as to whether an action will significantly affect the environment or whether the action is controversial; the result of an EA is either a Finding of No Significant Impact or a requirement to complete an EIS.
- An EIS is a full-disclosure document that presents a full and complete discussion of significant impacts, informing the public and decision makers of reasonable alternatives to the proposed action.

Camp Pendleton has established Base specific regulations to guide NEPA procedures (BO 5090.2A) that lay out roles and responsibilities and the procedures to be followed to ensure potential impacts to the environment are assessed, documented, and considered before the decision is made to proceed with an action or project. This Base NEPA Order established a comprehensive program, with varying levels of decisional authority to Base entities, to

ensure that all federal actions are conducted in compliance with NEPA. The Base Order identifies data needs and level of required NEPA documentation, clearly delineating responsibilities for environmental review. Camp Pendleton's NEPA documents incorporate natural and cultural resource programmatic and specific instructions as conditions for the conduct of projects and actions.

MCAS is developing a programmatic Environmental Assessment for infrastructure development and maintenance. This planning document will be based on the MCAS Master Plan and will provide "umbrella" NEPA coverage for MCAS facilities. NEPA analysis for future actions will be tiered from this Environmental Assessment.

7.6.2 Natural Resource Review

As part of project planning at Camp Pendleton, careful consideration is given to project siting relative to natural resources. This effort supports the Base's overall conservation strategy of avoiding development of areas with high densities of threatened or endangered species, vernal pools, and other wetlands. A benefit of this strategy is the reduction of delays in project approvals and decreased costs by avoiding sensitive and regulated natural resources.

Major laws governing potential impacts on federal threatened or endangered species, wetlands and migratory birds are the ESA, CWA, and MBTA, respectively. The requirements of these Acts are summarized in this section to facilitate consideration early in the planning process and provide an understanding of areas that will be reviewed by Base and regulatory agency staff.

7.6.2.1 ENDANGERED SPECIES ACT (ESA)

When evaluating actions potentially affecting threatened or endangered species, planners (e.g., Public Works Department, AC/S O&T, AC/S MCCC, AC/S ES) must take into account the requirements of the ESA and the time lines needed for compliance. Formal consultations with the USFWS pursuant to Section 7 of the ESA (50 CFR 402) are required prior to federal agencies authorizing, funding, or implementing proposed actions that may affect a threatened or endangered species or its critical habitat. Preparation of a Biological Assessment is required before initiation of formal consultation.

The time required to prepare a Biological Assessment depends on the complexity of the proposed action and the magnitude of the potential effects on the species of concern. Potential requirements for additional information (e.g., surveys) can extend the time line for completion of the Biological Assessment. Anywhere from a few weeks to over a year may be required to finalize a Biological Assessment before it can be submitted to the USFWS as part of the request to initiate formal consultations. Once formal consultations are initiated, the consultations can be lengthy. Formal consultations involve up to a 90-day consultation period, and an additional 45-day period for the USFWS to prepare a Biological Opinion (135-day total). Either the lead agency or USFWS can request an extension of the formal consultation period but such extensions require mutual agreement. Conditions that may

require an extension include complex issues or circumstances for which additional data (e.g., surveys) may be needed in order to avoid a jeopardy decision in the Biological Opinion.

A Biological Opinion is the USFWS opinion resulting from the formal Section 7 ESA consultation. It is a written statement from the USFWS regarding its opinion on the proposed federal action and a summary of the information upon which the opinion is based, including how the proposed federal action affects the species or its critical habitat. The Biological Opinion provides nondiscretionary Reasonable and Prudent measures that must 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.

A Biological Opinion is required for actions that may affect a threatened or endangered species so as to avoid violations under Section 9 of the ESA. Section 9 of the ESA prohibits the take of a threatened or endangered species. A take includes the direct killing, harming, or harassing of a species, or destruction of habitat that may be important for the species' survival or recovery. The term "harass" in this definition has been further defined to mean "...an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3)."

Part of a Biological Opinion is the issuance of an incidental take that authorizes take as long as it does not violate the terms and conditions established in the Biological Opinion. Terms and Conditions can involve additional costs relative to mitigation requirements, which may include compensation for lost resources, minimization of, and avoidance of impacts on threatened or endangered species or critical habitat. Such potential costs need to be considered as part of project planning and construction.

Endangered Species Act consultations are accomplished for Camp Pendleton through the AC/S Environmental Security for MCB and the Environmental Officer aboard MCAS. For proposed nonmilitary actions on Camp Pendleton, the action proponent bears the responsibility for preparation of a Biological Assessment along with the documentation necessary for execution of consultation/conferencing requirements. Species and habitat information possessed by Camp Pendleton can be made available to action proponents; however, the proponent shall accomplish any needed supplementation or field verification. For nonfederal proposed actions on Base, Camp Pendleton, as a federal agency, is required to complete a Section 7 consultation/conference with the USFWS *prior to* authorizing or funding a proposed action which may affect a proposed or listed threatened or endangered species. This is Camp Pendleton's requirement regardless of any requirement the action proponent may or may not have regarding such species. All approvals will be conditioned upon the action proponent's commitment to fund and/or implement the Reasonable and Prudent Measures with associated Terms and Conditions that result from this consultation/conference procedure.

Camp Pendleton has developed Section 7 consultations that programmatically address ongoing training, routine and reoccurring maintenance, and a number of specific projects. These programmatic consultations both eliminate the requirement for individual consultation

on activities or projects when programmatic instructions are followed and establish a process for determining specific mitigation requirements and criteria for reinitiating consultation on large projects. An activity/consultation classification system was included in the Riparian and Estuarine/Beach Biological Opinion (1-6-95-F-02) and proposed Biological Assessment of Upland Habitats to: (1) manage the conduct of future consultations; (2) reduce staffing requirements; (3) provide a systematic approach to deal with future proposed projects, activities, and operations; (4) increase the Base's mission flexibility; (5) satisfy Section 7(e)20 requirements of the ESA for future programmatic consultations; and (6) define the level of formal consultation required for activities and projects.

7.6.2.2 CLEAN WATER ACT

Clean Water Act permitting for Marine Corps actions on MCB Camp Pendleton are processed by the AC/S Environmental Security and by the MCAS Environmental Office for actions on MCAS Camp Pendleton. Preparation of permit application and associated information, wetland delineation, and other applicable information is the responsibility of the action proponent. Permitting necessary for non-Marine Corps proposed actions shall be accomplished and funded by the action proponent in coordination with Camp Pendleton staff. Completion of the regulatory permitting process is required for all federal and nonfederal actions prior to receiving final approval to implement the requested action.

For proposed actions involving navigable waters, including some wetlands, the requirements of the CWA need to be considered. The CWA contains specific provisions for the regulation of the disposal of dredge soil and materials within navigable waters. Permits are required under Sections 401, 402, and 404 of the CWA for proposed actions that involve wastewater discharges and/or dredging/placement of fill in regulated wetlands or navigable waters. These permits are required *prior to* the initiation of proposed actions.

Section 404 of the CWA addresses the discharge of dredge or fill material into waters of the United States, including some wetlands (definitions at 40 CFR 230.3 [s] and [t]). The term "waters of the United States" is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands. In general, wetlands are areas inundated or saturated by surface or ground water to the extent that they support vegetation adapted for saturated soil conditions (e.g., vernal marshes, and vernal pools). However, some wetlands do not meet the definition of "navigable waters" and are not regulated under the CWA. A discharge is any material that results in a change in the bottom elevation of a water body or regulated wetland, including grading, road fills, stream crossings, building pads, and flood and erosion control on stream banks. Regulatory authority has been delegated by the EPA to the U.S. Army Corps of Engineers for Section 404. Nationwide and individual permits are options for meeting the requirements of Section 404.

The ACOE has developed a series nationwide permits that pre-authorize certain minor discharges provided they meet certain conditions (e.g., construction of outfall structures, backfill or bedding for utility lines, fill for bank stabilization, and minor road crossings). Use of most nationwide permits requires review by the ACOE and possibly other federal agencies. Notification of the ACOE is usually required, and applicants must meet conditions

outlined in the regulations and ensure the proposed project does not conflict with other federal laws (e.g., ESA, NEPA). Discharges that do not meet the conditions of a nationwide permit require an individual permit.

The individual permit process is much more complex and time consuming than the nationwide permit program. Typically the application process involves a pre-application meeting (if requested), permit application process, the posting of a public notice to allow for public comment, and a final decision by the ACOE in which the ACOE indicates its readiness to prepare an EA (or cause one to be prepared), Public Interest Review, and 404(b)(1) Evaluation. If the conclusion is that the action will cause significant impacts, then the ACOE must prepare an EIS (or cause one to be prepared). Further, all ESA requirements must be fulfilled before a permit can be issued.

Section 402 of the CWA addresses requirements for storm water discharges into natural drainages and is administered by the U.S. Environmental Protection Agency. Section 401 addresses water quality issues and requires issuance of a Water Quality Certification by the Regional Water Quality Control Board before a Section 404 Permit can be issued. The state may charge a fee for Section 401 permitting, although waivers can also be issued.

The CWA also requires federal agency consistency with state nonpoint source pollution management plans. Nonpoint source pollution results from ground disturbing actions such as construction, military training, and firebreak construction. Marine Corps' policy is to support the development and implementation of nonpoint source pollution management programs that ensure water quality protection. This is typically accomplished through the use of Best Management Practices. As defined by MCO P5090.2: "...BMPs are practical, economical, and effective management or control practices that reduce or prevent water pollution or adverse impacts to natural resources." BMPs are applied as a system of practices based on site specific conditions rather than a single practice. BMPs are usually prepared by state agencies for land-disturbing activities related to agriculture, forestry, and construction.

7.6.2.3 EXECUTIVE ORDERS: WETLANDS AND FLOODPLAINS

In addition to implementing requirements of the CWA, Camp Pendleton also must administer Executive Order 11990, which directs all federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands as well as to preserve and enhance the beneficial values of wetlands. Marine Corps Order P5090.2 (under NEPA requirements) requires that all proposed land uses that would impact the quality or quantity of tidelands or freshwater wetlands be evaluated by a minimum of an Environmental Assessment. In a similar manner, Camp Pendleton complies with Executive Order 11988 that directs federal agencies to provide leadership in avoiding direct or indirect development of floodplains, as well as to restore and preserve the natural and beneficial values of floodplains.

7.6.2.4 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act is an international agreement between the United States, Canada, and Mexico that protects designated species of birds. Virtually all birds are protected under the MBTA, with 4 exceptions (California quail [*Callipepla californica*], English sparrows [*Passer domesticus*], common pigeons [*Columba livia*], and European starlings [*Sturnus vulgaris*]). A complete list of all species of all migratory birds protected by the MBTA can be found at 50 CFR 10.13. The MBTA controls the taking of these birds, their nests, eggs, parts, or products. As part of planning and/or approving construction, re-construction, and maintenance actions, steps need to be taken to avoid impacts on migratory birds, their nests, and young. Wording needs to be placed in all contracts and work orders to prevent work delay costs to the government that may result from the presence of bird nests in work areas. The AC/S Environmental Security, Natural Resources Department, can provide contractual language prepared for and approved by the Navy for construction contracts on Camp Pendleton.

Federal agencies must obtain permits to take, possess, and transport migratory birds for scientific collecting and for the control of depredating birds or birds that pose a threat to human health and safety (referred to as "conflict management activities"). Killing of migratory birds is not permitted unless authorized to do so in the permit. Permits are not required for incidental takes of migratory birds due to training.

A recent Executive Order (EO 13186) directs each federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with the U.S. Fish and Wildlife Service to develop an agreement to conserve those birds. The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts, or other agreements; and the creation of or revisions to land management plans. In addition to avoiding or minimizing impacts to migratory bird populations, agencies will be expected to take reasonable steps that include restoring and enhancing habitat, preventing or abating pollution affecting birds, and incorporating migratory bird conservation into agency planning processes whenever possible.

The specific requirements of Executive Order 13186 will be detailed in an MOU by and between the DoD and USFWS. DoD has two years to complete the MOU and is developing guidance for this interim period. The thrust of the guidance is to comply with the intent of the Executive Order, ensuring where installation activities may result in adverse impacts to migratory birds, such impacts are considered, and where appropriate, mitigated through NEPA planning processes.

7.6.3 Mitigation

Mitigation, as discussed here, is lessening the adverse effects an undertaking may cause relative to natural resources. Mitigation can include avoiding the effect altogether; limiting the magnitude of the action; repairing, rehabilitating, or restoring the affected resource; reducing or eliminating the effect over time by conservation and maintenance operations during the life of the action; and/or compensating for the effect by providing substitute

resources or environments (DoDI 4715.3, Definitions). In general, regulatory agencies' preferred order of performing mitigation is avoidance, then minimization, then compensation in kind, and then compensation out of kind. Mitigation to be proposed for a specific impact will be addressed on a case-by-case basis. The action proponent is responsible for ensuring that mitigation requirements for a proposed action are planned, funded, and implemented. As the action proponent typically does not have in-house expertise for conducting the biological elements of mitigation requirements, these actions are often accomplished through contractual agreements. The AC/S ES oversees any mitigation actions that require restoration, enhancement, monitoring, etc. of the resources. Generally, mitigation requirements in compensation for impacts by nonmilitary actions on Camp Pendleton will be accomplished off of the Base. Further, Camp Pendleton cannot be used for mitigating the impacts of actions occurring off Camp Pendleton that affect natural resources (DoD Instruction 4715.3, paragraph F.1.i [3]).

The following briefly describes ongoing mitigation, mitigation planning, general mitigation requirements, and presents two options for mitigating future actions: mitigation banking and conservation agreements.

7.6.3.1 EXISTING MITIGATION ACTIONS

Mitigation obligations relative to impacts from ongoing training, operations, and specific projects in riparian and estuarine areas are described in the Camp Pendleton Biological Assessment, and USFWS Biological Opinion, prepared for the Riparian and Estuarine/Beach Programmatic Conservation Plan (1-6-95-F-02) completed in 1995. A Biological Assessment of Upland Habitats, in support of training activities in upland areas, was completed in March 2000, when the Base entered into formal consultation with the USFWS. This BA proposes a suite of actions as mitigation for temporary impacts resulting from training. Besides mitigation stipulated in USFWS Programmatic Biological Opinions for ongoing training, mitigation commitments are identified in Biological Opinions developed for specific projects and 404 permits for impacts to jurisdictional wetlands and waters of the U.S.

7.6.3.2 MITIGATION PLANNING

As part of mitigation planning, careful consideration must be given to the siting of proposed actions and potential compensating mitigation relative to existing land uses and natural resources early in the planning process. As part of Camp Pendleton's ongoing efforts to avoid and/or minimize impacts to threatened or endangered species, vernal pools, other wetlands, and constrained regional habitat linkages, first consideration will be given to use of marginal or nonnative vegetation areas. This will, in turn, enable planners to reduce costs (in terms of funding, manpower, and time) to plan, obtain regulatory approvals, and implement proposed actions. Locating suitable mitigation sites on Camp Pendleton that will not conflict with military operation requirements is becoming increasingly difficult.

Persons planning and/or preparing mitigation actions need to be aware that military lands cannot be set aside as permanent environmental preserves. The DoD, and the Marine Corps

in particular, must maintain the flexibility to adapt its defense mission to political and technological developments (DoDI 4715.3, paragraph F.1.i [4]).

Project specific requirements and details that are appropriate for a proposed action cannot be provided in this INRMP since such specifics must be tailored to each individual project and determined through applicable consultation and permitting processes in coordination with regulatory agencies. In general, however, advanced planning/coordination, adequate analysis of alternative, and the minimization of adverse impacts reduce the time required for regulatory agency consultation and permitting and lowers project and associated mitigation costs.

The minimization of adverse impacts may involve modification of building design or orientation, adjustments to the exact siting, and monitoring activities carefully to avoid unnecessary and incidental resource damage. Limitations on the timing of activities are also often required for avoiding and minimizing adverse impacts to natural resources. Timing limitations may involve avoidance of work during the active growing or breeding period for the resources involved. Such avoidances and minimizations are usually a requirement of regulatory approvals and permits necessary for compliance with the ESA and CWA. Failure to acknowledge and plan for these limitations on activities often results in increased costs due to construction work stoppage, additional resource mitigation requirements, and delayed mission accomplishment.

The cost of mitigating impacts to natural resources should be considered when evaluating proposed action alternative locations and planning for funding. Mitigation must be treated as part of the project that will be fully funded by the action proponent. Some environmental authorizations and permitting require mitigation funding to be secured and assured prior to causing adverse affects. Resource mitigation costs can be highly variable depending on the specific details of the project (e.g., extent of habitat impacts, type of habitat impacted, duration of impacts, habitat compensation site conditions, and technologies). Provisions of actual cost estimates for mitigation on a “per acre impacted” basis are too variable and project specific to be presented here. Technical natural resource specialists should be contacted during project planning to assist with estimating the likely mitigation costs associated with a proposed action. Cost considerations for impact prevention during action implementation need to be accounted for, as well as habitat restoration and/or compensation (e.g., biological monitoring, placing protective signs/fencing, sedimentation controls, etc.).

Beyond the financial costs of mitigation actions, the effects on future land use must also be considered. These “costs” can seriously affect the future flexibility of military mission accomplishment. As an example, if one acre is permanently lost and must be compensated for at a 2:1 ratio due to its high value, the compensation would require restoring two acres of habitat elsewhere. The two acres of habitat created in compensation for one acre lost, must then be treated as high habitat value where those acres previously had a very low habitat value resulting in a total of three acres with increased limitations on training.

Agreements with the USFWS made in advance of proposed actions may provide flexibility in mitigation requirements and post mitigation land use restrictions. Such agreements may include mitigation banking, a return to pre-mitigation training restrictions following

successful mitigation, mitigation initiatives that do not directly involve habitat restoration/enhancement, and off-Base mitigation (see also Section 7.6.3.4). Mitigation banking (mitigation conducted in advance of planned actions) typically reduces the mitigation ratios required for planned actions. The Biological Assessment of Upland Habitats has additionally proposed that following successful restoration (e.g., after adequate vegetation regrowth), a mitigation site will not be subject to any training related PIs beyond that required for the site prior to restoration. The proposed management program also incorporates some flexibility in the mitigation strategy for new projects by allowing future mitigation requirements to be fulfilled, at least in part, by conservation actions other than habitat enhancement or restoration on Base. This strategy is intended to encourage mitigation initiatives that are supportive of recovery, such as investigative research, increased monitoring, and off-Base recovery efforts, while not increasing restrictions on the military mission.

All actions that require active habitat restoration, enhancement, and/or compensation must have an appropriate plan developed prior to implementation. Such plans must discuss the site conditions, methods to be implemented, monitoring and maintenance (usually 3 to 5 years), success criteria, remedial actions if expected success is not being achieved, and reporting requirements. The plans must ensure that all applicable requirements of regulatory approvals are incorporated. Review and approval of plans must be accomplished through the AC/S Environmental Security. In addition, regulatory agencies often require that they have an opportunity to review and approve plans where their authorization is needed for resource impacts.

7.6.3.3 GENERAL MITIGATION REQUIREMENTS

Many components of mitigation actions are common to most situations. The following mitigation measures should be planned for all proposed actions unless a determination can be made, in consultation with Natural Resources Department (AC/S ES) staff, that they are not appropriate:

- The first step in mitigation planning should be avoidance of impacts. The primary purpose of mitigation is to lessen the severity of an action. Thus, once avoidance has been implemented to its fullest extent, remaining impacts should be minimized prior to consideration of off-site compensation for damaged resources as a last resort. This must be the first step in the mitigation planning process because numerous regulatory authorizations require demonstration of maximum impact avoidance and minimization before authorization may be given.
- Indirect effects of a proposed action must be addressed when planning mitigation. Indirect effects have an impact at some point later in time. This may be the case where use and maintenance of a new facility is likely to have an adverse effect beyond the building “footprint” following construction. For example, fencing may be necessary to prevent landscape maintenance and concentrated human foot traffic from damaging naturally occurring resources that were avoided by the construction of a building. Often, maintenance and safety considerations associated with new or re-

utilized facilities, such as wildfire fuelbreaks, are overlooked by planners and are not realized until the project is implemented. Such considerations must be treated as part of the initial project and mitigated accordingly.

- In addition to readily observable direct habitat loss, less tangible direct and indirect effects may result from a proposed action. These potential effects must be evaluated and mitigated. A common concern is noise associated with construction and subsequent use that extends beyond the immediate work or activity area. As a general rule, noisy construction activities need to be kept far enough away from noise sensitive threatened and endangered species such that the level in the occupied habitat varies little from background. With least Bell's vireos (*Vireo bellii pusillus*) and California gnatcatchers (*Polioptila californica californica*), separation of at least 500 feet from active nests is often required if the breeding season cannot be avoided. Other examples include outdoor lighting that may require shielding, visual harassment by human activities and equipment operation, changes to wetland hydrology, and sedimentation from construction sites to wetlands. Often the temporary effects that may result from construction are avoided by performing work outside the sensitive breeding and growing seasons as presented in this planning guidance. Other effects that are likely to have a longer or permanent adverse effect must be mitigated.
- Threatened or endangered species presence or absence determinations must be made using survey guidelines developed by the U.S. Fish and Wildlife Service or other means acceptable to them. Where no such guidelines or protocols exist, surveys must be conducted by qualified persons (see minimum criteria for biological monitor, below) using methods recognized and accepted in the professional consulting field. When making presence/absence determinations relative to a project, areas where indirect effects may adversely impact a species must be considered as well. If a habitat is used by a species for some important part of their life cycle, it is considered occupied regardless of whether the species is temporarily absent. Survey protocols or draft protocols have been developed for all federally listed species found on Camp Pendleton.
- An on-site biological monitor is typically required for all proposed actions that require active avoidance, are expected to affect threatened or endangered species or wetlands (including vernal pools), or require active revegetation or habitat compensation. The role of the biological monitor is to educate workers regarding applicable natural resource related issues, oversee and implement impact avoidance and minimization, document impacts, and/or guide revegetation efforts. At a minimum, this individual must have: (1) a bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) demonstrated local experience with the resource(s) involved; and (3) a good understanding of the regulations regarding wetlands and endangered species.
- Proposed actions must include requirements for impact avoidance and minimization measures as part of implementation of any proposed action. Measures which should be considered are: worker environmental protection briefings, signs, markers,

protective fencing, exclusion fencing, biological monitoring, erosion and sedimentation prevention, noise baffling, and temporary impact restoration. These measures should be included as part of an Environmental Protection Section in all Standard Operating Procedures, work requests, and contracts effecting natural resource areas.

- The Migratory Bird Treaty Act and implementing regulations and orders generally protect migratory birds. On Camp Pendleton, all birds but four are covered under the MBTA. Planners must review proposed actions with regard to conduct of actions during the active breeding seasons (can be January through September) and project caused loss of traditionally used nesting/roosting sites. Habitat clearing activities should be timed to avoid breeding seasons to the maximum extent practicable to avoid damage to active bird nests. Compensation for the loss of traditionally used nesting/roosting sites may be an issue for raptors and colonial nesters, such as herons. All contracts and work orders prepared for Camp Pendleton must include provisions in an Environmental Protection section that prohibit harming, damage, or destruction of active bird nests while requiring “work arounds” without incurring additional cost. The Natural Resource Department (AC/S ES) can provide contractual language for construction contracts.
- Mitigation actions that involve habitat compensation or enhancement on Camp Pendleton must be planned to support or be compatible with training requirements, long term natural resource management programs, and the Base Master Plan where possible. Site evaluations and approvals for habitat compensation and enhancement must be initiated concurrently with proposed action planning, whenever possible. The ideal situation would be for the actual habitat work to start concurrently or before the action causing an impact. The Base may seek opportunities to mitigate at off-Base locations to contribute to the regional recovery efforts for the species and to maintain mission flexibility on Base. Off-Base mitigation sites should be selected in cooperation with regional planning and conservation agencies and approved by the Service.

7.6.3.4 FUTURE MITIGATION ALTERNATIVES: MITIGATION BANKING AND CONSERVATION AGREEMENTS

Mitigation banking is defined as "actions taken to compensate for future adverse effects of undertakings by providing resources or environments in advance of any specific undertaking" (DoDI 4715.3). The primary objective of mitigation banking is to receive credit for habitat improvement or conservation towards mitigation for future projects.

In recent years, many large-scale mitigation land banks have been established in California. With twenty mitigation banks in operation or being established, San Diego County has more mitigation banks than in all other counties of the southern California region (i.e., San Luis Obispo, Kern, and San Bernardino counties south to the international boundary). Examples of mitigation banks in San Diego County include O'Neal Canyon, Rancho San Diego, Ramona, and Upham. These last two focus on vernal pools. The size of the banks ranges

from 25 to 1,840 acres. Given the expanding requirements for training and existing constraints to land use, first consideration would be given to establishing mitigation banks off of Camp Pendleton as an option for meeting natural resource mitigation requirements. The possibility of contributing funds to a third party towards purchase of preserve lands within the MSCP study area will be explored in revisions to this INRMP.

A conservation agreement is a formal document agreed to by the USFWS and other cooperators that identifies specific actions and responsibilities for which each party agrees to be accountable. The objective of a conservation agreement is usually to reduce threats to a candidate or proposed species or its habitat, possibly lowering the listing priority or eliminating the need to list the species. Conservation agreements are usually less restrictive than mitigation banks and do not require transfer of ownership (Foreman 1997). When appropriate, Camp Pendleton will consider the option of a conservation agreement. MCAS Yuma has recently (6 June 1997) entered a conservation agreement to help conserve the flat-tailed horned lizards (*Phrynosoma mcallii*) on the Barry M. Goldwater Range in Arizona. This species was proposed for federal listing as threatened but the proposal was withdrawn as a result of the signing of the conservation agreement.

If mitigation banking and/or conservation agreements are considered, there must be early involvement of USFWS and other agencies. Such agreements include mechanisms by which future Section 7 consultations and accompanying Biological Opinions will direct mitigation requirements. For example, Terms and Conditions of future Biological Opinions that involve the set-aside or special management of habitat would draw on a mitigation bank or conservation agreement. This would allow comprehensive long-term mitigation planning, rather than project specific or activity specific mitigation.

7.6.4 Long Range and Master Planning

Long range environmental planning is key to successful natural resource management integration, implementation, and compliance. Long range planning helps to ensure that Base activities (including development projects, recreation programs, natural resource management initiatives, etc.) are consistent with natural resource management goals and objectives, and that those goals and objectives are consistent with the military mission. Long range planning helps to ensure the integration of, and consistency among, planned actions.

The INRMP itself is an important long range planning document for developing environmental baseline information to support activity and operational planning, formalizing natural resource goals and objectives, establishing planned actions to help meet those goals and objectives, and integrating actions and responsibilities basewide. The INRMP review and revision process (Section 7.8) is as important as the document itself, providing a venue for self-evaluation, communication, and further refinement of long range planning and integration.

It is important that the INRMP be fully integrated with other planning documents on Base, especially the MCB and MCAS Master Plans. Master plans typically extend to a 20- to 30-year period, whereas the INRMP provides a planning period of five years. The INRMP may

identify designated sensitive areas with land use restrictions. It is imperative that natural resource managers coordinate such restricted areas with the master planners so that, at a minimum, they can be incorporated into the master planners' maps and GIS databases. The MCB Master Plan focuses primarily on the development of facilities and is in the process of being up-dated and integrated with other long term planning documents on Base (including those for training, fire management, and natural resource management). Likewise, the Air Station is currently updating its masterplan into an electronic format. The INRMP is expected to complement and be fully compatible with the Master Plans and support strategic planning. To be comprehensive, all of the existing planning related documents should be integrated and any missing planning components should be added. Future planning is being developed to examine these land use subjects together, not separately.

7.7 PROGRAM AND PROJECT FUNDING

Costs associated with the execution of High Priority Planned Actions and Other Planned Actions must be determined at the earliest practicable stage of a proposed action. The Base organization responsible for implementation of the action is responsible for budgeting for and funding the action.

Budget development and INRMP implementation are both continuing and interrelated processes. Natural resource funding requests should support the INRMP planned actions and vice versa. While not all natural resource related expenditures are identified within the INRMP (e.g., staff, supplies, overhead funding), all planned actions within the INRMP *that require funding* should be incorporated into budget planning documentation (e.g., Program Objectives Memorandum and biannual budgets). As budgets are reevaluated and funding allocations change, so must INRMP planned actions, prioritizations, and implementation years be adjusted, be reevaluated and possibly reprioritized. The tracking and monitoring of progress toward INRMP goals and objectives and the adaptive management of resources will require revisions/reprioritizations of INRMP planned actions and corresponding budget requests.

Camp Pendleton will seek appropriate funding and will set priorities based on the amount of funds actually received. The High Priority Planned Actions within this INRMP are those actions that Camp Pendleton commits to implementing within the duration of the plan. From a funding perspective, High Priority Planned Actions that require funding can generally be compared to Class 1 or Class 2 budget projects. (Class 1 projects are those that must be done because the Base is out of compliance and therefore must be funded in the current fiscal year to correct the noncompliance situation or to remain in compliance in the current fiscal year. Class 2 projects are those that should be funded in order to remain in compliance within the deadlines given for compliance.) Other Planned Actions are identified for implementation as funding and resources permit and can generally be compared to Class 3 projects (those that are not explicitly required by law but support natural resource management goals and objectives).

The following sources provide the primary funding to meet natural resource and environmental requirements: Naval Working Capital Fund; Military Construction; Operation

and Maintenance, Marine Corps; Operation and Maintenance, Marine Corps Reserve; reimbursable Agricultural Outlease, Forestry, and Fish and Wildlife Access Fees; Qualified Recycling Program Revenues; and the Defense Logistics Agency, Defense Fuel Supply Center funds

7.8 INRMP EVALUATIONS AND UPDATE PROCESS

Natural resource management is a dynamic process and as such management plans often require frequent reviews and updates. Following completion of the INRMP, periodic reviews and updates will be conducted to account for changes in the military mission, condition of natural resources, the ecosystem and regulatory requirements. The AC/S ES Strategic Environmental Planning Branch has been assigned responsibility to coordinate reviews. In order to comply with regulations and ensure the continued usefulness of this plan, reviews will be conducted as follows:

- **Semiannual Review.** Natural resource management objectives, High Priority Planned Actions, and Other Planned Actions will be reviewed semiannually with the appropriate managers to document progress, identify additional actions required or desired, and revise schedules and priorities. This quarterly review will help keep the INRMP current and relevant with the incorporation of new projects, additional data, new understanding of natural processes and species, and lessons learned from completed and on going projects and practices.
- **Annual Review.** Annually, the INRMP will be reviewed to assess the effectiveness of integration linkages. Findings from this annual review will be presented as part of an Environmental Impact Review Board meeting to update senior Base leaders of the status and effectiveness of the plan.
- **Five-Year Review.** The five-year revision and reapproval update will follow a development process similar to the initial development of this document including formal submission for review and comment by the U.S. Fish and Wildlife Service, California Department of Fish and Game, and the public.