SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT OF NOAA FISHERIES' IMPLEMENTATION PLAN FOR THE COMMUNITY-BASED RESTORATION PROGRAM

A Process for Habitat Restoration Grants

June 2006

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT OF NOAA FISHERIES' IMPLEMENTATION PLAN FOR THE COMMUNITY-BASED RESTORATION PROGRAM

JUNE 2006

(a) Lead Agency(s):	National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Fisheries Restoration Center
(b) Proposed Action:	Award community-based grant funds to undertake a variety of habitat restoration, land and easement acquisition, erosion reduction, public outreach, and restoration research activities.
(c) Locations:	Coastal and marine environments in the United States.
(d) Responsible Official:	Mr. Christopher Doley, Division Chief NOAA Restoration Center (301) 713-0174

Abstract: This supplemental programmatic environmental assessment (S-PEA) evaluates the potential impacts of the proposed action on the physical and human environment. The proposed action is to award community-based grant funds (primarily as cooperative agreements with substantial federal involvement) to undertake a variety of coastal and marine habitat restoration activities, including habitat restoration, land and easement acquisition, erosion reduction, public outreach, and restoration research. The S-PEA supplements the existing programmatic environmental assessment (PEA), *NOAA Fisheries' Implementation Plan for the Community-based Restoration Program* (NOAA 2002). Together, the programmatic documents evaluate the Community-based Restoration Program's (CRP) funding actions and related potential impacts that would result from implementing the majority of the habitat restoration projects funded by the program. Some funded projects will fall outside the PEA and S-PEA, and require individual NEPA analysis. This S-PEA will also be used to modernize the CRP's overall National Environmental Policy Act (NEPA) compliance process, and substantially reduce duplicative documentation. This S-PEA concludes that no significant adverse environmental impacts would result from implementing the proposed action.

CONTENTS

TABLES

FIGURES

ACRONYM LIST

BMP	Best Management Practice
BO	Biological Opinion
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMP	Coastal Management Program
CRP	Community-based Restoration Program
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPO	Federal Preservation Officer
FY	Fiscal Year
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
OPR	Office of Protected Resources
PEA	Programmatic Environmental Assessment
RC	NOAA's Restoration Center
RPM	Responsible Program Manager
SAC	Special Award Condition
SAV	Submerged Aquatic Vegetation
SFA	Sustainable Fisheries Act
SHPO	State Historic Preservation Officer
S-PEA	Supplemental Programmatic Environmental Assessment
THPO	Tribal Historic Preservation Officer
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

This document is a supplemental programmatic environmental assessment (S-PEA) for the National Oceanic and Atmospheric Administration's (NOAA) Community-based Restoration Program (CRP), administered within NOAA's National Marine Fisheries Service (NMFS). It supplements the existing programmatic environmental assessment (PEA), *NOAA Fisheries' Implementation Plan for the Community-Based Restoration Program* (NOAA 2002).[1] Together, these programmatic documents evaluate the CRP's funding actions and related potential impacts that would result from implementing the habitat restoration projects.

Because the allocation of federal funds for CRP-sponsored activities would be a major federal action, the CRP must comply with requirements set forth under the National Environmental Policy Act (NEPA) of 1969, in accordance with the regulations of the Council on Environmental Quality (CEQ) for implementation of NEPA (Title 40 Code of Federal Regulations [CFR] parts 1500 through 1508) and NOAA Administrative Order (NAO) 216-6, which describes NOAA's policies, requirements, and procedures for complying with NEPA and the implementing regulations. As a lead federal agency under NEPA and in accordance with the regulations of the CEQ, NOAA has prepared this S-PEA to assess potential impacts to the natural and manmade environment, and to support decision-making within the CRP. The intent of this S-PEA is to supplement the CRP PEA with analyses of new resources, project types, and potential impacts resulting from such projects. The specific project types and potential impacts addressed in this document are listed in Table ES-1. This S-PEA will also be used to streamline the overall CRP NEPA process, thus eliminating duplicative documentation.

NOAA began the CRP in 1996 to encourage local efforts to restore fisheries habitat. The CRP provides financial and technical assistance for habitat restoration projects that benefit natural resources under NMFS' jurisdiction, in coastal or marine environments throughout the United States and its territories. In addition to performing on-the-ground restoration, the majority of these projects have an outreach or education component to promote and enhance natural resource stewardship. The CRP uses the funds appropriated by Congress to implement various types of projects, including individual restoration projects and multiyear, umbrella partnerships with national and regional organizations that are funded on an annual basis.

Programmatic NEPA analyses and tiering can reduce or eliminate redundant and duplicative analyses and effectively address cumulative effects. In this case, programmatic NEPA documents can be used to address the impacts of actions, or project types that are similar in nature or broad in scope, including cases where cumulative impacts are of concern. For consideration of potential impacts from specific actions and/or individual projects, tiering allows an agency to rely largely on the analysis of the programmatic NEPA document to address the impacts (Canter 1996). Recent trends indicate that federal agencies are expanding their use of programmatic NEPA documents (CEQ 1997b; NEPA Task Force 2003).

Since 2002, the CRP has analyzed the potential impacts of individual projects by tiering from the CRP PEA and Finding of No Significant Impact (FONSI) to streamline the production of NEPA compliance documentation for over 200 restoration projects per year. Because the types, scopes, and overall number of CRP-funded restoration projects have evolved over time, the CRP developed this S-PEA to update the PEA and ensure continued compliance with NEPA and other applicable laws and regulations, as well as to further streamline environmental review and NEPA documentation. Although each action or project is individually reviewed for compliance under NEPA, this S-PEA is designed for use in conjunction with the existing PEA to further reduce the need for individual NEPA documents for every CRP-funded

[1] This document is available online at http://www.nmfs.noaa.gov/habitat/restoration/projects_programs/crp/assessment/CRPProgrammaticEA_Final_all.pdf .

project. Some projects selected for funding will not fall under this S-PEA and PEA and will require individual analysis through an EA or EIS. A project requiring an EIS is not likely to be considered for funding under the CRP, as the program's primary purpose is to fund small-scale projects, wholly beneficial to the environment.

The CRP uses community-based habitat restoration appropriations—awarded through cooperative agreements, sub-awards under cooperative agreements, and, less often, through grants and contracts—to catalyze implementation of locally driven, grassroots habitat restoration projects. The award of funds follows a specific process, which includes steps to ensure compliance with NEPA and other applicable laws and regulations. First, a tentative slate of proposals is chosen, usually through a competitive review process in which reviewers use a score sheet to address NEPA issues in a general way. A thorough NEPA analysis of the top-scoring projects is then completed, using the CRP NEPA checklist (Appendix A) as a guide in choosing the appropriate NEPA compliance tools and decision document (NOAA CRP 2004b). The checklist leads reviewers to choose one of the following five recommendations for NEPA analysis and documentation:

1. The action will have no significant effects, and is completely covered by the analysis within the Programmatic EA for the CRP (PEA) or the Supplemental PEA for the CRP. It requires no further environmental review and an EA Inclusion Memo will be prepared, that will include the NEPA significance criteria considerations the RC used for supporting documentation.
2. The action has unknown, potentially significant impacts. At this time, funding will be limited to those portions of the action and impacts analyzed in the PEA or S-PEA. These limitations will be described in DOC's Financial Assistance Standard Terms and Conditions, NOAA's Administrative Standard Award Conditions, and the NOAA RC's Programmatic Special Award Conditions. If all remaining impacts are later determined to be non-significant and described in the PEA and S-PEA, a supplemental EA Inclusion Memo will be prepared including the updated NEPA significance criteria considerations and the applicant may then proceed with the project.
3. The action will have no significant impacts, but is not covered by the analysis in the PEA or SPEA, and will be completely covered by a Categorical Exclusion as there are no relevant exceptions (see NAO 216-6 section 5.05c). It requires no further environmental review, and a CE memo will be prepared to describe how it meets the criteria (see NAO 216-6, sections 5.05c and 6.03a-f).
4. The action may have non-significant impacts but is not Categorically Excluded or covered by the analysis within the PEA or SPEA. It will require preparation of an individual EA, targeted Supplemental EA, or adoption of another agency's EA.
5. The action would have significant impacts and will require preparation of an EIS, cooperation with the lead federal agency in the preparation of an EIS, or adoption of another agency's EIS.

Funds are awarded to a proposal only after NEPA review and documentation are complete.

The CRP funds and implements projects in six regions in the United States. Although each region consistently applies a standard approach to document the final NEPA analysis for specific projects, occasional differences occur among the regions regarding the information gathering and consultation process for NEPA compliance. These differences are a function of regional requirements to support NEPA analysis. Approaches are based on the types, number, and frequency of projects implemented, and the species potentially present in the local habitats. Each region manages different ecosystems, which have different permitting and consultation requirements that may need varying management and monitoring techniques. Several options are available to the regions for conducting the analysis and consultation necessary to fulfill and document environmental compliance supporting NEPA, including use of memorandums for the Administrative Record and project-level consultations for essential fish habitat (EFH), endangered species, and cultural resources.

TABLE ES-1
SUMMARY OF ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
HABITAT RESTORATION							
Installation of Fish Screens or Other Structures	No impacts	Direct, short-term, minor impacts	Indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	No impacts	No impacts	No impacts
Fish and Wildlife Monitoring	Direct, long-term, minor beneficial impacts	Direct and indirect, long-term, minor beneficial impacts (habitat)	Direct and indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and direct and indirect, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts (habitat)	Direct, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Debris Removal	Direct, long-term, minor beneficial impacts	Direct, long-term, moderate beneficial impacts	Indirect, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	No impacts	Direct, long-term, minor beneficial impacts	No impacts
Small Dam Removal	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, substantial beneficial impacts	Direct, long-term, minor impacts	Direct, long-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, long-term, moderate beneficial impacts
Levee Modifications or Removal	Direct, short-term, minor impacts	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	Indirect, long-term, minor impacts	Indirect, long-term, minor impacts	No impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Bioengineering to Prevent Erosion	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Direct, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Indirect, long-term, minor impacts	Indirect, short-term, minor impacts	No impacts
Sediment Removal or Materials Placement	Direct, short-term, minor impacts	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, short-term, minor and moderate impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, long-term, minor impacts	Indirect, long-term, minor impacts	No impacts
Feasibility Studies, Modeling, Surveying, and Mapping	Indirect, long-term, beneficial impacts and direct, short-term, minor impacts	Indirect, long-term, beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Invasive Species Control Using Herbicides	Direct, short-term, minor impacts	Direct, short-term, moderate impacts	Direct, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Indirect, long-term, substantial beneficial impacts	No impacts	Direct, short-term, moderate impacts	No impacts
LAND AND EASEMENT ACQUISITION							
Land Acquisition and Acquisition of Existing Structures	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, moderate impacts	Direct, long-term, minor beneficial or adverse impacts
EROSION REDUCTION							
Trail Restoration	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, minor beneficial impacts	Direct, and indirect, short-term, minor impacts and direct and indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts	Indirect, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Road Upgrading	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Indirect, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, minor impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts	No impacts
Road Decommissioning	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, moderate impacts and direct, long-term ,sub-stantial bene-ficial impacts	Indirect, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, minor impacts	Indirect, long-term, minor adverse and beneficial impacts
Exclusionary Fencing or Signage	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, minor beneficial impacts	No impacts	Direct, long-term, minor impacts	No impacts
PUBLIC OUTREACH							
Youth Group Projects	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Marine Resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Training Programs	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts
Environmental Education Classes, etc.	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct and indirect, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts
RESTORATION RESEARCH							
Hypothesis-Driven Research and Monitoring Methods	No impacts	Direct, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Indirect, short-term, minor impacts	No impacts	No impacts

PURPOSE AND NEED

The purposes of the CRP and the proposed action are to create partnerships on the local, regional, and national levels through which habitat restoration and protection are realized. NOAA's National Marine Fisheries Service (NMFS) recognizes the significant role communities play in habitat restoration and protection, and acknowledges that habitat restoration is often best supported and implemented at the community level. Successful projects have significant community support and depend on the hands-on involvement of citizens. NMFS' role is to strengthen the development and implementation of technically sound restoration projects, and to that end the CRP provides necessary technical expertise and assistance through its regional offices. NMFS anticipates maintaining the current focus of the CRP by continuing to form strong partnerships to fund grassroots activities that restore habitat and develop stewardship and a conservation ethic toward the nation's living marine and coastal resources. The CRP also anticipates a continued upward trend in funding levels, leading to the implementation of hundreds of projects per year, thus increasing the need for a streamlined grant and environmental review process.

The need for the CRP and the proposed action stems from a historical trend of habitat loss and degradation, and continued long-term threats to the sustainability of the nation's fishery resources. Approximately half of the original 11.7 million acres of coastal wetlands in the lower 48 states were lost between 1780 and 1978 (NOAA 2002). Over 75 percent of commercial fisheries and 80 to 90 percent of recreational marine and migratory fishes depend on estuarine, coastal, and riverine habitats for all or part of their life cycles (National Safety Council 1998; NOAA 2002). Viable coastal and estuarine habitats, as well as superior water quality, are important to maintaining healthy fish stocks. Restored coastal and riverine habitat that supports migratory fish would help rebuild fisheries stocks and recover certain threatened or endangered species. Restoring these habitats would help ensure that valuable resources are available to future generations of Americans.

PROPOSED ACTION AND ALTERNATIVES

The proposed action is to award Community-based Restoration Program funds, primarily on a competitive basis, to national and regional partnership groups or directly to local partners for various restoration-based projects involving one or more of the following project types: habitat restoration, land and easement acquisition, erosion reduction, public outreach, restoration research, and a combination of these project types (the preferred alternative). Due to the programmatic nature of this document, each of these specific project types are generally described (Table ES-1). Project types previously described in the PEA are not replaced, but are supplemented by additional project types in this document.

The *habitat restoration* project type would include implementation of fishery-related, coastal wetland, or other living marine resource habitat restoration projects (excluding land acquisition or easements). Project types include:

- Installation of Fish Screens
- Fish and Wildlife Monitoring
- Debris Removal (including derelict fishing gear and vessels)
- Small Dam Removals
- Levee Modifications or Removal
- Bioengineering to Prevent Erosion
- Sediment Removal and Placement
- Feasibility Studies, Modeling, Surveying, and Mapping

Although new information regarding the use of herbicides to control of invasive plant species is contained in this document, all other previous information in the PEA on this project type still applies. Examples of

the following project types were generally described and analyzed previously in the PEA and therefore are not addressed here:

- Riparian Habitat (Shoreline) Restoration
- Anadromous Fish Habitat and Passage Restoration
- Wetland and Marsh Restoration and Creation
- Restoration of Estuarine Resources
- Installation or Restoration of In-Stream Structures
- Oyster and Other Shellfish Habitat Restoration
- Coral Reef Restoration or Creation
- Planting or Restoring Submerged Aquatic Vegetation and Kelp
- Planting Tree and Shrub Buffers
- Debris Placement
- Nearshore Erosion Reduction and Prevention
- Culvert and Tide Gate Installation, Modification, or Removal
- Invasive Species Control

In addition to project implementation, this alternative would also provide funding for activities such as preliminary inventory and pre-restoration baseline monitoring for projects mentioned above, feasibility studies (if appropriate), and project engineering and design work. Highly controversial projects not supported by the landowners and community members are not covered under this document. Dam removal projects removing impoundments of 100 acre-feet or less may be covered.

The *land and easement acquisition* project type would include implementation of projects involving land purchases or securing conservation easements for the purposes of restoration. Although land and easement acquisition would sometimes allow for or improve public access to resources, this would be a secondary consideration. Acquisition of existing structures, such as boathouses or docks, also would be considered a land acquisition activity. Currently, this type of activity is limited to activities under congressionally directed awards and is not typical for CRP-funded projects. However, future projects may consider this type of activity. Land uses after acquisition will be limited to those less destructive to the environment than before purchase.

The *erosion reduction* project type would include implementation of projects designed to restore resources with high erosive potential and reduce the erosion of sediments to waters of the United States. Examples of project types include restoration of hiking trails or roads, installation of exclusionary fencing or signage (targeting either human or non-human impacts), and decommissioning of roads or other trails to reduce sediment input to water bodies. The need to restrict existing public access to resources would be determined at the project level.

The *public outreach* project type would include implementation of projects to enhance and further public knowledge about local environmental resources (particularly fishery habitats); the ecological importance of CRP-funded projects; and the value of the coastal, marine, and estuarine environments to local communities. Examples of project types include various training programs, youth group activities, formal school partnerships, monitoring programs, and development of outreach or educational materials.

The *restoration research* project type would include the implementation of hypothesis-driven research projects to test and improve the effectiveness of habitat restoration efforts conducted by the CRP. Research efforts typically (1) address the development, enhancement, or ecological performance of coastal habitat restoration techniques; (2) improve the understanding of trophic relationships within coastal habitats; and (3) improve habitat restoration monitoring and evaluation methods.

The **restoration alternative with streamlined approach (NOAA-preferred)** is a combination of the project types described above, using the programmatic approach to NEPA described in this document. Individual project proposals are analyzed independently to determine whether they fall within the boundaries of a project type and impacts described by the PEA or S-PEA, and any necessary consultations are sought for recommended projects, after which NMFS headquarters staff drafts appropriate NEPA documentation. If a specific project does not fall within the bounds described in the PEA or S-PEA in terms of the project type described or the level of impact anticipated, the CRP would undertake a separate, individual NEPA analysis and documentation to determine the potential impacts of the project.

The **restoration alternative without streamlined approach** would also allow for the selection and funding of restoration projects that use one project type or various combinations of the individual project types detailed in Table ES-1. Project funding would still typically range from $30,000 to $100,000, and the preliminary review and selection process would follow the approach detailed in the PEA and S-PEA. However, NEPA analysis and documentation would not follow the programmatic approach detailed in the PEA and S-PEA. Instead, analysis and individual decision documents would be created and required for every project tentatively selected for funding. This approach would substantially increase the workload for NOAA CRP staff, and the benefits of the modernized approach—including an increased focus on projects with significant impacts and an increase in projects funded—would not be realized.

Under the **no-action alternative**, NOAA CRP would implement projects under the existing PEA. The preferred alternative in the PEA states:

> "The Preferred Alternative is to implement habitat restoration activities under the Community-Based Restoration Program for all habitats that benefit living marine resources, including those that benefit anadromous fish species. These activities include fish passage implementation, as well as restoration of the following: riparian habitats, anadromous fish habitats, marshes, submerged aquatic vegetation (SAV) beds, oyster reefs, coral reefs, shorelines, kelp forest, and mangrove forests. Activities involved in these types of habitat restoration projects include: removal of invasive species; planting of kelp, dune grasses, and mangrove plants; stabilization of impacted areas such as coral reefs (such as following vessel groundings); and seeding or transplanting of shellfish beds and oyster reefs, in areas that previously supported such species."

Other agencies would still have the option to fund additional project types outlined under the restoration alternative if NOAA decides not to do so, however, need for coastal habitat restoration is great, and fewer important projects would be funded if NOAA did not fund the suite of restoration project types outlined in the restoration alternative.

AFFECTED ENVIRONMENT

A primary objective of the CRP is to provide monies and support to help public and private applicants conduct habitat restoration activities on a local level. The jurisdiction of the program includes all coastal or marine environs in the United States and its territories, as well as any habitats that directly or indirectly influence coastal or marine biological resources. As a result, the potentially affected environment associated with the proposed action is substantial, including all coastal and estuarine habitats in the United States. It also includes inland habitats that influence or affect rivers, streams, and creeks affecting marine or estuarine waters, or that support migratory fish populations. It may also include habitats adjacent to U.S. lands (for example in Canada or Mexico) that support living coastal and marine resources under NOAA trusteeship.

The S-PEA generally describes the physical, biological, and social environments of the United States, with emphasis on the coastal and estuarine habitats. The descriptions use an ecosystem approach to segment each region into specific types of habitat, for which baseline information is presented in the S-PEA (CEQ 1993; Bailey 1995). Habitat type descriptions provided in the original PEA are not replaced, but are supplemented by habitat type descriptions presented here. The following resources and associated topics are also generally described: geology and soils, water resources, living coastal and marine resources and essential fish habitat (EFH), threatened and endangered species, cultural and historic resources, land uses, and demographics and environmental justice. For resources that differ greatly between regions, efforts are made to highlight the resource on a regional basis. Information presented in the original PEA pertaining to EFH, threatened and endangered species, socioeconomics, and cultural and historic resources are not replaced but are supplemented by this document.

SUMMARY OF ENVIRONMENTAL IMPACTS

The proposed CRP-funded project types were evaluated to determine potential impacts to the human and natural environments, including environmental, cultural, and socioeconomic resources. The potential impacts are described by the following characteristics: type (direct, indirect, or cumulative), duration (short- or long-term), and significance.

Type of Potential Impacts

Direct, indirect, and cumulative impacts are defined at 40 CFR 1508.7 and 1508.8, and these definitions are presented below. These categories are used to describe the timing and proximity of potential impacts on the affected area only; they have no bearing on the significance of the potential impacts, as described below, and are used only to describe or characterize the nature of the potential impacts. Cumulative impacts are defined below, and are discussed in Section 4.6.

- **Direct Impact:** A potential impact caused by the proposed action or project that occurs at the time and place of the action.
- **Indirect Impact:** A potential impact caused or induced by the proposed action or project that occurs later than the action or is removed in distance from it, but is still reasonably foreseeable.
- **Cumulative Impact:** The impact on the environment resulting from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions.

Duration of Potential Impacts

The duration of potential impacts to the environmental resource can be defined as either short-term or long-term. In general, the impacts of construction and other activities taken to implement a proposed project would be short-term, whereas the impacts of the project results would be long-term.

Significance of the Potential Impacts

The significance of the potential impacts is a qualitative assessment of the degree to which the alternatives would impact a particular resource. This assessment is the primary criterion used to determine if any significant impacts are anticipated and, if so, whether an Environmental Impact Statement (EIS) may need to be prepared. The potential impacts can be direct or indirect, range from no impacts to substantial impacts, and be either beneficial or adverse for a particular resource.

The qualitative assessment is based on a review of the available and relevant reference material and on professional judgment and standards that include: consideration of the permanence of an impact or the potential for natural attenuation of an impact; the uniqueness or replaceability of the resource; the abundance or scarcity of the resource; and the potential that mitigation measures can offset the anticipated impact.

The general practice with most NEPA documents is to focus on, describe, and evaluate *adverse* impacts to the natural and human environments. However, the S-PEA considers the significance of both adverse and beneficial impacts, because the intent of CRP's proposed action is to provide *beneficial* impacts to habitat.

Table ES-2 displays the terms CRP used to describe potential impacts evaluated in this S-PEA. The type of impact is defined, the duration is identified, and a qualitative assessment is performed to determine the level of significance and to assign a qualifier. Table ES-1 presents a summary of the environmental impacts of the proposed action.

TABLE ES-2
TERMS USED TO DESCRIBE POTENTIAL IMPACTS

Type of Environmental Impact	Duration of Environmental Impact	Level of Significance	Qualifier for Level of Significance
No Effect or Impact Direct Indirect Cumulative	Short-term or Long-term	Not Significant	Minor Moderate Substantial
		Significant	Major Severe

CRP staff also employ the concept of adaptive management for projects by conducting site visits and providing guidance and assistance with monitoring and project evaluation as necessary. Adaptive management is important to the CRP for two reasons. First, the programmatic nature of NEPA compliance employed by the CRP must allow the flexibility necessary for a nationwide program to simultaneously maintain compliance, implement community-based projects, and streamline documentation, while ensuring project performance and enabling corrective action as necessary. Second, many projects supported by the CRP meet minimum project monitoring and evaluation requirements (NOAA CRP 2004d). The monitoring information helps the CRP evaluate project success, which is driven by the overall NOAA organizational performance measures and reporting requirements. Adaptive management allows the CRP and partner organizations to implement lessons learned while executing various projects in other geographic locations.

CONCLUSIONS

This S-PEA considers the potential environmental, economic, and social impacts of releasing funds for, and contributing technical assistance to, the implementation of habitat restoration and associated projects by the CRP, as well as similar activities that might be expected to result from congressionally directed awards. The proposed action would include habitat restoration, land and easement acquisition, erosion reduction, public outreach, and restoration research activities, as well as projects combining two or more of these activities. The proposed action is needed to benefit living coastal and marine resources, and social and economic conditions in the United States. Individual projects funded by the CRP may fall

outside the project types or impacts described under this S-PEA and associated PEA, and require separate NEPA documentation.

This S-PEA concludes that the proposed action would have no significant adverse impacts on the resources examined herein. The proposed action would cause direct and indirect, minor to moderate, short-term adverse impacts (mostly related to construction and associated activities) to several of the resources examined, but those impacts would not be significant and would themselves be reduced through the use of a variety of best management practices (BMPs) and mitigation measures. Therefore, preparation of an EIS is not warranted at this time. This decision will be documented for public record through the formal submission of a Finding of No Significant Impact (FONSI).

1.0 INTRODUCTION

This document is a supplemental programmatic environmental assessment (S-PEA) for the National Oceanic and Atmospheric Administration's (NOAA) Community-based Restoration Program (CRP), administered within NOAA's National Marine Fisheries Service (NMFS). As such, it supplements the existing programmatic environmental assessment (PEA), *NOAA Fisheries' Implementation Plan for the Community-Based Restoration Program* (NOAA 2002).[2] Together, these programmatic documents describe the projects implemented by the CRP and assess the planned actions and potential impacts resulting from those actions.

Because the allocation of federal funds for CRP-sponsored activities would be a major federal action, the CRP must comply with requirements set forth under the National Environmental Policy Act (NEPA) of 1969, in accordance with the regulations of the Council on Environmental Quality (CEQ) for implementation of NEPA (Title 40 Code of Federal Regulations [CFR] parts 1500 through 1508 [CEQ 1992]) and NOAA Administrative Order 216-6 (NOAA 1999a), which describes NOAA's policies, requirements, and procedures for complying with NEPA and the implementing regulations. As the lead federal agency under NEPA and in accordance with the regulations of the CEQ, NOAA has prepared this S-PEA to assess potential impacts to the natural and manmade environment, and to support decision-making within the CRP as well as with congressionally directed funds. The intent of this S-PEA is to supplement past CRP programmatic NEPA documents with analyses of new resources, project types, and potential impacts resulting from such projects. This S-PEA also will be used to streamline the overall CRP NEPA process, thus eliminating duplicative documentation. This process will apply to project types and impacts described here, as well as those in the original PEA.

1.1 GENERAL DESCRIPTION OF THE COMMUNITY-BASED RESTORATION PROGRAM

NOAA began the CRP in 1996 to encourage local efforts to restore fisheries habitat. The CRP provides financial and technical assistance for habitat restoration projects that benefit natural resources under NMFS' jurisdiction, in coastal or marine environments throughout the United States and its territories. In addition to performing on-the-ground restoration, the majority of these projects have an outreach or education component to promote and enhance natural resource stewardship. One of the primary objectives of the CRP is to bring together citizen groups; public and nonprofit organizations; industry; corporations and businesses; youth conservation corps; students; colleges and universities; landowners; and local, state, and federal government agencies to implement habitat restoration projects to benefit living coastal, marine, and migratory fish resources.

The CRP receives two types of funds from the U.S. Congress—discretionary and nondiscretionary. Both types appear as line items in the Conference Report for the NMFS budget. Discretionary funds comprise the CRP's base funding levels, as well as a small portion that supports activities under the Damage Assessment and Restoration Program. The CRP can use these funds to implement various types of projects, including multi-year, umbrella partnerships with national and regional organizations that are funded on an annual basis. CRP funds also support the staff and operations related to these partnerships and projects. For example, the CRP budget line item totaled approximately $13 million for FY 2006, and the CRP used a portion of those funds to award grants to various organizations for habitat restoration projects.

[2] This document is available online at http://www.nmfs.noaa.gov/habitat/restoration/projects_programs/crp/assessment/CRPProgrammaticEA_Final_all.pdf .

Nondiscretionary funds are appropriated by Congress for specific organizations or purposes, and the CRP must use those funds only for the specific, line-item activities for which they are intended. For example, the FY 2006 budget also included several line-item appropriations for which the CRP administered specific cooperative agreements or grants, including the Connecticut River Joint Commissions ($400,000), Bronx River Restoration ($1 million), Pinellas County Environmental Fund ($1 million), Chesapeake Bay Oyster Restoration ($4 million), Mobile Bay Oyster Recovery ($2.5 million), Oyster Restoration–Chesapeake–Virginia Institute of Marine Science ($2 million), Merrimack River ($500,000), and Penobscot River ($500,000). Congressionally directed awards support individual cooperative agreements and grants, several of which fund suites of individual restoration projects as sub-awards, similar to the CRP's umbrella partnership model.

1.2 PROGRAMMATIC SCOPE

NEPA requires documented, formal consideration of major federal actions, as well as analyses of the potential impacts associated with alternatives to the action, before a federal agency implements policies, programs, plans, and projects. The vast majority of NEPA documents focus on site-specific projects. However, by changing the scope of analysis, federal agencies can assess potential impacts stemming from policies, programs, and plans. Such programmatic documents are inherently broader in scope, due to a wider geographic area of potential effect and therefore the potential to affect a larger portion of the U.S. population (Plater et al. 1992).

Programmatic NEPA analyses and tiering can reduce or eliminate redundant and duplicative analyses and effectively address cumulative effects. In this case, the programmatic NEPA documents can be used to address the impacts of actions, or project types that are similar in nature or broad in scope, including cases where cumulative impacts are of concern. For consideration of potential impacts from specific actions and/or individual projects, tiering allows an agency to rely largely on the analysis of the programmatic NEPA document to address the impacts (Canter 1996). Recent trends indicate that federal agencies are expanding their use of programmatic NEPA documents (CEQ 1997b; NEPA Task Force 2003).

NOAA completed a PEA and associated Finding of No Significant Impact (FONSI) for the CRP in 2002, in accordance with NEPA and in consultation with other federal agencies. The PEA addressed NEPA compliance at the national program level, rather than at the specific project level. Since 2002, the CRP has analyzed the potential impacts of individual projects by tiering from the PEA and FONSI to streamline the production of NEPA compliance documentation for more than 200 restoration projects per year. Because the types, scopes, and overall number of CRP-funded restoration projects have evolved over time, the CRP developed this S-PEA to update the PEA and ensure continued compliance with NEPA and other applicable laws and regulations, as well as to further streamline environmental review and NEPA documentation. Although each action or project is individually reviewed to determine its compliance status under NEPA, this S-PEA is designed for use in conjunction with the existing PEA to further reduce the need for individual NEPA documents for every CRP-funded project.

1.3 CRP FUNDING PROCESS AND PROCESS FOR PROGRAMMATIC NEPA COMPLIANCE

This section describes the general CRP award process and the portion of that process that ensures programmatic NEPA compliance. Regional approaches to help awardees obtain required permits and consultations in support of environmental compliance, including NEPA compliance, also are presented.

1.3.1 CRP Award Processes

The CRP uses community-based habitat restoration appropriations—awarded through cooperative agreements, sub-awards under cooperative agreements, and, less often, through grants and contracts—as a funding mechanism to catalyze the implementation of locally driven, grassroots habitat restoration projects. The program operates on two primary levels: Habitat Restoration Partnerships and Individual Cooperative Agreements. Habitat Restoration Partnerships are umbrella agreements with national and regional organizations of between 1 and 3 years for which CRP provides funding on an annual basis, depending on the partnership's performance. These partnerships generally support over 200 sub-awards per year for various fishery habitat restoration projects, and partners are responsible for primary oversight of all administrative and financial aspects of the sub-awards, thereby allowing NOAA staff more time to provide technical assistance to each project. In FY 2006, approximately $5.5 million of the CRP's appropriated funding was used to continue 3-year partnerships. Previous years' partnership awards can be summarized as follows:

- FY 2005: 13 awards ranging from $100,000 to $1,975,000 for a total of $6.9 million
- FY 2004: 14 awards ranging from $96,500 to $1,590,000 for a total of $6 million
- FY 2003: 12 awards ranging from $125,000 to $1,700,000 for a total of $5.6 million
- FY 2002: 16 awards ranging from $100,000 to $1,700,000 for a total of $6.4 million
- FY 2001: 15 awards ranging from $100,000 to $1,700,000 for a total of $5.5 million

The CRP also funds habitat restoration projects directly through Individual Cooperative Agreements. In FY 2006, the CRP anticipates awarding 10 to 15 individual project grants of between $20,000 and $250,000, and expects funding of up to $1,500,000 would be available for these community-based habitat restoration projects. Previous years' cooperative agreement awards can be summarized as follows:

- FY 2005: 18 awards ranging from $20,000 to $194,000 for a total of $1.72 million
- FY 2004: 14 awards ranging from $30,000 to $206,000 for a total of $1.32 million
- FY 2003: 29 awards ranging from $25,000 to $200,000 for a total of $2.2 million
- FY 2002: 33 awards ranging from $15,200 to $150,000 for a total of $1.7 million
- FY 2001: 42 awards ranging from $14,400 to $100,000 for a total of $1.8 million

A much smaller amount of separate funding historically has been directly contracted by the Restoration Center, for projects of similar type and scope as grant-funded projects or for activities with specific importance to furthering the science of restoration (restoration research) and with high levels of Restoration Center staff involvement. From FY 2001 to FY 2006, the amount awarded to these projects has ranged between $105,000 to $993,400.

The Restoration Center also implements projects with funds received through directed appropriations from Congress. The total amount of these projects has ranged from $8,799,300 to $4,558,607 between FY 2001 and FY 2006, respectively. Many of these projects are of a similar type and scope as grant-funded projects, and consequently are analyzed under this S-PEA. Several projects implemented through directed appropriations also have required individual EAs in the past.

The award of grants follows a specific process, which includes steps to ensure compliance with NEPA and other applicable laws and regulations. If a project is proposed for an Individual Cooperative Agreement, the information required for NEPA compliance is addressed during the grant process. The timing of the NEPA compliance process is slightly different for Habitat Restoration Partnerships, because individual projects are not identified for sub-awards at the formation of the partnership or during the grant process. For Habitat Restoration Partnerships, NEPA compliance is achieved by following the same steps

as for an Individual Cooperative Agreement, but the steps are completed at the time of sub-awards rather than during the initial grant process. The CRP grant process generally includes the following steps:

- An announcement of the opportunity for federal funding for individual projects or national and regional partnerships is issued, which includes requirements for information pertaining to NEPA compliance (NOAA CRP 2004a, 2004b). The announcement is intended to solicit applications and proposals for (1) individual projects from local and grassroots organizations or (2) broad, umbrella partnerships for multiple years, under which individual projects would be solicited and awarded through the partnership organization.
- Organizations across the country prepare and submit applications either directly to NOAA or to partner organizations, as applicable, for project grants. One or more direct grant rounds can occur each fiscal year, and applications for direct grants under this program are usually due in the fall. Partnership grant applications are usually due every 2 to 3 years, and must provide detailed information to facilitate the initial NEPA compliance review (e.g., activities to be conducted; locations, sites, species, and habitats that would be affected; possible construction activities; and any environmental concerns that may exist). This information is generally included in planning and feasibility documents that are sometimes created for individual projects. In the case of partnerships, where individual projects are not identified at the time of application, applicants must provide information on how they would work with NOAA to ensure NEPA compliance at the time the sub-awarded projects are identified.
- Once the CRP or its Habitat Restoration Partner receives all applications and the deadline for submission of applications has expired, the CRP evaluates each application using a project proposal evaluation worksheet (NOAA CRP 2004e), based on the standard criteria for NOAA competitive grant programs. Using the worksheet, each application is scored against a set of standard criteria that evolves over time, including importance and applicability of the proposal, technical and scientific merit, overall qualifications of the applicants, project costs, and community involvement considerations. The worksheet corresponds closely to the announcement of the opportunity for federal funding and to partnership solicitations, and has a specific reference under the section pertaining to technical and scientific merit that allows the CRP to evaluate the adequacy of the information submitted to ensure NEPA compliance.
- The CRP and its partners, as appropriate, decide on a suite of projects to recommend for funding, based on the scores from the project proposal evaluation worksheets.
- The CRP staff in each region use the NEPA checklist to document specific information and to determine the mechanism to ensure NEPA compliance for each recommended project (see Appendix A).
- A final funding decision is made by the NOAA Grants Management Division only after the review process documented in this EA is complete.

1.3.2 CRP NEPA Process

The CRP uses its NEPA checklist as a guide in choosing the appropriate NEPA decision document (NOAA CRP 2004b). The checklist is designed for use on every project selected for potential funding by the CRP for which a separate NEPA document, acceptable for NOAA adoption, does not already exist. The CRP NEPA checklist does not replace an official NEPA decision document; instead, it serves as a guide for choosing the appropriate NEPA compliance tools and decision document, and clarifies and records the thought processes behind the decision (see Appendix A). By completing the checklist, NOAA staff members determine when the potential for a number of known or unknown impacts exist and have been analyzed in the PEA or S-PEA. There is no predetermined number of affirmative checklist answers

that lead to automatic preparation of an individual EA or EIS. For example, many of the "yes" or "maybe" answers could be explained as mitigated below the level of significant or as beneficial impacts in the checklist and in the NEPA document. The final question confirms that the impacts were completely analyzed in the PEA or S-PEA. If they were not, an individual NEPA document is required. The CRP regional supervisor, other CRP staff members, and Responsible Program Manager (RPM) may coordinate on the decision of the appropriate level of NEPA review. As the purpose of the CRP is to fund small-scale projects, wholly beneficial to the environment, a project likely to require an EIS (based on NEPA and CEQ guidelines) is unlikely to be considered for funding under the CRP.

A copy of the completed checklist is sent to CRP headquarters along with a draft of the official NEPA decision document (as specified under recommendations 1–5 on the checklist and explained below). NOAA staff members keep the original checklist and supporting documentation in the Project Record for that project. Original NEPA decision documents and memos remain at headquarters as part of the CRP Program Record. Program Officers at headquarters use the CRP NEPA checklist, attachments, and draft decision document submitted by field staff to create a formal NEPA decision document, which is circulated for approval. Program Officers compare the checklist and attachment to the draft text submitted by field staff and ensure that any affirmative answers on the checklist are addressed in the text and the attachment. A copy of the final decision document is sent to the region for the Project Record.

Five alternative recommendations for the formal NEPA decision document are included on the CRP NEPA checklist, which is used to examine proposed projects in relation to the PEA and S-PEA. Figure 1 illustrates the process for completing NEPA documentation, beginning with use of the CRP NEPA checklist. The five alternative recommendations from the checklist are:

1. The action will have no significant effects, and is completely covered by the impact analysis within the Programmatic EA for the CRP (PEA) or the Supplemental PEA for the CRP. It requires no further environmental review and an EA Inclusion Memo will be prepared, that will include the NEPA significance criteria considerations the RC used for supporting documentation.
2. The action has unknown, potentially significant impacts. At this time, funding will be limited to those portions of the action and impacts analyzed in the PEA or S-PEA. These limitations will be described in DOC's Financial Assistance Standard Terms and Conditions, NOAA's Administrative Standard Award Conditions, and the NOAA RC's Programmatic Special Award Conditions. If all remaining impacts are later determined to be non-significant and described in the PEA and S-PEA, a supplemental EA Inclusion Memo will be prepared including the updated NEPA significance criteria considerations and the applicant may then proceed with the project.
3. The action will have no significant impacts, but is not covered by the analysis in the PEA or SPEA, and will be completely covered by a Categorical Exclusion as there are no relevant exceptions (see NAO 216-6 section 5.05c). It requires no further environmental review, and a CE memo will be prepared to describe how it meets the criteria (see NAO 216-6, sections 5.05c and 6.03a-f).
4. The action may have non-significant impacts but is not Categorically Excluded or covered by the analysis within the PEA or SPEA. It will require preparation of an individual EA, targeted Supplemental EA, or adoption of another agency's EA.
5. The action would have significant impacts and will require preparation of an EIS, cooperation with the lead federal agency in the preparation of an EIS, or adoption of another agency's EIS.

If the types of proposed activities are addressed either in the S-PEA or in the PEA, and individual project analyses determine they are consistent with the impacts identified in the PEA or S-PEA, the CRP can use those documents as the basis for NEPA compliance and can select recommendation 1 on the NEPA checklist. The CRP can document these findings in an EA Inclusion Memo (NOAA CRP 2004c). The Inclusion Memo is a memorandum to the record signed by the Responsible Program Manager and filed in the Program Record. The document is prepared by the Program Officer, states the specific findings of the project-level analyses that support inclusion under the existing FONSI, and is supported in the Project Record with the CRP NEPA checklist signed by regional staff.

FIGURE 1: THE CRP NEPA DECISION TREE

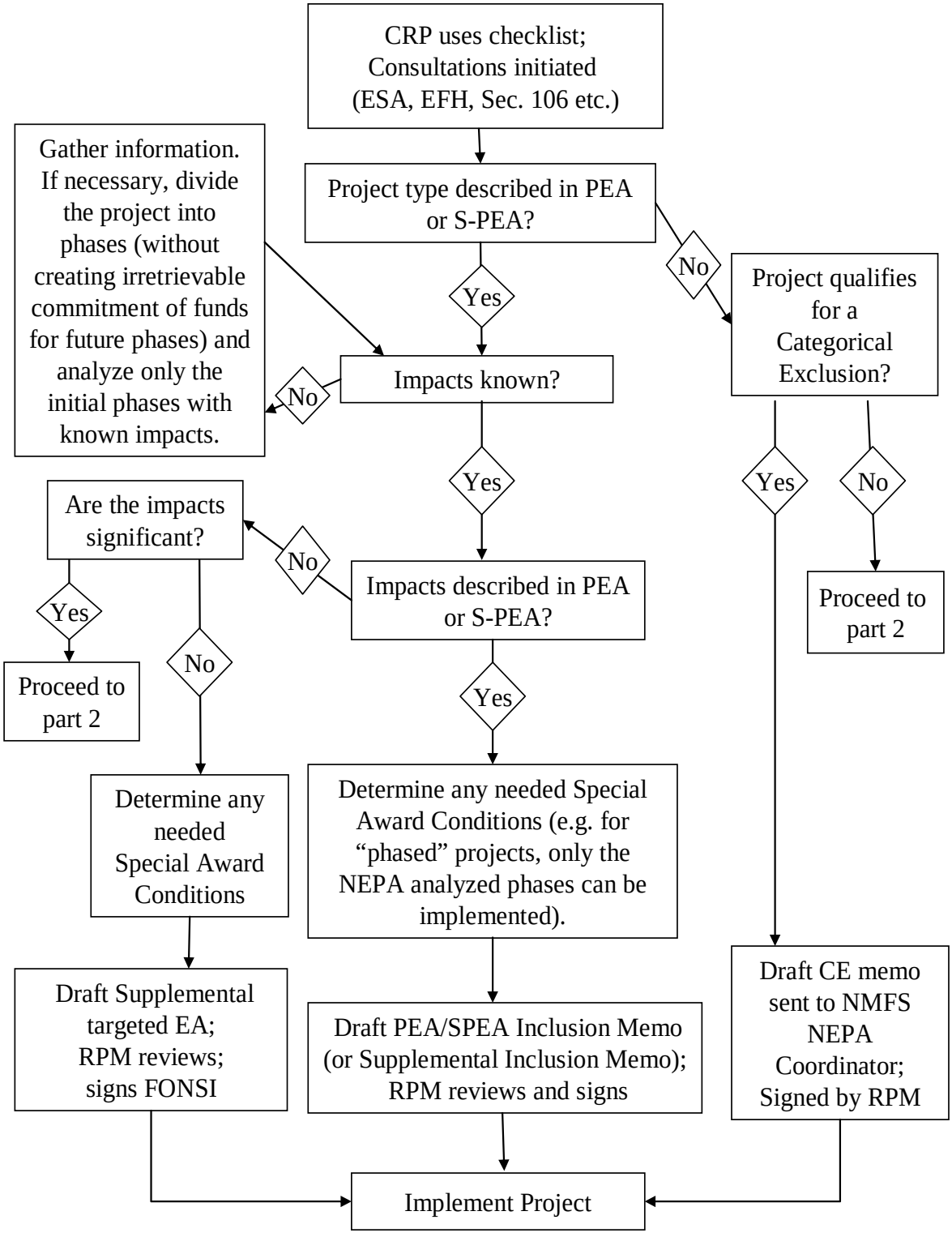
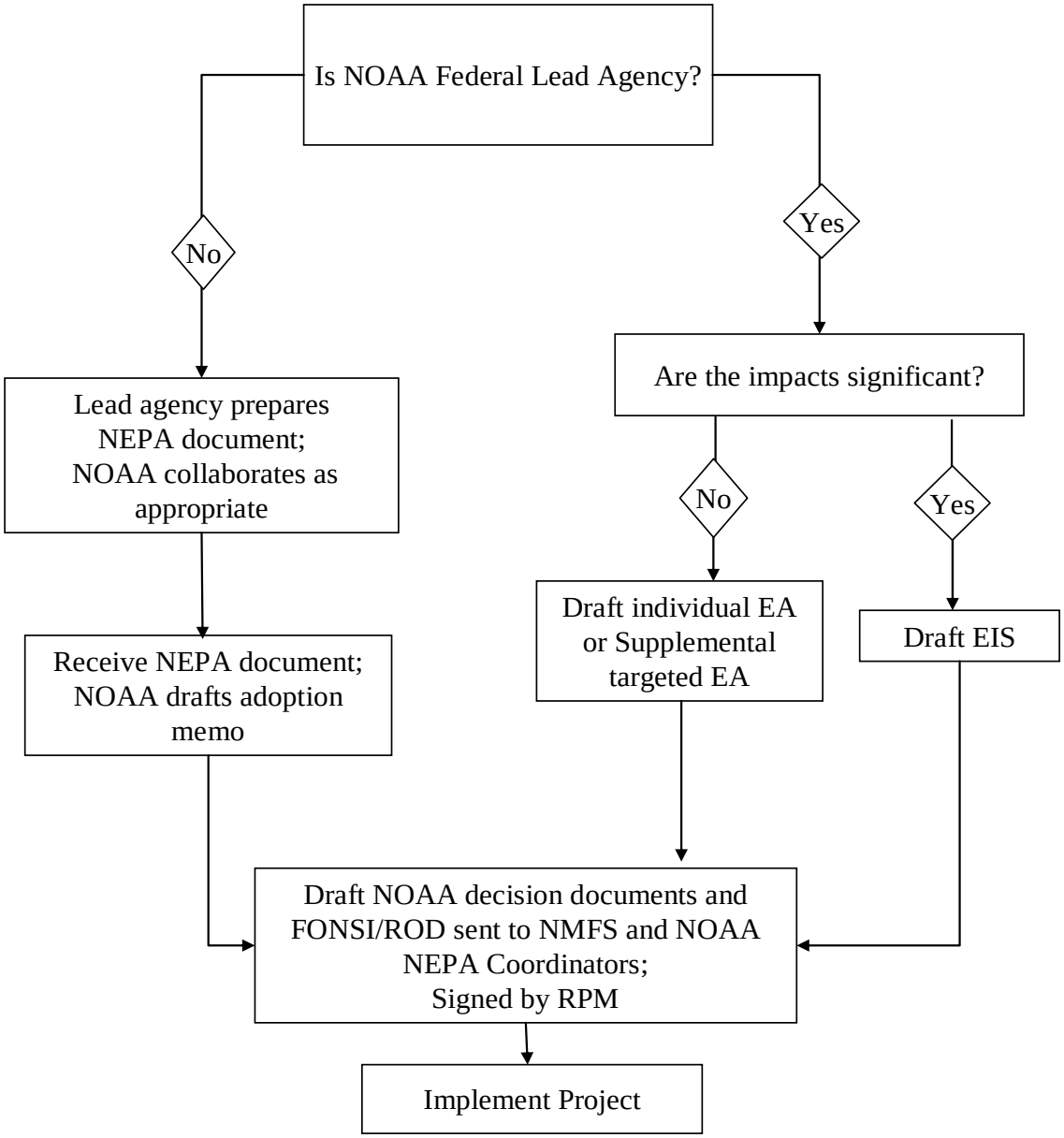


FIGURE 1: Decision Tree Part 2



If and when additional NEPA analysis, or other additional requirements to ensure environmental compliance, is needed for a proposed project or partnership, it can be imposed by the CRP through a Special Award Condition (SAC) and documented with a PEA or S-PEA Inclusion Memo. To ensure the funds will be used in compliance with environmental regulations, the CRP uses SACs because they require the applicant to complete certain steps, often involving permits and consultations, before the funds can be used. This approach typically is used when a specific design has not yet been developed for the proposed project, when permits have not been received for project implementation, or when site-specific details are insufficient for the CRP staff to evaluate all the potential impacts. If a SAC is necessary, recommendation 2 is chosen on the NEPA checklist, the Program Officer confirms with field staff that appropriate SACs are being applied to the project, and the Program Officer communicates these conditions to the recipient. The Inclusion Memo is then signed by the RPM and filed in the Program Record.

If a project type and the impacts of the activities of a specific project, or a portion of the project, are not adequately addressed here or in the PEA, further NEPA analysis will be required. If the project type or activities are not described, the project may be eligible for a Categorical Exclusion (CE). If this is not the case, preparation of an individual Environmental Assessment (EA), adoption of an EA completed by another Federal agency, or preparation of a targeted Supplemental EA may be required. If a project has significant impacts, an EIS is required (NOAA 2003; Tetra Tech 2005a). The CRP may chose to fund only the planning or feasibility portions of the project to gather information needed for the environmental review of the entire project.

The targeted Supplemental EA is used for projects described in the PEA or S-PEA that have negative impacts greater than those stated in the PEA or S-PEA. This document focuses on only those resources for which impacts were not described in this document or in the PEA. For example, the targeted EA may only cover impacts to historic and cultural resources or adverse impacts to species listed under the Endangered Species Act, if those impacts are not described here or in the PEA. Dam removals greater than 100 acre-ft in size and additions to lists of covered herbicides, surfactants, and listed species may also be documented using a Supplemental EA, although impacts may not actually be greater than those described in this document.

If recommendation 3 on the CRP NEPA Checklist (Categorical Exclusion) is selected, Program Officers provide the draft decision document to the NMFS NEPA Coordinator for review, ask field staff to resolve any questions, provide the final document to the RPM for signature, and file it in the Program Record.

If recommendations 4 or 5 are chosen, Program Officers circulate the draft EA, supplemental EA, or EIS documents to receive comments from the NMFS NEPA Coordinator, NOAA NEPA Coordination Office, and General Counsel. Once the body of the document is finalized, the Program Officers draft the needed cover memos and circulate them for final signature and concurrence by the Responsible Program Manager and the NOAA NEPA Coordination Office, respectively. For projects funded under grants and cooperative agreements, NMFS has determined that an Office Director may act as RPM and therefore may sign the EA or EIS (NOAA NMFS 2004a). The final document is filed with the Program Record. In many instances, NOAA is not the only federal agency participating in the project. When project types and impacts are described in the PEA or S-PEA, NOAA CRP prefers to document NEPA compliance with an inclusion memo under the PEA or S-PEA. Some projects will not fit under these documents, and NOAA may choose to adopt the documentation produced by another federal agency, or become a cooperating agency. While the decision tree shows this decision occurring in step 2, in reality the decision to cooperate with another agency may be made at any time, based on the particular project.

The CRP uses a flexible process to award grants and maintain compliance with NEPA and other applicable environmental laws and regulations. This flexibility ensures documentation during each step

and allows for transparency in proposal selection, grant award, and NEPA compliance decisions. It also allows grantees to undertake initial activities that would have no impacts to gather the information needed for the RC to complete NEPA analysis. The process also authorizes the CRP to withhold funds under SACs, thereby avoiding the irretrievable allocation of resources.

However, if a proposed project was not analyzed in the PEA or this S-PEA, the CRP must work with the applicant to prepare the necessary NEPA documentation and therefore would not realize the benefits of streamlined NEPA documentation supported by the grants process. Because additional review can be costly in both time and resources, the CRP included as many project types as possible in the PEA and S-PEA. In order to avoid duplication of effort, when other offices, divisions, and programs outside the CRP fund projects of similar scale and type as those funded by CRP, they may choose to use the PEA and S-PEA as the basis for their NEPA review, as appropriate.

1.3.3 Regional Approaches and Options for Compliance with Applicable Regulations

The CRP funds and implements projects in six regions in the United States[3]:

- Alaska
- Northwest (Washington, Oregon, and Idaho)
- Southwest (California)
- Pacific Islands (Hawaiian Islands, American Samoa, and the Marianas Archipelago)
- Northeast (Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New Jersey, New York, Pennsylvania, Delaware, Maryland, Virginia, Ohio, Michigan, Indiana, Illinois, Wisconsin, and Minnesota)
- Southeast and Caribbean (North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Puerto Rico, and U.S. Virgin Islands)

Although each region consistently applies the approach described in the previous section to document final NEPA analysis for specific projects (Tetra Tech 2005a, 2005b, 2005c, 2005d), occasional differences occur among the regions regarding the information gathering and consultation process for environmental and NEPA compliance. Each region approaches this task as a function of regional requirements to support NEPA analysis. Approaches are based on the types, number, and frequency of projects implemented and the species potentially present in the local habitats. Each region manages different ecosystems that require different permit, consultation, management, and monitoring techniques.

Each region ensures compliance with other environmental laws, regulations, and permits considered under NEPA in a manner consistent with customary practices for the applicable federal requirements in that region (Tetra Tech 2005a, 2005b, 2005c, and 2005d). The regions have several options available to ensure and document compliance, including:

- Use of form letters and standard, formatted project information forms
- Use of concurrence letters written by regulatory agencies after consultation
- Documentation through decision memorandums for the Project Record
- Use of decision memoranda for NEPA compliance and the Program Record
- Use of the programmatic Biological Opinion (applicable for Northwest Region's protected salmonids [NOAA NMFS 2004d]) and CRP's essential fish habitat (EFH) programmatic consultation (all regions)

[3] Including cooperative international projects in Canadian Territories (e.g., Nova Scotia and New Brunswick).

- Development of region-wide programmatic Section 7 Endangered Species Act (ESA) consultation with the U.S. Fish and Wildlife Service (USFWS)
- Project-specific consultations (both formal and informal) for historic properties, endangered species, and EFH
- Separation of the feasibility and construction phases of projects

For example, the CRP funded two similar projects for marsh restoration and riparian restoration in Maine and California, respectively (Konisky et al. 2004; Lennox et al. 2004). Because of the regional differences in resources and environments, the projects and monitoring of the ecosystems were vastly different. Whereas compliance for the project in Maine was completed through informal consultations with NMFS and USFWS, compliance for the California project required a formal consultation with NMFS to address the presence of endangered salmonids. Both regions were able to analyze EFH impacts with the programmatic EFH consultation developed under the original PEA.

Several regions use decision memoranda for the Project Record to document project-level NEPA considerations and other project information, such as required permits (Tetra Tech 2005b, 2005c, 2005d). The memorandum may describe and document information such as various project-specific considerations, the staff's determination of consistency with the PEA or S-PEA, the results of all required federal regulatory consultations, and any SACs required for federal funding approval. This approach enables the regions to document that a particular restoration action would be consistent with the S-PEA and PEA, and to streamline CRP's review and approval process for the many proposals it must consider.

NOAA staff may rely heavily on project feasibility documents as information sources for NEPA compliance documentation (Tetra Tech 2005b). Funding the feasibility phase separately from construction allows staff to review feasibility documents before committing funds for projects that have potentially significant adverse effects. The CRP staff have found this approach helpful in fulfilling the compliance requirements of NEPA.

1.4 PURPOSE AND NEED

The purposes of the CRP and the proposed action are to create partnerships on the local, regional, and national level through which habitat restoration and protection are realized. NMFS recognizes the significant role communities play in habitat restoration and protection, and acknowledges that habitat restoration is often best supported and implemented at the community level. Successful projects have significant community support and depend on the hands-on involvement of citizens. NMFS' role is to strengthen the development and implementation of technically sound restoration projects, and to that end the CRP provides necessary technical expertise and assistance through its regional offices. NMFS anticipates maintaining the current focus of the CRP by continuing to form strong partnerships to fund grassroots activities that restore habitat and develop stewardship and a conservation ethic toward the nation's living coastal and marine resources. The CRP also anticipates a continued upward trend in funding levels, leading to the implementation of hundreds of projects per year, thus increasing the need for a streamlined grant and environmental review process.

The need for the CRP and the proposed action stems from a historical trend of habitat loss and degradation, and continued long-term threats to the sustainability of the nation's fishery resources. Approximately half of the original 11.7 million acres of coastal wetlands in the lower 48 states were lost between 1780 and 1978 (NOAA 2002). Over 75 percent of commercial fisheries and 80 to 90 percent of recreational marine and migratory fishes depend on estuarine, coastal, and riverine habitats for all or part of their life cycles (National Safety Council 1998; NOAA 2002). Viable coastal and estuarine habitats, as well as superior water quality, are important to maintaining healthy fish stocks. Restored coastal and

riverine habitat that supports migratory fish would help rebuild fisheries stocks and recover certain threatened or endangered species. Restoring these habitats would help ensure that valuable resources are available to future generations of Americans. Table 1 summarizes the environmental, social, and economic needs that would be addressed by the proposed action.

TABLE 1
GENERAL AND SPECIFIC NEEDS FOR THE PROPOSED ACTION

General Needs	Specific Needs
Environmental needs	• Correct historical trend of habitat loss and degradation; and • Recover certain threatened or endangered species
Social needs	• Restore habitats to help ensure resource longevity for future generations
Economic needs	• Rebuild fisheries stocks; and • Maximize project dollars for habitat restoration and minimize administrative costs associated with managing hundreds of individual awards

1.5 DESCRIPTION OF REMAINING SECTIONS

Section 2 of this S-PEA describes the proposed and alternative actions and summarizes the components of each action. Section 3 generally describes the existing environment. Section 4 identifies the environmental consequences of the proposed action and alternatives, and potential mitigation measures for these consequences. Section 5 presents the summary and conclusions of the PEA. Section 6 presents a description of several applicable environmental laws and regulations. Section 7 presents a list of professionals who prepared the S-PEA, while Section 8 presents references used to develop the S-PEA.

2.0 PROPOSED ACTION AND ALTERNATIVES

The following sections provide a detailed description of the proposed action and the alternatives considered in this S-PEA. Descriptions of general project types funded by the CRP also are presented.

2.1 THE PROPOSED ACTION

The proposed action is to award CRP funds primarily on a competitive basis to national and regional partnership groups or directly to local partners for various restoration-based projects involving one or more of the following actions: habitat restoration, land and easement acquisition, erosion reduction, public outreach, restoration research, and a combination of these project types (the preferred alternative). Due to the programmatic nature of the PEA and this document, these project types are generally described by project type. Examples of the following project types were generally described and analyzed previously in the PEA:

<u>Habitat Restoration</u>

- Riparian Habitat (Shoreline) Restoration
- Anadromous Fish Habitat and Passage Restoration
- Wetland and Marsh Restoration and Creation
- Restoration of Estuarine Resources

- Installation or Restoration of In-Stream Structures
- Oyster and Other Shellfish Habitat Restoration
- Coral Reef Restoration or Creation
- Planting or Restoring Submerged Aquatic Vegetation and Kelp
- Planting Tree and Shrub Buffers
- Debris Placement
- Nearshore Erosion Reduction and Prevention
- Culvert and Tide Gate Installation, Modification, or Removal
- Invasive Species Control

New information exists regarding the use of herbicides to control invasive plant species. For this reason, this document revisits chemical methods of invasive species control, but all other previous information in the PEA on this project type still applies. The following project types were not previously described and analyzed in the PEA, and therefore they are included here:

Habitat Restoration

- Installation of Fish Screens
- Fish and Wildlife Monitoring
- Debris Removal (including derelict fishing gear and vessels)
- Small Dam Removal
- Levee Modifications or Removal
- Bioengineering to Prevent Erosion
- Sediment Removal and Placement
- Feasibility Studies, Modeling, Surveying, and Mapping

Land and Easement Acquisition

- Acquisition of Existing Structures
- Land Acquisition

Erosion Reduction

- Trail Restoration
- Road Upgrading
- Road Decommissioning
- Exclusionary Fencing or Signage

Public Outreach

- Youth Group Projects
- Training Programs
- Environmental Education Classes, Programs, Centers, Partnerships, and Materials

Restoration Research

- Address the development, enhancement, or testing of coastal habitat restoration techniques
- Improve the understanding of trophic relationships within coastal habitats
- Improve habitat restoration monitoring and evaluation methods

A representative sample of projects previously given NEPA approval by the CRP under the PEA is provided in Appendix B. Table 2 presents the possible project types under the alternatives, and indicates whether the project type is analyzed within the PEA or within this S-PEA. Table 2 also presents the relative frequency of implementation for each project type. Projects involving components of more than

one project type were counted under the primary project type. (For example, if a proposed project involved shoreline restoration as the primary activity but also included an environmental education activity, the project was counted as a shoreline restoration project.) As presented in Table 2, the majority of projects funded and implemented by the CRP are habitat restoration projects.

TABLE 2
GENERAL PROJECT TYPES BY CATEGORY

Project Type and Frequency	Description	Document	
		PEA	S-PEA
HABITAT RESTORATION			
Shoreline Restoration *Implemented Projects: 28* *Planned Projects: 35*	Restoration of resources at the shoreline of ponds, lakes, and marine environments, including shoreline (beach) stabilization, dune restoration, and sand fencing.	X	
Riparian Restoration *Implemented Projects: 116* *Planned Projects: 107*	River, stream, or creek restoration, including stream bank restoration and stabilization; and stream bank planting. Also includes general restoration to floodplains.	X	
Reef Restoration or Creation *Implemented Projects: 27* *Planned Projects: 43*	Restoration of various types of reefs, including oyster (oyster shell and other substrates) and coral reef restoration. Also includes installation of artificial offshore reefs, repair of reefs due to boat groundings, and creation of coral nurseries.	X	
Wetland and Marsh Restoration and Creation *Implemented Projects: 63* *Planned Projects: 60*	Includes wetland planting (involving no heavy equipment) and hydrologic modifications to the marsh and salt marsh surfaces (using heavy equipment for fill placement or removal, ditch plugging, or channel construction).	X	
Restoration of Estuarine Resources *Implemented Projects: 6* *Planned Projects: 4*	Includes restoration of estuarine resources.	X	
Installation or Restoration of In-Stream Structures *Implemented Projects: 38* *Planned Projects: 60*	Includes fishway and fish ladder installation projects, projects involving installation or restoration or other in-stream structures, and channel modification (such as salmon stairs).	X	
Oyster and Other Shellfish Habitat Restoration *Implemented Projects: 45* *Planned Projects: 49*	Includes shellfish bed creation or seeding, oyster gardening, aquaculture, and clam and scallop planting.	X	
Debris Placement *Implemented Projects: 3* *Planned Projects: 3*	Includes projects involving beneficial use of natural debris (e.g.,, placement of woody debris to reduce erosion).	X	
Nearshore Erosion Reduction and Prevention *Implemented Projects: 3* *Planned Projects: 0*	Includes projects involving placement of structures to reduce erosion and bulkhead removal.	X	
Invasive Species Control *Implemented Projects: 12* *Planned Projects: 6*	Includes mechanical and herbicide-based projects to control invasive plant species; prescribed burning; and removal of invasive algae from coastal and marine environments.	X	X

Project Type and Frequency	Description	Document	
		PEA	S-PEA
Planting or Restoring Submerged Aquatic Vegetation and Kelp *Implemented Projects: 11 Planned Projects: 10*	Includes planting through transplants and nursery-grown stock or seeding. Also includes repair due to boat scars and kelp restoration.	X	
Planting Tree and Shrub Buffers *Implemented Projects: 11 Planned Projects: 9*	Includes planting various naturally occurring tree and shrub species to act as buffers between waterways or shorelines and other land uses.	X	
Culvert and Tide Gate Installation, Modification, or Removal and Bridge Placement *Implemented Projects: 6 Planned Projects: 7*	Includes projects with civil engineering or hydrologic modification components, involving installation, modification, or removal of culverts and tide gates. Also includes projects involving placement of bridges.	X	X
Installation of Fish Screens or Other Structures *Implemented Projects: 8 Planned Projects: 7*	Includes projects that install fish screens or other structures to prevent entrainment of juvenile salmonids in water diverted for agriculture, power generation, or domestic use.		X
Fish and Wildlife Monitoring *Implemented Projects: 8 Planned Projects: 13*	Includes projects that monitor migration, movement, or habits of NOAA-trust fish and wildlife species. Also includes projects to establish, promote, and provide materials and resources for local volunteer programs to monitor, assess, and record sensitive local environmental and biological resources, activities, and efforts.		X
Debris Removal (including derelict fishing gear) *Implemented Projects: 5 Planned Projects: 5*	Includes projects involving removal of any type of debris from the environment (such as garbage, derelict fishing gear, or trap removal or recovery) and proper disposal of manmade debris.		X
Small Dam Removal *Implemented Projects: 30 Planned Projects: 28*	Includes removal of dams and other structures potentially blocking water flow and fish passage in stream and river channels.		X
Levee Modifications or Removal *Implemented Projects: 1 Planned Projects: 0*	Includes projects that remove or alter, by breaching, levees, ditches, canals, impoundments, or other features originally designed to divert water from its natural flow regime.		X
Sediment Removal or Materials Placement *Implemented Projects: 3 Planned Projects: 0*	Includes removal of sediment and use of dredge materials.		X
Feasibility Studies, Modeling, Surveying, and Mapping *Implemented Projects: 4 Planned Projects: 17*	Includes activities to support restoration project planning and site characterization.		X

Project Type and Frequency	Description	Document	
		PEA	S-PEA
LAND AND EASEMENT ACQUISITION			
Acquisition of Existing Structures *Implemented Projects: 0* *Planned Projects: 1*	Includes acquisition of existing infrastructure or buildings.		X
Land Acquisition *Implemented Projects: 0* *Planned Projects: 1*	Includes purchase of parcels of land to allow for restoration of resources. Also includes purchase of land for conservation easements.		X
EROSION REDUCTION			
Bioengineering to Prevent Erosion *Implemented Projects: 0* *Planned Projects: 1*	Includes projects that involve the planting of vegetative land cover to stabilize stream banks and nearshore environments to prevent erosion. Also includes projects in which plants are installed to filter and reduce the amount of urban storm water runoff.		X
Trail Restoration *Implemented Projects: 1* *Planned Projects: 0*	Includes projects to restore trails to reduce erosion and enhance low-impact recreational uses, such as hiking, bird watching, and horseback riding, in areas such as wetlands and coastlines. Also includes projects to construct new trails and raised walkways that reduce erosion resulting from heavy use or contact with soil.		X
Road Upgrading *Implemented Projects: 14* *Planned Projects: 0*	Includes projects that improve or restore existing roads through or adjacent to waterways or shorelines that have been damaged by processes such as erosion or storms.		X
Road Decommissioning *Implemented Projects: 0* *Planned Projects: 2*	Includes preventing access to sensitive areas and preventing erosion.		X
Exclusionary Fencing or Signage *Implemented Projects: 1* *Planned Projects: 0*	Includes projects with fencing components to prevent access by humans or other animals (either or both) to sensitive areas, in order to reduce erosion.		X
PUBLIC OUTREACH			
Youth Group Projects *Implemented Projects: 4* *Planned Projects: 1*	Includes projects designed to encourage youth organizations to implement habitat restoration projects to benefit living marine and migratory fish resources. Also includes projects that educate youth groups about aquatic resources, such as wetlands and fisheries.		X
Training Programs *Implemented Projects: 3* *Planned Projects: 3*	Includes resources to develop and implement programs to train the community to participate in, promote, and lead environmental restoration, education, and outreach projects.		X
Environmental Education Classes, Programs, Centers, Partnerships, and Materials *Implemented Projects: 6* *Planned Projects: 24*	Includes resources for the development of classes or programs designed to educate children and adults about living coastal and marine resources, conservation, wildlife, and environmental stewardship. Also includes establishing partnerships with local school systems and the development of materials to support environmental education programs.		X

Project Type and Frequency	Description	Document	
		PEA	S-PEA
RESTORATION RESEARCH			
Hypothesis-driven research *Implemented Research: N/A* *Planned Research: varies from 4–20 annually*	Implement hypothesis-driven research to test and improve the effectiveness of habitat restoration efforts conducted by the CRP. Research efforts typically address the development, enhancement, or testing of coastal habitat restoration techniques; improve the understanding of trophic relationships within coastal habitats; and improve habitat restoration monitoring and evaluation methods.		X

Source: Restoration Center Database Queries (NOAA CRP 2004f).
Note: Implemented projects are those with the project status of "implementation complete" in the Restoration Center Database as of August 4, 2004. Planned projects are estimates based on known proposals; these frequencies vary annually.

The CRP receives applications for hundreds of projects each year. Although most projects can be attributed to one of the project types described above and are therefore analyzed in the PEA or S-PEA, some proposed projects do not fall neatly into one of the project type categories. In those cases, the CRP could not use the PEA and S-PEA to document NEPA compliance. Another mechanism (e.g., adopting another NEPA document or writing a project-specific CE, EA, or EIS) would need to be used to maintain compliance with NEPA, as described in Section 1.0.

Regional NOAA staff typically implement small to medium-sized projects that fall within the project types presented above (Tetra Tech 2005a, 2005b, 2005c, and 2005d). However, the various project types are implemented at different scopes and scales within and among the regions. For example, oyster reef restoration in the Southeast Region has ranged between 0.1 and 5 acres in size (Tetra Tech 2005c). In general, NOAA staff do not use prescriptive project sizes or impact thresholds to exclude a project from impact evaluation in the PEA or this SPEA. As a rule, staff use their professional judgment, knowledge of the project site, and any pertinent federal- or state-level regulatory considerations that may be triggered by specific projects to determine whether the scope of a project (or its impacts) is too small or large to be included under the PEA and S-PEA (Tetra Tech 2005a, 2005b, 2005c, and 2005d).

Projects proposed for implementation at locations with contaminated sediments warrant special consideration across the regions (Tetra Tech 2005a, 2005b, 2005c, and 2005d). Projects proposed for implementation at locations with highly contaminated sediments or toxic materials would generally not be funded by the CRP (Tetra Tech 2005a, 2005b, 2005c, and 2005d). If high-priority projects of this type were selected through the CRP program, funds would only be allocated after a detailed and approved plan were finalized and adequate documentation showed that the project will not exceed the impacts anticipated and described by the PEA or S-PEA. If the project were anticipated to exceed those impacts anticipated by the PEA or S-PEA, a separate NEPA analysis and documentation would be completed.

Two project types—Small Dams (Sec. 2.2.4) and Sediment Removal and Placement (Sec. 2.2.7)—are likely to involve low levels of contaminated sediments. Only projects with contaminant levels consistent with an Effects Range-Low (ERL), Threshold Effects Level (TEL), state Clean Water Act sec. 401 requirements, or watershed background levels published in stringent Sediment Quality Guidelines (SQGs) will be included under this PEA and S-PEA. ERL and TEL levels are developed as concentrations below which biological effects are rarely observed. Long et al. (1998) confirmed that these levels are good for predicting non-toxicity. SQGs were developed by NOAA for the National Status and Trends Program, and other stringent regionally appropriate SQGs may be used if they are available (Long et al. 1995; NOAA 1999b; CCME 2001).

2.2 HABITAT RESTORATION PROJECTS

The habitat restoration alternative would include implementation of fishery-related, coastal wetland, or other living marine resource habitat restoration projects (excluding land acquisition or easements). Project types include but are not limited to fill removal for salt marsh restoration, placement of structures in subtidal waters for artificial reef construction, dam removal and fishway installation for restoring migratory fish runs, shellfish reef creation, shellfish stocking, and altering bottom habitats for enhancing or restoring shellfish. In addition to project implementation, this alternative may also provide funding for activities including preliminary inventory and baseline monitoring for projects mentioned above; conducting feasibility studies (if appropriate); project engineering and design work; and some associated actions that are merely administrative in nature (i.e., hiring and funding staff, printing documents, travel, etc.). Specific project types are presented in Table 2 and those not described in the original PEA are described below.

2.2.1 Installation of Fish Screens or Other Structures

Fish screens are used to prevent entrainment of fish (i.e., juvenile salmonids) in water diverted for agriculture, power generation, or domestic use. Other structures with similar functions may be used to control the spread of invasive species. Screens are used on both gravity flow and pump diversion systems. Current fish screen design standards specify the following criteria: (1) perforated metal plate, or mesh material, with openings sized to prevent entrainment of juvenile salmonids; (2) debris cleaning devices (typically brushes, water jets, or compressed air) to prevent plugging; and (3) bypass routes to return fish to the stream channel. Normally, a flow measuring device and head gate are also required for monitoring and controlling diversion flows. Screen designs can be complex and site-specific, and many require professional engineering support to design and install (NOAA NMFS 2004b).

2.2.2 Fish and Wildlife Monitoring

Wildlife monitoring projects involve trained individuals gathering observational data on the species that utilize or occupy specific habitats. Such data can be used to develop baseline measurements of the species composition, diversity, and richness of a habitat, which can then be used to identify changes in the ecosystem and track the progress of a restoration project. Wildlife monitoring programs are currently in place in wetlands, marshes, and coastal areas throughout the United States. Many of these programs have been established to gather data on birds, amphibians, and mammals in an area at a certain time, with particular emphasis on monitoring species that might be more sensitive to changes in their habitat or that are unique to an area. The monitoring programs typically involve the recording of information on species, over time, by trained volunteers who use transects, calls, and maps to identify specific species and tabulate data. Some states may require state-issued collecting permits for this work, and the USFWS or NMFS may also require a permit if federally protected species are involved. The CRP documents compliance with permits or consultation as needed with SACs and a description included in the decision document prepared for the Administrative Record.

The CRP funds the development and establishment of programs to solicit volunteers to assist and support monitoring programs designed to evaluate the effectiveness of completed or in-progress habitat restoration projects. Monitoring one structural and one functional parameter related to a project is recommended under the Estuaries and Clean Waters Act of 2000, in order to ensure that the project is meeting its goals and specific, measurable objectives.

2.2.3 Debris Removal

Debris removal projects involve the identifying, locating, and removing unwanted and/or illegally placed debris from underwater and coastal environments. Debris includes derelict or illegal fishing gear (e.g., abandoned or lost nets, traps, and lines, and illegal structures), general solid waste (e.g., used tires or appliances), abandoned vessels, and natural debris (e.g., logs or other woody debris deposited by storm events). These projects might use machinery and trucks to remove the debris from coastal areas (depending on size), and appropriately trained divers to remove the debris from underwater environments.

2.2.4 Small Dam Removal

The majority of the coastal rivers in the United States are dammed at one or more locations. NOAA estimates the existing impediments to fish passage include approximately 76,000 blockages greater than 6 feet in structure height, and possibly as many as 2 million blockages in total (Heinz Center 2002). These dams can prevent migratory fish from reaching historic spawning areas; alter natural flow patterns; block downstream movement of beneficial sediment, organic matter, and nutrients; create unhealthy temperature gradients; and impact surrounding riparian habitat through flooding, drying, or both. Dam removal projects address these potential results by physically removing the dam, sections of the dam, and/or other infrastructure. Dam removal projects are undertaken by the CRP to restore natural riverine functions and migratory fish passage, and to improve water quality.

Projects covered under this document include removal of small dams. According to the Heinz Center (2002), "the size of the reservoir is related most directly to the magnitude of potential effects on river hydrology." The Heinz Center defines a small dam as one between zero and 100 acre-feet of storage. Small dams have the fewest overall impacts and greatest body of knowledge regarding removal (Heinz Center 2002).

Regardless of their size, highly controversial dam removals are not covered under this S-PEA. Feasibility studies and engineering and design plans are prepared to determine baseline conditions, to model hydrologic changes that may occur after removal, to analyze alternatives, or to educate the public before dam removal. Feasibility studies generally include a review of historic information about the dam, assessment of the plant and animal populations upstream and downstream, base mapping of the dam and surrounding topography, assessment of the amount and contents of sediments potentially impounded behind the dam, or other pertinent information.

Types of dam removal projects that may be included under this S-PEA include full or partial removals of dams 100 acre-ft or less, and modifications of dams where the effective decrease in impoundment size is less than 100 acre-ft. There are two general types of dams—storage dams and run-of-river dams. Because run-of-river dams are not designed to store water, they have water flowing over them at all times and do not divert flows or alter timing of flows. Dam structures are classified as crib, earth fill, rock fill, concrete gravity, concrete arch, and concrete buttress dams (Heinz Center 2002) and all structure types may be considered for removal by the CRP.

Dams are constructed for many purposes, including irrigation, electricity generation, flood control or storm water management, navigation, water supply, recreation, fire protection, fish and wildlife benefits, debris control, tailings, and others (National Inventory of Dams 2005). Over 35 percent of U.S dams have a primary purpose of recreation, with fire and farm ponds as the second highest primary purpose; many dams are built for multiple purposes (Heinz Center 2002).

Dam removal projects entail several major components, potentially including but not limited to the following:

- Physical removal and disposal of the dam materials themselves, using heavy equipment
- Removal and disposal of sediment collected behind the dam, using heavy equipment
- Implementation of best management practices (BMPs), such as the use of silt curtains, to minimize the amount of sediment released downstream following the removal of the blockage
- Restoration of surrounding riparian habitat on both sides of the dam, including planting of wetland vegetation cover to stabilize banks
- Installation of dry hydrant systems, piping for agricultural uses, roughened ramps, etc., to meet the need for which the dam was used

The supplemental EA process described in section 1.3.2 may be used for dams impounding more than 100 acre-ft, or for dams having impacts not described in this document but for which the CRP expects the impact of removal will fall below the significance threshold.

2.2.5 Levee Modification or Removal

Throughout U.S. history, people have constructed levees, ditches, and canals in coastal and inland wetlands, swamps, estuaries, and other features to drain the land for crop production, control mosquitoes, and a number of other purposes (e.g., the Florida Everglades). Such activities have drastically altered these areas and their receiving waters through impacts to water quality, sedimentation, erosion, and the diversion of vast amounts of surface and groundwater from its natural course. Levees and ditches also capture flows, thereby reducing downstream habitat quality and posing the risk of entraining juvenile spawning fish.

The CRP funds levee modification or removal projects to help restore the natural flow and hydrology to affected areas. These projects typically involve several components, including but not limited to the following:

- Physical removal of the levee materials themselves, which are typically earthen or concrete, using heavy equipment
- Using heavy equipment to breach the levee

This document analyzes only those levee removals that will not directly impact residential areas. In all cases, projects will have support from all landowners, abutters, and agencies responsible for potentially affected infrastructure. Removals with direct impacts to residential areas will be assessed through a targeted supplemental EA.

2.2.6 Bioengineering to Prevent Erosion

Bioengineering refers to non-passive, “soft engineering” erosion control methods employed in wetlands, on streambanks, in nearshore areas, and in other sensitive habitats. Bioengineering applications exploit natural processes to accomplish bank stabilization, as opposed to installing designed structures (e.g., covering banks with riprap or concrete) that can impair normal wetland and ecosystem function. Examples of bioengineering applications that could be employed for CRP-funded projects for mitigation of stream bank erosion include the following (NOAA et al. 2004):

- Planting banks with native vegetative cover, such as fast-growing willows
- Shoring banks with biodegradable materials, such as "bio-logs," that degrade over time and allow the establishment of vegetation
- Stabilizing the bank with "geotextile materials" that do not decompose but are covered with soil and allow root growth through the material

2.2.7 Sediment Removal/Materials Placement

Sediment accumulation in wetland, estuarine, and marine systems from either natural or anthropogenic processes (e.g., erosion or dredging operations) can alter normal flow patterns, bury or suffocate living coastal and marine resources such as shellfish and submerged aquatic vegetation (SAV), entrap or demobilize fish, cause flooding, block migratory fish from reaching spawning areas, and otherwise adversely affect the aquatic environment. Sediment removal projects are undertaken to alleviate these situations and restore natural flow regimes. Such projects undertaken by the CRP are typically small in scale and do not involve major dredging operations, but would involve the use of heavy equipment (e.g., front-end loaders and dump trucks) to haul the sediment to a disposal location.

Conversely, loss of sediment is causing the tidal wetlands in much of Louisiana's coast to disappear at an alarming rate. Sediment historically supplied by the Mississippi River no longer reaches Louisiana's coast due to mechanized control of the river's flow for flood control and navigation maintenance. Although other factors (such as erosion from wave action in the channels cut throughout the bayous for oil and gas pipelines) contribute further to the loss, the main problem is the loss of sediment. In these tidal wetlands, sediment placement activities, such as beneficial use of dredge materials, can be used to restore wetlands. There may also be other beneficial uses for sediment placement in various geographic settings, typically for wetland and tidal marsh restoration or creation.

2.2.8 Feasibility Studies, Modeling, Surveying, and Mapping

Feasibility studies, modeling, surveying, and mapping activities are conducted before implementing restoration projects to characterize the environment, determine the best methods of addressing a problem from an engineering standpoint, and predicting results and conditions with the project and without it. Such activities are typically non-invasive, and involve drilling into the soil or sediment with a soil auger, drill, or hand probe to remove core samples for grain size or chemical analysis, determine groundwater levels and elevations, and perform geotechnical evaluation. Feasibility studies typically analyze the project's environmental impacts under the chosen alternative.

2.2.9 Invasive Species Control Using Herbicides

Invasive plant species occur in wetland and riparian areas throughout the country and reduce habitat and food sources for native animal species. Herbicides are frequently used in combination with mechanical methods to control species such as Brazilian pepper (*Schinus terebinthifolius*), Chinese tallow (*Sapium sebiferum*), common reed (*Phragmites australus*), giant reed (*Arundo donax*), non-native *Spartina* species, reed canarygrass (*Phalaris arundinacea*), and others. Because recent studies have examined the toxicity of the herbicides and surfactants on non-target species, the information in the original PEA is updated here.

Herbicide use in CRP projects under this PEA and S-PEA may occur adjacent to wetlands and streams or in upland buffer areas. Herbicide use in wetland or streamside areas is restricted to aquatic formulations

of products with glyphosate (e.g., Rodeo), imazapyr (e.g., Habitat or Arsenal), triclopyr acid, or triclopyr triethylamine salt (TEA; e.g., Garlon 3A). These products have been found to be less toxic to aquatic organisms than other available herbicides. Herbicide use in upland buffer areas (areas supporting upland vegetation that are at least 20 yards from surface waters) is extended to include triclopyr ester (e.g., Garlon 4) and non-aquatic formulations of glyphosate (e.g., Round-up). In all instances, application methods and BMPs will be tailored to prevent exposure to non-target areas and organisms, thereby avoiding potential impacts. Any herbicide will be registered for use in that state and applied by a licensed applicator under all necessary state and local permits. Application methods are limited to those that reduce risk of herbicide drift, such as backpack spraying, cut stump, and hack-and-squirt. Methods that do not require surfactants will be used when possible. If necessary, surfactants will be limited to Agri-dex, and Hasten, as toxicological information is available for these products and they appear to be the least toxic to aquatic and marine/estuarine organisms. LI-700 may also be used in limited circumstances when less toxic surfactants are not appropriate. Other compounds may be considered in the future if ecotoxicological data become available. A project area may be treated several times per year, but only if necessary to control regrowth of the invasive plant.

2.3 LAND AND EASEMENT ACQUISITION PROJECTS

The land and easement acquisition project type includes implementation of projects involving land purchases or securing conservation easements for the purposes of restoration. Land and easement acquisition will sometimes allow or improve public access to resources, but this is a secondary consideration. Acquisition of existing structures, such as boathouses or docks, is also considered a land acquisition activity. Although this type of activity currently is limited to activities under congressionally directed awards and is not typical for CRP-funded projects, future projects may consider this type of activity. Acquisitions will be from willing landowners only, and will primarily be parcels that are not currently in use (e.g., farmland removed from production). If significant funds would be removed from a local tax base, an individual NEPA document will be required. Land uses after acquisition will be limited to those less destructive to the environment than before purchase.

2.4 EROSION REDUCTION PROJECTS

The erosion reduction project type includes implementation of projects designed to restore resources with high erosive potential and reduce erosion of sediments to waters of the United States. Examples of project types include restoration of hiking trails or roads, installation of exclusionary fencing (targeting both human and non-human impacts), and decommissioning of roads or other trails to alter public access. The need to either enhance or restrict existing public access to resources is determined at the project level. Specific project types are presented in Table 2, and those not described in the original PEA are described below.

2.4.1 Trail Restoration

Trail restoration projects are funded with the joint purpose of restoring trails to reduce erosion and enhancing low-impact recreational uses. Some trail restoration projects also provide better public access to natural areas, such as estuaries and other wetlands, and discourage the public from entering non-trail areas that could be damaged by erosion or foot traffic. Trail restoration activities funded by the CRP include fixing damaged trails, collecting garbage, building or repairing footbridges, stabilizing eroding hillsides or banks, and replacing or repairing raised or permanent walkways (e.g., boardwalks) designed to prevent uncontrolled access to sensitive areas.

2.4.2 Road Upgrading

When roads that pass by or through environmentally sensitive areas are damaged by erosion, flooding, storms, fallen trees, or other obstacles to traffic, drivers tend to use natural areas adjacent to roads, which can cause erosion, trampling, and damage to sensitive resources. When appropriate, road restoration projects are funded by the CRP to help maintain roads and restore impacted natural resources. With placement of appropriate physical barriers, these projects may also discourage future off-road vehicle entry into the impacted sensitive areas.

2.4.3 Road Decommissioning

Although uncommon, the CRP is eligible to fund the decommissioning of roads that pass through or near, or have been determined to adversely impact, sensitive environmental resources such as wetlands or streams with important habitat. The decommissioning of such roads reduces erosion and sediment loading on adjacent rivers, streams, and spawning habitats; helps discourage or prevent vehicle access through the areas; reduces road maintenance costs; restores vegetated buffers; and places land back into productive natural use. The only decommissioning funds provided by the CRP have been for roads that were deemed unnecessary by the owner and land use managers.

2.4.4 Exclusionary Fencing or Signage

Exclusionary fencing refers to temporary or permanent fences placed around sensitive environmental resources (e.g., highly erosive areas, or sea turtle nesting areas or streams) to reduce erosion and prevent the resources from being damaged or disturbed by people, animals, or vehicles.

2.5 PUBLIC OUTREACH PROJECTS

The public outreach project type includes implementation of projects to enhance and further public knowledge about the local environmental resources, the ecological importance of CRP-funded projects, and the value of the environment to local communities. Project types include various youth group activities, training programs, formal school partnerships, monitoring programs, and development of educational materials. Specific project types are presented in Table 2, and those not described in the original PEA are described below.

2.5.1 Youth Group Projects

The CRP provides funding assistance for programs and materials geared toward encouraging the involvement of youth organizations in habitat restoration projects. The CRP also funds projects designed to promote environmental stewardship and educate youth about living coastal and marine resources and the coastal environment.

2.5.2 Training Programs

The CRP provides funds for programs designed to train volunteers to conduct restoration work and outreach, and provides technical expertise to support on-the-ground implementation of fishery habitat restoration projects that involve significant community support. Such training programs help ensure that

volunteers become knowledgeable about environmental restoration, processes and procedures to conduct the various types of projects, and considerations regarding health and safety precautions.

2.5.3 Environmental Education Classes, Programs, Centers, Partnerships, and Materials

Environmental education activities funded by the CRP include development and delivery of educational programs explaining the ecological importance of living coastal and marine resources, environmental problems and solutions, wildlife resources in the local community, sensitive ecosystems, and environmental stewardship to local communities. In addition, CRP funds are eligible for use in establishing environmental education centers focused on educating the public about local community resources.

CRP funds are available to assist local organizations focused on environmental stewardship of marine, estuarine, and riverine resources and to build and maintain partnerships with local school systems. Such partnerships can help schools develop environmental curricula; learn about environmental issues; and arrange field trips to environmentally sensitive areas, education centers, aquariums, and museums.

CRP funds also can be used to develop educational materials to assist in teaching the public about environmental issues and the benefits of environmental stewardship, conservation, water resources and wetlands, and living coastal and marine resources in the local community and beyond. Examples of educational materials include pamphlets, flyers, posters, and books on environmental topics related to the ocean and other aquatic resources.

2.6 RESTORATION RESEARCH PROJECTS

The restoration research project type includes the implementation of hypothesis-driven research projects to test and improve the effectiveness of habitat restoration efforts conducted by the CRP. Research efforts typically (1) address the development, enhancement, or testing of coastal habitat restoration techniques; (2) improve the understanding of trophic relationships within coastal habitats; and (3) improve habitat restoration monitoring and evaluation methods.

2.7 RESTORATION ALTERNATIVE WITH STREAMLINED APPROACH (NOAA-PREFERRED)

This alternative—preferred by NOAA—includes selecting and funding projects that would employ one project type or various combinations of the individual project types detailed in Table 2. For example, a salt marsh restoration project could propose to include an educational training component focusing on the ecological value of tidal marshes, thus combining the habitat restoration and public outreach project types. Further, project selection, funding, and environmental compliance review would follow the programmatic approach detailed in the PEA and S-PEA (see Section 1.0). This alternative, using the programmatic approach previously described, is preferred for several reasons:

- It would allow for the combination of various project types in a manner that best serves the needs of the local communities and resources.
- It would accomplish project-specific NEPA review of every project funded through this program.
- The time-savings that would result from this programmatic approach to NEPA compliance would allow CRP to focus additional energy on either evaluating projects with more significant impacts,

or providing expanded and enhanced consultations and expertise on other federal restoration actions that affect living coastal and marine resources.

- The total number of projects selected for funding would not decrease, and would possibly increase, as a function of average reduced staff time per project.
- The minimum funding request for individual projects would not substantially increase as a function of required staff time, thereby directly helping smaller and more truly "community-based" restoration projects.
- It would avoid duplication of effort and would reduce paperwork as described in CEQ's regulations for implementing NEPA (40 CFR Part 1500.4).

2.8 RESTORATION ALTERNATIVE WITHOUT STREAMLINED APPROACH

This alternative would also allow for the selection and funding of restoration projects that use one project type or various combinations of the individual project types detailed in Table 2. Project funding would still typically range from $30,000 to $100,000, and the preliminary review and selection process would follow the approach detailed in the PEA and S-PEA. However, NEPA analysis and documentation would not follow the streamlined approach detailed in the PEA and S-PEA. Instead, analysis and individual decision documents would be created and required for every project tentatively selected for funding. This approach would substantially increase the workload for NOAA CRP staff, and the benefits of the streamlined approach, detailed in Section 2.7, would not be realized.

2.9 NO-ACTION ALTERNATIVE

Under the no-action alternative, NOAA CRP would implement projects under the existing PEA. The preferred alternative in the PEA states:

> "The Preferred Alternative is to implement habitat restoration activities under the Community-Based Restoration Program for all habitats that benefit living marine resources, including those that benefit anadromous fish species. These activities include fish passage implementation, as well as restoration of the following: riparian habitats, anadromous fish habitats, marshes, submerged aquatic vegetation (SAV) beds, oyster reefs, coral reefs, shorelines, kelp forest, and mangrove forests. Activities involved in these types of habitat restoration projects include: removal of invasive species; planting of kelp, dune grasses, and mangrove plants; stabilization of impacted areas such as coral reefs (such as following vessel groundings); and seeding or transplanting of shellfish beds and oyster reefs, in areas that previously supported such species."

Other agencies would still have the option to fund additional project types outlined under the restoration alternative if NOAA decides not to do so, however, need for coastal habitat restoration is great, and fewer important projects would be funded if NOAA did not fund the suite of restoration project types outlined in the restoration alternative.

3.0 AFFECTED ENVIRONMENT

A primary objective of the CRP is to provide monies and support to help public and private applicants conduct habitat restoration activities on a local level. The jurisdiction of the program includes essentially any environ in the United States and its territories that includes, or that directly or indirectly influences,

living coastal and marine resources, including migratory fish species. As a result, the potentially affected environment associated with the proposed action is substantial, including all coastal and estuarine habitats in the United States. It also includes inland habitats that influence or affect rivers, streams, and creeks affecting marine or estuarine waters, or that support migratory fish populations. It may also include habitats adjacent to U.S. lands (for example, in Canada or Mexico) that support living coastal and marine resources under NOAA trusteeship.

The following sections generally describe the physical, biological, and social environments of the United States, with emphasis on the coastal and estuarine habitats. The descriptions use an ecosystem approach to segment each region into specific types of habitat, for which baseline information is presented in the S-PEA (CEQ 1993; Bailey 1995). Table 3 presents the applicable habitat types, a short description of each, the CRP NEPA document containing the full description of each habitat type (either the PEA or this S-PEA), and the regions containing the specific habitat types. All habitat type descriptions included in the original PEA are hereby incorporated by reference; therefore, only those habitat types not described in full within the original PEA are presented in the following sections, including wetlands, ponds and lakes, stream and river channels, and mud or sand flat and subtidal bottom.

The following resources also are generally described: geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, cultural and historic resources, land uses, and demographics and environmental justice. For resources that differ greatly between regions, efforts are made to highlight the resource on a regional basis. For the sake of brevity, resources for which impacts are not possible or likely are not carried forward for further evaluation. Information presented in the original PEA pertaining to EFH, threatened and endangered species, socioeconomics, and cultural and historic resources are still valid.

3.1 WETLANDS

Wetlands are areas that are covered by water or that have waterlogged soils for significant periods during the growing season (the interim between the last killing frost in the spring and the first killing frost in the fall). Wetland resources are found throughout the area potentially affected by CRP-funded projects, including all regions and many areas along coastlines, rivers, streams, estuaries, and other water bodies or receiving areas. Wetlands generally include swamps, marshes, bogs, and similar areas (Titles 40 CFR 230.3 and 33 CFR 328.3).

Coastal wetlands are among the most productive ecosystems in the world, supporting thousands of species of plants, animals, shellfish, finfish, birds, invertebrates, and microbes (NOAA NMFS 2004c). Approximately 85 percent of commercially harvested fish depend on estuaries and near coastal waters at some stage in their life cycles (National Research Council 1997). Adult stocks of commercially harvested shrimp, blue crabs, oysters, and other species throughout the United States are dependent on wetland quality and quantity (Turner and Boesch 1988).

TABLE 3
HABITAT TYPES BY REGION

Habitat Type	Description[4]	Region				Document Containing Information	
		Northwest and Alaska	Southwest and Pacific Islands	Northeast	Southeast and Caribbean	PEA	S-PEA
Riparian Zone	Land immediately adjacent to a stream or river.	X	X	X	X	X	
Marsh Habitats (marine, brackish and freshwater)	Coastal wetlands influenced by tidal action. Transitional habitats between terrestrial and aquatic systems were the water table is usually at or near the surface, or the land is covered by shallow water tidally or seasonally.	X	X	X	X	X	
Estuaries	A partially enclosed body of water formed where freshwater from rivers and streams flows into the ocean, mixing with the salty seawater.	X	X	X	X	X	
Wetlands	Coastal areas that are covered by water or that have waterlogged soils for significant periods during the growing season, including non-tidal and tidal freshwater, saltwater, and brackish habitats. Wetlands feature hydrophytic vegetation, hydric soils, and wetlands hydrology.	X	X	X	X		X
Ponds and Lakes	Freshwater habitats located in topographic depressions where water is naturally or artificially impounded and stored for extended periods of time.	X	X	X	X		X

[4] From Thayer et al. (2003).

Habitat Type	Description[4]	Region				Document Containing Information	
		Northwest and Alaska	Southwest and Pacific Islands	Northeast	Southeast and Caribbean	PEA	S-PEA
Oyster Reefs	Reefs found where suitable substrate and adequate larval supply exist, along with appropriate salinity levels and water circulation. Characterized by dense, highly structured communities of individual oysters growing on the shells of dead oysters.	X	X	X	X	X	
Coral Reefs	Wave-resistant structures made of calcium carbonate secreted by, and harboring, plants and animals in shallow tropical seas. Characterized as highly diverse ecosystems, found in warm, clear, shallow waters of tropical oceans worldwide.		X		X	X	
Stream and River Channels	Passageways by which water travels from areas of high potential energy to points with lower potential energy. Important to living coastal and marine resources and essential fish habitat; may support submerged aquatic vegetation.	X	X	X	X		X
Submerged Aquatic Vegetation (marine/brackish and freshwater)	Sea grasses and other rooted aquatic plants growing on soft sediments in sheltered shallow waters of estuaries, bays, lagoons, and lakes. Freshwater species are adapted to the short- and long-term water level fluctuations typical of freshwater ecosystems.	X	X	X	X	X	

Habitat Type	Description[4]	Region				Document Containing Information	
		Northwest and Alaska	Southwest and Pacific Islands	Northeast	Southeast and Caribbean	PEA	S-PEA
Kelp	Relatively shallow (less than 50 meters deep) subtidal marine communities dominated by large brown algae (kelps) that form floating canopies on the surface of the sea. Kelp and other macroalgae grow on hard or consolidated substrates forming extensive three-dimensional structures that support numerous flora and fauna assemblages.	X	X	X		X	
Mud or Sand Flat and Subtidal Bottom	A mud flat is a relatively level area of fine silt along a shore (as in a sheltered estuary) or around an island, alternately covered and uncovered by the tide, or covered by shallow water. Subtidal bottoms are soft, bottom habitats occurring below the low tide line, comprised of loose, unconsolidated substrate characterized by fine- to coarse-grained sediment.	X	X	X	X		X
Shore Environments (Sand Beach or Beach Dune)	Vary widely in nature, from low-energy sheltered environments to more exposed coastline subjected to high-energy wave and tidal action. Composed of loose, unconsolidated substrate characterized by fine- to coarse-grained sediment.	X	X	X	X	X	
Mangroves (swamps)	Woody plant communities that develop in sheltered tropical and subtropical coastal estuarine environments. Swamps dominated by shrubs that live between the sea and the land in areas inundated by tides.				X	X	

Source: Restoration Center Database Queries (NOAA CRP 2004f).

Section 404 of the Clean Water Act (CWA) (33 U.S. Code 1344) provides a statutory definition of wetlands and assigns jurisdiction over protection of wetlands to the USACE. Section 404 of the CWA defines wetlands as "… those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Wetlands Training Institute 1995). An area is considered a jurisdictional wetland only if it exhibits the following three characteristics: evidence of hydric soils; dominance of hydrophytic vegetation; and wetland hydrology. Under Section 404 of the CWA, the USACE requires that an interested party obtain a permit before filling, constructing on, or altering a jurisdictional wetland. Further, mitigations for such activities are required but vary from state to state, and may include purchasing wetlands from an existing wetland bank, or enhancing, restoring, or creating wetlands that may be either onsite or offsite.

Wetlands provide numerous beneficial ecological functions, including protection of shorelines from waves and storm surges, erosion control and buffering, water storage, maintenance of water quality, removal of sediments, groundwater recharge, nutrient and pollution filtering, spawning and nursing areas for many fish species, and food and habitat for numerous species of aquatic and terrestrial plants and animals. Wetlands also provide important recreational and economic benefits for humans, providing opportunities for boating, fishing, hiking, waterfowl hunting, nature observation, and photography, among many others (Long Island Sound Habitat Restoration Initiative 2003).

Since the 1700s, millions of acres of wetland resources in the United States have been directly and indirectly degraded or significantly altered by humans through processes such as ditching, draining, filling, invasion of exotic species such as common reed (*Phragmites sp*), impounding, sea level rise, pollution, and diversion or impacting by storm water (Long Island Sound Habitat Restoration Initiative 2003). Between the 1950s and the late 1990s, the contiguous United States lost an estimated 385,000 acres of estuarine vegetated wetlands (salt marshes, shrub wetlands, and mangroves) (Dahl 2000; Mitsch and Gosselink 2000). And between 1922 and 1954 approximately 642,200 acres of coastal wetlands were lost (Mitsch and Gosselink 2000). These figures amount to an average rate of estuarine and coastal wetland loss of 13,696 acres per year between 1922 and the late 1990s (the total loss was roughly 1,027,200 acres for the entire period). These figures do not include losses for other wetland habitat types critical to maintaining fish stocks, such as stream and riverine habitat losses.

The primary types of wetlands that occur in the potentially affected area covered by this S-PEA and the 2002 PEA include tidal wetlands (marshes) and freshwater wetlands. These categories of wetlands are described in the following sections.

3.1.1 Tidal Wetlands (Marshes)

Tidal wetlands include salt, brackish, and fresh tidal marshes that are transitional habitats between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water tidally or seasonally (Thayer et al., 2003). Marshes occur in every region eligible for funds from the CRP. Most marine fish depend on the resources of tidal wetlands during some part of the life cycle. Salt marshes are found on all coasts of the United States around low-energy resources such as estuaries, lagoons, bays, and river mouths. Because salt marshes are discussed in the PEA, they are not discussed further in this S-PEA.

Brackish marshes are found in embayments and tidally influenced rivers where marine water is significantly diluted with freshwater. The salt content of soil in brackish marshes ranges from 0.5 to 18 parts per thousand (Long Island Sound Habitat Restoration Initiative 2003). Species composition changes with salinity and water content. Fresh tidal marshes are found in areas where the tide rises and falls but

the waters have no detectable salt content. Fresh tidal marshes feature the greatest diversity of tidal wetlands and support a larger number of plants than salt and brackish marshes.

3.1.2 Freshwater Wetlands

Freshwater wetlands include a wide variety of inland areas and habitat types, including ponds, bogs, fens, swamps, and freshwater marshes. Freshwater wetlands are found in every state and region. Some freshwater wetlands provide nursing and spawning habitat for migratory fish species and are hydrologically connected with coastal areas.

Cowardin et al. (1979) developed a system for classification of freshwater wetlands in the United States that includes the following types:

- *Palustrine* refers to non-tidal wetlands dominated by trees, shrubs, persistent emergent vegetation, emergent mosses or lichens, or non-vegetated shallow water areas (i.e., less than 6 feet deep) with no wave-formed or exposed bedrock shoreline features. Palustrine wetlands are less than 20 acres in size.
- *Lacustrine* refers to wetlands and deep-water habitats situated in a topographical depression or dammed river channel. Lacustrine wetlands lack trees, shrubs, persistent emergent vegetation, emergent mosses or lichens with greater than 30 percent aerial coverage, and are more than 20 acres in size.
- *Riverine* refers to wetlands and deep-water habitats contained within a channel, except those dominated by persistent emergent vegetation, trees, or shrubs (palustrine), or with greater than 0.5 parts per thousand ocean-derived salinity (estuarine, marine).

3.2 PONDS AND LAKES

Ponds and lakes are freshwater habitats located in topographic depressions where water is naturally or artificially impounded and stored for extended periods of time. Ponds and lakes are located throughout the United States, occurring in every state and region. Ponds and lakes are critical ecological resources with respect to the proposed action; similar to the freshwater wetlands with which they are often intricately associated, ponds and lakes provide habitat for species such as waterfowl that also use coastal resources. In addition, many lakes and ponds are hydrologically connected with coastal or marine resources through processes such as surface water flow and groundwater recharge. They provide nutrients, sediment and pollution filtration, and water storage, among many other functions.

The U.S. Environmental Protection Agency (EPA) defines a lake as “a large body of water, typically freshwater, which can be formed by glaciers, river drainage, surface water runoff, or ground water seepage. Lakes provide an area for recreational activity (e.g., boating, water skiing, and fishing) and a habitat for wildlife. They are particularly important to migrating wildlife.” Lake ecosystems support complex and important food web interactions and provide habitat needed to support numerous threatened and endangered species (EPA Office of Water 2004). EPA defines a pond as “a body of water usually smaller than a lake, encircled by vegetation, and generally shallow enough for sunlight to reach the bottom. Rooted plants can grow in any spot within the pond creating a habitat for various forms of animal life” (EPA Mid-Atlantic Integrated Assessment 2004).

3.3 STREAM AND RIVER CHANNELS

Tidal and non-tidal stream and river systems are located in every region covered by the CRP. Many rivers and streams along the coast are tidal, with the effects of ocean tides extending upstream. The channel of a stream or river is the portion of the cross section that is usually submerged and totally aquatic (EPA Office of Water 2004). Channel substrates may be composed of various materials, including cobbles, boulders, sand, clay, and silt. And tidal portions of a river channel often contain biological elements such as oyster reefs or SAV beds that help shape or define the channel.

Stream and river channels are critical to the viability of living coastal and marine resources. In addition to providing fresh water, rivers and streams transport nutrients and provide habitat for thousands of aquatic and terrestrial species, including birds, shellfish, finfish, amphibians, reptiles, mammals, plants, and invertebrates. Vegetation that grows along the banks of rivers and streams stabilizes the banks, shades the water, and provides cover and food for animals and nutrients for the ecosystem (e.g., from fallen leaves).

The integrity of stream and river channels is important to the viability of not only the streams and rivers themselves, but also to the estuaries, oceans, marshes, and wetlands connected to them. Processes such as channel erosion, pollution, diking, damming, channel alteration, scouring, and dumping can drastically affect the rivers and streams and their receiving waters by causing clogging, sedimentation, and alteration of temperature and water quality, among other factors.

3.4 MUD OR SAND FLAT AND SUBTIDAL BOTTOM

Mud flats are unvegetated, level areas along shorelines or around islands that are covered with shallow water, are composed of fine-grained sediments, and occur episodically at low-water tidal areas where exposure to the air is temporary and usually brief. They provide burrowing habitat for invertebrates and feeding grounds for birds and fish (Mitsch and Gosselink 2000). Mud flats are often backed by sandy beaches or marshes and occur in areas where general circulation results in sediment deposition (Thayer et al. 2003). Mud flats occur in every region covered by the CRP.

Subtidal bottoms can be hard or soft surfaces on the substrate that occur below the low tide line. They are composed of loose, unconsolidated substrate characterized by fine- to coarse-grained sediment. The water is relatively shallow and located adjacent to beaches or other sediment sources (Thayer et al. 2003). These habitats can support a great diversity of fauna, depending on the type of substrate (i.e., sand or mud), the content of organic matter, and depth. Many subtidal bottoms are dominated by infaunal invertebrates, including polychaete worms, crustaceans, echinoderms, and mollusks. Fish that often occupy subtidal bottoms include species of flatfish, croaker, sculpin, combfish, and lizardfish. Soft bottom subtidal habitats represent valuable recreational and ecological resources, as they are major sources of secondary and tertiary production. They also serve as recycling areas for detritus and other excess biomass, which is used by many infaunal and epifaunal species through deposit feeding activities. Deposit feeders, in turn, provide key food sources for fish and invertebrate predators. Infauna provide food for larger predators, such as fish, shrimp, and crabs, which have substantial value as commercial fisheries (Ricketts et al. 1985).

Subtidal bottom ecology is sensitive to pollution, such as wastewater discharges that alter the amount of organic and small particulate material. The physical distinction between sand and mud habitats is often vague, which creates a high degree of overlap in species distributions. The species assemblages of the subtidal soft bottom are divided into the ecotypes offshore eelgrass bed, subtidal mud, and subtidal sand (Ricketts et al. 1985).

3.5 GEOLOGY AND SOILS

Geology and soil resources potentially impacted by CRP-funded restoration projects vary greatly between and within the regions, and include sandy beach, barrier island, rocky coastline, mud bottom, and many other types of substrate and source material. Geologic features and soils generally depend on location, local physical geography, climate, geologic activity level, and a number of other attributes. It would be of little value to attempt to list or describe all of the specific types and features of geology and soil present in coastal and tidally influenced riverine areas in the United States. However, it is possible to describe, in very general terms, the types of materials, substrates, and features in areas where CRP-funded projects could occur.

The following are general descriptions of the characteristics, materials, unique features, and areas of concern for soils and geologic formations that underlie or comprise some key habitat types that would be affected by CRP-funded projects:

- Sandy beaches – the interface between land and ocean, these areas are naturally unstable due to constant action of waves, currents, and winds. Include sandy bluffs, embayments, barrier islands, and dunes. Materials are fine to coarse and often contain significant amounts of shell fragments. Occur on coastlines throughout the United States, especially in the Southeast, Gulf Coast, Southern California, the Great Lakes, and Hawaii.
- Rocky coastlines and intertidal zones – High-energy areas composed of rock. Occur on the Pacific Coast (especially Northern California, Oregon, Washington, and Alaska), the Great Lakes and in New England.
- Mud flats – low-energy intertidal areas that consist primarily of unconsolidated silts and clays (described in the previous section).
- Sand flats – low-energy intertidal areas that consist mostly of unconsolidated sands (described in the previous section).
- Rocky flats – low- and medium-energy intertidal areas that consist mostly of unconsolidated gravel, cobble, or boulders. Relatively common in all regions.
- Shell flats – low-energy intertidal habitats that consist predominantly of unconsolidated shell fragments.
- Peat flats – submerged or former tidal marsh plains that are predominated by peat. Occur mostly in New England and Great Lakes regions.

In addition, the CRP-funded projects could potentially affect the following sediment and rock types:

- Clay-silts – often found in estuaries, marshes, slow-moving rivers and streams, pools, and deltas.
- Limestone – calcium carbonate substrate; commonly associated with coral reefs. Occurs along coasts of Florida and the Gulf of Mexico.
- Volcanic materials – habitat consisting mainly of relatively recent volcanic material. Occurs in Hawaii and Alaska, areas of high volcanic activity.

Coastal land loss is a major concern associated with sandy beaches in the United States and elsewhere. The rates of erosion and loss of sandy materials vary greatly within and between regions, and is highly dependent on climate, level of beach nourishment, and wave energy. For example, erosion rates in the Gulf of Mexico region are generally the highest in Louisiana along the shores of barrier islands and

headlands associated with the Mississippi Delta, whereas the most stable Gulf beaches are along the west coast of Florida where low wave energy and frequent beach nourishment minimize erosion (USGS 2004).

The physical factors having the greatest influence on coastal land loss are reductions in sediment supply, relative sea level rise, and high-energy storm events, whereas the most important human activities are sediment excavation, river modification, and coastal construction. As a result of these agents and activities, coastal land loss is most commonly manifested as beach or bluff erosion and coastal submergence (USGS 2004). Longshore drift associated with breakwaters, jetties, and other artificial structures also often results in net loss of materials from sandy beaches.

Lithologic composition and hardness determine the land loss potential of the coast. For example, loose sand is more easily eroded than compacted, stiff mud. Because hard crystalline rocks resist erosion, some rocky coastlines in New England and along the Pacific coast have not changed appreciably in recorded history. Some limestones (e.g., coral reefs of the Florida Keys) also resist erosion, but other limestones may be dissolved by underground springs that cause the land to collapse and form drowned sinkholes. Some land loss along the west Florida coast near Homosassa Springs is caused by near-surface dissolution of limestone, or karst terrain (USGS 2004).

Land loss may also depend partly on smoothness or consistency of the coast and continental shelf. Because wave energy generally increases at promontories and decreases in embayments, headlands of highly irregular coasts are attacked more vigorously by waves than long stretches of smooth sandy beaches. Wave fetch, nearshore water depths, and shoreline orientation are components of shoreline morphology that also control the wave energy reaching the coast. The greatest coastal land loss normally occurs where there are long fetches of open water, the offshore profile is steep (relatively deep water near shore), and the waves approach the coast at a high angle (USGS 2004).

The density and type of vegetative cover also influences land loss by (1) dissipating the wave energy reaching sheltered shores, (2) encouraging the accumulation of organic and inorganic sediment, and (3) acting as a sediment binder that resists erosion. Some common coastal vegetation habitats are maritime forests, scrub thickets, grassy upland prairies, freshwater swamps, freshwater marshes, mangrove swamps, saltwater marshes, and grassy or forested dunes (USGS 2004).

Each type of coastal vegetation has its own unique features that can retard land loss. For example, dense stands of salt marsh and mangroves trap sediment or offer resistance to waves and currents so that land loss is prevented or mitigated. Dune grasses also help stabilize blowing sand and can assist in dune enlargement. However, the roots of grasses and trees are generally too shallow to reduce erosion from large storm waves that lower the backbeach and undercut the dunes or uplands (USGS 2004).

3.6 WATER RESOURCES

Water resources in the areas that could be affected by CRP-funded projects are diverse and dynamic, including surface water of many varieties and groundwater. Surface water resources consist of marine water (oceanic), tidally influenced water bodies such as estuaries, and non-tidal freshwater resources, including some inland rivers and streams, lakes, and ponds. Coastal waters support estuaries, coastal wetlands, coral reefs, mangrove forests, and upwelling areas. Critical coastal habitats provide spawning grounds, nurseries, shelter, and food for finfish, shellfish, birds, and other wildlife. Coastal resources also provide nesting, resting, feeding, and breeding habitat for 85 percent of waterfowl and other migratory birds (EPA 2004). Water resources also are affected by or associated with floodplains, storm water runoff (point and non-point releases), and water quality. Surface water resources are described in the following sections in descending order of salinity (i.e., marine, estuary, fresh), followed by groundwater.

Marine Water: Oceans that contact the United States (Atlantic, Pacific, and Arctic), as well as the Gulf of Mexico, are composed of marine (salt) water. Marine water is the primary medium for living marine resources and comprises the bulk of essential fish habitat. Marine water is threatened in the United States and elsewhere by changes in water quality. Contamination of the marine environment from point and non-point source pollution has caused alteration or loss of habitat; reductions in numbers of species and individuals that live in these waters; increases in floating trash and debris, and advisories concerning fish consumption and swimming; and the loss of recreational and commercial opportunities (EPA Office of Water 2004). Project types funded by the CRP to benefit marine water include reef restoration and creation, oyster and shellfish habitat restoration, planting or restoring SAV and kelp, and nearshore erosion reduction and prevention.

Estuaries: An estuary is a partially enclosed body of water where saltwater from the ocean mixes with freshwater from rivers, streams, and creeks. These areas of transition between the land and the sea are tidally driven, but, like rivers, they are sheltered from the full force of ocean wind and waves. Estuaries are generally enclosed in part by the coastline, marshes, and wetlands; the seaward border may be barrier islands, reefs, and sand flats or mud flats. Estuaries are biologically productive and directly support thousands of species of plants, animals, birds, and fish. Bodies of water that may be estuaries include sloughs, bays, harbors, sounds, inlets, and bayous. Some familiar examples of estuaries are Chesapeake Bay, San Francisco Bay, Boston Harbor, Tampa Bay, and Puget Sound (NOAA 2004). Project types funded by the CRP to benefit estuaries include restoration of estuarine resources, all erosion reduction projects, and shoreline restoration.

Non-Tidal (Freshwater) Resources: Non-tidal water that could be impacted by CRP-funded projects includes waters, such as rivers and streams, that support migratory fish or are hydrologically connected to marine or estuarine resources or wetlands. Project types funded by the CRP to benefit non-tidal resources include riparian restoration, wetland and marsh restoration and creation, installation or restoration of in-stream structures, dam removal, and levee modification or removal.

Groundwater Resources: Groundwater is water that flows beneath the land surface and interfaces and recharges surface waters. Because groundwater discharge is a large source of input to many tidal and non-tidal water resources (including rivers, streams, and estuaries), the quality of groundwater greatly influences the overall water quality in these areas. Groundwater quality can be compromised in many ways, including spills and seepage from buried disposal areas (e.g., landfills). Project types funded by the CRP to benefit groundwater resources include all erosion reduction projects, sediment removal and placement, debris removal, and wetland and marsh restoration and creation.

Floodplains: Floodplains are the valley floors adjacent to a stream channel that may be inundated during periods of high water (Linsley et al. 1982). Floodplains are associated with most rivers and streams that could be affected by CRP-funded projects, including all regions. Floodplains are composed of sediments deposited during flood events. Floodplains include a floodway (the width of the river that must be reserved to discharge the 100-year flood without increasing the water surface by more than 1 foot) and a floodfringe (the area of the floodplain outside the floodway that is susceptible to flooding). A 100-year flood is the flood elevation with a 1 percent chance of being equaled or exceeded in any one year. Likewise, a 500-year flood is the flood elevation with a 0.2 percent chance of being equaled or exceeded in any one year (Federal Emergency Management Agency 2004).

Development and agricultural activities within floodplains cause problems in many areas of the United States. During a flood, sediment, pollution, nutrients, scour, and debris from the floodplain can be uplifted and transported to coastal areas, which can decrease water quality, increase turbulence, and block rivers,

streams, estuaries, freshwater wetlands, and other water bodies. Project types funded by the CRP to benefit floodplains include debris removal, dam removal, and levee modification and removal.

Wetlands: Wetlands are an important resource that directly and indirectly affects water resources as a whole. They are the interface between the aquatic and terrestrial components of estuarine systems. Wetland habitats are critical to the life cycles of fish, shellfish, migratory birds, and other wildlife, and they help improve surface water quality by filtering residential, agricultural, and industrial wastes. Wetlands also buffer coastal areas against storm and wave damage. Because of their close interface with terrestrial systems, wetlands are vulnerable to land-based sources of pollutant discharges and other human activities (EPA 2004). Wetland resources are discussed in greater detail in Section 3.1. Project types funded by the CRP to benefit wetlands include wetland and marsh restoration and creation, planting of tree and shrub buffers, debris removal, dam removal, and all erosion reduction projects.

Storm Water Management Facilities: In many locations across the United States, storm water has been diverted into marine, estuary, and freshwater bodies. The results are an overall loss of ecological value due to declining water quality associated with constituents in the runoff, as well as dilution of estuaries to a degree that enables salt-intolerant invasive plants such as *Phragmites* to replace native vegetation (Copeland 1998). In addition, the contamination of water bodies and sediments by chemicals (including metals and organic substances from urban, agricultural, and industrial sources) has resulted in declining water quality in marine, estuarine, and freshwater resources (EPA 2004). Project types funded by the CRP to benefit storm water management facilities include culvert and tide gate installation, modification, or removal; dam removal; and levee modification or removal.

Water Quality: Water quality is a generic term used to represent the general "cleanliness" of the water of a certain resource. It is based on the relationship between the concentrations of various chemical and physical contaminants or pollutants and the ability of the water resource to support its ecosystem adequately. Although water quality is a function of many factors, five primary indicators are often used to assess the quality of surface water in an estuary or freshwater body—nitrogen, phosphorous, chlorophyll *a*, dissolved oxygen (DO) content, and water clarity.

Light penetration into estuarine waters is important for SAV, which serves as food and habitat for the resident biota. Some nutrient inputs to coastal waters (e.g., nitrogen and phosphorous) are necessary for a healthy, functioning estuarine ecosystem. But when nutrients from various sources, such as sewage and fertilizers, are introduced into an estuary, the concentration of available nutrients can increase beyond natural background levels, resulting in eutrophication. Excess nutrients can lead to excess plant production and thus to increased chlorophyll, which can decrease water clarity and lower concentrations of dissolved oxygen (EPA 2004).

Several regulatory statutes protect beaches, coasts, and the marine environment from pollution and development. Permitting requirements of Section 404 of the CWA are discussed in Section 3.1, and many other regulations have been established by agencies such as EPA, NOAA, USFWS, and USACE for the protection of water resources. For example, EPA was ordered under Executive Order 13158 to "expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment. Such regulations may include the identification of areas that warrant additional pollution protections and the enhancement of marine water quality standards." Project types funded by the CRP to benefit water quality include all erosion reduction projects, sediment removal and placement, debris removal and others.

3.7 LIVING MARINE RESOURCES AND ESSENTIAL FISH HABITAT

A primary mission of NOAA is the stewardship of living coastal and marine resources through science-based conservation and management, and the promotion of healthy ecosystems (NOAA NMFS 2004c). Living marine resources refer to the organisms that use, or otherwise rely on, marine, estuarine, and riverine (tidal and non-tidal) resources during all or part of their life cycles. The passage of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) in 1976 and the Sustainable Fisheries Act of 1996 (SFA; reauthorization of the MSFCMA) authorized NOAA NMFS to manage fisheries within the 200-mile wide exclusive economic zone (EEZ) along the coasts of the United States; to address human impacts on coastal and marine environments; and to prioritize identification and management of EFH.

As discussed in Section 6.0, each region employs programmatic EFH consultations to achieve compliance with applicable EFH regulations. Under the auspices of the MSFCMA and SFA, each NMFS region is required to prepare and implement a Fisheries Management Plan in which species to be managed (Management Unit Species) are identified within subregional units partly determined by the geographic coverage of a particular fishery. Section 4.2.1 of the PEA presents the Management Unit Species (and applicable life stages and EFH) identified in 35 management units to which the PEA applies, and the rationale for inclusion (for example, the EFH the species requires that could be affected by CRP-funded projects). Therefore, considerations related to EFH and Management Unit Species for each applicable fishery in each region are incorporated herein by reference.

3.8 ENDANGERED SPECIES

As noted in the PEA, the ESA provides for the conservation of species in danger of extinction throughout all or a significant portion of their range, as well as designation of critical habitat for these species. Considerations and the manner by which the CRP evaluates beneficial or adverse impacts to species that are listed as endangered or threatened are presented in Section 4.2.2 of the PEA. Consultation processes for federally listed species are also discussed in Section 1.3.3 and Section 6 of this document. In addition, impacts to threatened and endangered species are described in Section 4.1.10. Impacts are generally considered according to the following species types: fish, terrestrial mammals, marine mammals, birds, amphibians, reptiles, sessile invertebrates, mobile invertebrates, and plants. This section presents updated information for the species previously discussed in the PEA and presents information for a new species—smalltooth sawfish—not previously discussed in the PEA.

3.8.1 Update on Species Previously Presented in the PEA

The PEA lists and describes Pacific and Atlantic Ocean species of fish and sea turtles that were listed as endangered or threatened as of the release of that report (February 6, 2002). The current status of the species described in the PEA is provided on the NOAA Office of Protected Resource's (OPR) website at http://www.nmfs.noaa.gov/pr/species and in Appendix C. A review indicates that some changes have been made as of early 2006. The endangered and threatened species discussed in the PEA include the following:

Pacific Coast Fish

- steelhead trout (*Oncorhynchus mykiss)*
- Chinook salmon (*Oncorhynchus tshawytscha*)
- chum salmon (*Oncorhynchus keta)*

- coho salmon (*Oncorhynchus kisutch)*
- sockeye salmon (*Oncorhynchus nerka)*

Atlantic Coast Fish

- Atlantic salmon (*Salmo salar*)
- Gulf sturgeon (*Acipenser oxyrinchus desotoi*)
- shortnose sturgeon (*Acipenser brevirostrum*)

Reptiles – Sea Turtles

- green sea turtle (*Chelonia mydas*)
- hawksbill turtle (*Eretmochelys imbricata*)
- Kemp's ridley turtle (*Lepidochelys kempii*)
- leatherback sea turtle (*Dermochelys coriacea*)
- loggerhead sea turtle (*Caretta caretta*)
- olive ridley sea turtle (*Lepidochelys oliveacea*)

The PEA also lists several other endangered, threatened, and candidate species of birds, corals, fishes, mammals, mollusks, and reptiles that could be impacted by CRP projects. Information on the OPR website indicates that the candidate status for several of these additional species has been removed since the PEA was released (in other words, the species is not afforded special protection), including brown rockfish (*Sebastes auriculatu*), copper rockfish (*Sebastes caurinus*), searun cutthroat trout (*Oncorhynchus clarki clarki*). Key silverside (*Menidia conchorum)* and black abalone (*Haliotis cracherodii*) are species of concern, not candidate species. In addition, elkhorn (*Acropora palmate*) and staghorn coral (*Acropora cervicornis)* have been proposed for listing and are no longer candidate species. Also, the bald eagle (*Haliaeetus leucocephalus*) is now considered threatened, not endangered.

Appendix C provides the current status of these species, as well as additional species not referenced in the PEA. The list includes all endangered, threatened, proposed, and candidate species, as well as species of concern managed by NOAA, and endangered and threatened species managed by the USFWS that are most likely to be present in a project area. The NOAA OPR (http://www.nmfs.noaa.gov/pr/species/) and USFWS (http://www.fws.gov/endangered/wildlife.html#Species) websites provide more detailed information on each species and policies regarding management and conservation of special status species. When a proposal has the potential to impact threatened and endangered species, the CRP follows the same procedures as described in the PEA and in section 6.0 of the S-PEA. Potential impacts to species are also examined and mitigated in conjunction with project-level EFH, as described in the previous section.

3.8.2 New Species Information

The CRP is aware of ongoing reviews of candidate species by NOAA and USFWS, and routinely consults the species lists to ensure compliance with the ESA and Marine Mammal Protection Act. For example, a fish species has been listed as endangered since the PEA was released, the smalltooth sawfish (*Pristis pectinata*). The final determination to list this species as endangered was issued on April 1, 2003. Smalltooth sawfish is one of two species of sawfish that inhabit U.S. waters. Smalltooth sawfish commonly reach 18 feet in length, and may grow to 25 feet. Little is known about the life history of these animals, but they may live up to 25 to 30 years and mature after about 10 years. Like many

elasmobranchs, smalltooth sawfish are ovoviviparous (i.e., the mother holds the eggs inside of her until the young are ready to be born, usually in litters of 15 to 20 pups).

Sawfish species inhabit shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks, and in estuaries or river mouths. Certain species of sawfish are known to ascend inland in large river systems, and they are among the few elasmobranchs found in freshwater systems in many parts of the world.

Smalltooth sawfish have been reported in both the Pacific and Atlantic Oceans, but the U.S. population is found only in the Atlantic. Historically, the U.S. population was common throughout the Gulf of Mexico from Texas to Florida, and along the east coast from Florida to Cape Hatteras, North Carolina. The current range of this species has contracted to peninsular Florida, and smalltooth sawfish are relatively common only in the Everglades region at the southern tip of the state. No accurate estimates of abundance trends over time are available for this species. However, available records, including museum records and anecdotal fisher observations, indicate this species was once common throughout its historic range and that smalltooth sawfish have declined dramatically in U.S. waters over the past century.

Sawfish are extremely vulnerable to overexploitation because of their propensity for entanglement in nets, restricted habitat, and low rate of population growth. The decline in smalltooth sawfish abundance is primarily the result of bycatch in various fisheries, likely compounded by habitat degradation. To protect this species, the States of Florida and Louisiana have prohibited the take of sawfish. Three National Wildlife Refuges in Florida also protect sawfish habitat.

3.9 CULTURAL AND HISTORICAL RESOURCES

As described in Section 4.3.1 of the PEA, Section 106 of the National Historic Preservation Act (NHPA) defines requirements and policy for the preservation, restoration, and maintenance of the historic and cultural environment of the United States. Although the manner by which the CRP complies with the NHPA and evaluates project sites was described in the PEA, additional details are provided here.

The CRP complies with Section 106 of NHPA on a project-by-project basis, and recognizes that habitat restoration projects close to streams and coasts often have an inherent nexus with both pre-Columbian and early European settlement in the United States. The CRP or its designee will consult with State Historic Preservation Officers (SHPOs) and/or Tribal Historic Preservation Officers (THPOs) on project types that may impact cultural or historic resources. For projects that will not affect cultural/historic resources, CRP staff will coordinate with NOAA's designated Federal Preservation Officer (FPO) for internal review. This consultation with SHPO/THPOs and/or review by NOAA's FPO is documented in a memorandum for the Project Record.

The CRP acknowledges the projects under this PEA and S-PEA are undertakings as defined in 36 CFR Part 800. When there is a potential for impacts to archeological or historical resources, the CRP will consult with the appropriate state and local officials and Indian tribes, and consider their views and concerns regarding the potentially affected cultural resources prior to making a final project implementation decision. Impacts are appropriately avoided, minimized, or mitigated for by mutual agreement, usually among the affected SHPO and/or the THPO, the appropriate federal agencies, and any other involved parties.

Not all undertakings under this PEA and S-PEA have the potential to cause adverse effects on historic resources, as not all activities involve ground disturbance. In these cases, the agency has no further obligations under Sec. 106. This determination of no potential to cause adverse effect will be made in coordination with the NOAA Federal Preservation Officer.

The following types of activities have qualified for exemptions under 36 CFR 800.14(c) under agreements between states and other federal agencies. Although no such agreement exists between NOAA and any state at the current time, impacts of these activities are deemed to be non-significant under NEPA, and projects containing such activities may qualify for an EA and FONSI. The following activities will have negligible or limited potential to affect historic and cultural resources. All projects that include these activities will continue to receive review under Sec. 106.

- Feasibility studies, project engineering and design, or monitoring that does not involve subsurface disturbance (USDA 2002)
- Conservation easement acquisition and management plans that do not call for removal of structures or ground-disturbing activities that differ from current usage (e.g., current agricultural practices could continue after easement purchases) (USDA 2002)
- Wetland restoration involving excavation and changes to water flow in areas that are currently agricultural fields and have been previously disturbed by agricultural practices (USDOI 1997)
- Removing or modifying dikes, levees, dams, and other water control structures where the structures themselves are not potentially eligible for the National Register of Historic Places (USDOI 1997)
- Installing, removing, replacing, or maintaining bridges, fish screens, culverts, and other water control structures in existing constructed road surfaces, dikes, levees, or ditches where the site is not a historic property and the affected structures or areas of human construction are less than 50 years old (USDOI 1997)
- Stream channel restoration by placement of in-stream structures and spawning gravels, or through excavation of sloughs and meanders with heavy equipment (USDOI 1997)
- Plant removal though cutting, mowing, herbicide use, manual uprooting with hand tools, or burning (USDOI 1997)
- Road decommissioning and upgrading activities such as decompacting soils, outsloping road surfaces, or adding rolling dips, as long as the roads themselves do not qualify as historic properties (USDOI 1997)
- Revegetation that does not involve ground disturbance (e.g., broadcast seeding or pushing saplings into the ground), or mechanical scarification or excavation of soil (USDOI 1997)
- Maintenance of wetland restoration sites including the plant removal methods above, and planting of additional plants, as long as activities are in the same footprint and depth as originally approved activities (USDOI 1997)
- Construction of fences to prevent livestock from compacting soil and eroding stream banks (USDOI 1997)
- Excavation for placing irrigation systems or off-channel water systems for livestock or for removing tile, ditches, dikes, and levees (USDOI 1997)

Projects with activities not listed above that complete consultation with a SHPO before the CRP completes NEPA review and that are deemed to include adverse effects on historic resources may be deemed to be non-significant under NEPA and included under the impacts of this document, provided the adverse effects have been resolved between the SHPO/THPO and NOAA CRP through a Memorandum of Agreement (MOA). When an MOA has not yet been completed, the applicant will be notified and Special Award Conditions will be applied preventing ground-disturbing activities until agreement is

reached. The MOA will provide the information needed to document the impacts to historic resources through a targeted supplemental EA.

3.10 LAND USES (INCLUDING RECREATION)

The majority of the projects funded by the CRP are located in or directly adjacent to coasts, estuaries marshes, rivers, streams, and other aquatic features, including riparian habitat, banks, oyster reefs, fishways, and bluffs. As coastal areas are the most heavily developed areas in the United States, a significant portion of project sites are in urban and suburban areas, where land uses range from residential (single and multi-family) to recreational (e.g., beaches, estuaries, wetland preserves, rivers, and trails) to industrial. Other sites are located in rural areas, such as dam spillways and agricultural areas. Some sites are located in and around wastewater and storm water discharge points.

Because benefiting living coastal or marine resources is a prerequisite for CRP funding, projects tend to be located in areas rich in ecological and recreational value, such as parks and nature preserves that tend to feature large numbers of living coastal or marine resources. Many project areas have been subject to neglect and have overgrown with weeds or invasive species such as *Phragmites*. Others have been the sites of dumping of nonhazardous household materials and other garbage, and construction debris.

The CRP does not typically fund projects on sites with known or perceived contamination of soil, surface water, or groundwater (e.g., brownfields, former hazardous waste sites, or landfills). Many contaminated sites are regulated by state, local, or federal environmental agencies, and are managed as such. The cleanup or remediation of such sites is beyond the scope of the CRP and can be associated with health risks and environmental and financial liabilities. However, the CRP does provide funding for habitat restoration activities on formerly contaminated sites on a case-by-case basis. On occasion, the CRP will fund restoration or outreach projects that take place in parallel with cleanup or removal efforts for contaminated soil or other media (e.g., when earthen dams or features to be removed contain contaminants). This can result in the release of contaminated sediments downstream. The possibility of such situations occurring is considered during the funding selection process and weighed against the benefits that would be achieved by the project's implementation and the nature and magnitude of risks associated with a release of hazardous materials. The CRP can also provide funding for evaluating the potential or actual fate of the released contaminated sediments.

3.11 DEMOGRAPHICS AND ENVIRONMENTAL JUSTICE

Coastal regions are home to more than 139 million people (approximately 53 percent of the U.S. population), and this number is expected to increase to 165 million by the year 2010 (NOAA 2002). People enjoy coastal areas for their beauty and depend on them for recreational and commercial uses. Over 75 percent of commercial fisheries and 80 to 90 percent of recreational marine and migratory fishes depend on estuarine, coastal, and riverine habitats for all or part of their life cycles (National Safety Council 1998; NOAA 2002). Commercial and recreational fishing industries employ 1.5 million people and contribute $111 billion to the nation's economy. However, human activities and development have caused the destruction of more than half (roughly 55 million acres) of the wetlands in our coastal states (NOAA 2002).

Because a large percentage of the population lives in coastal regions, there is great socioeconomic diversity, including variations in income, age, and race. As CRP-funded projects tend to benefit all populations equally, all communities (including those with environmental justice challenges) would typically have a net benefit or positive impact as a result of project implementation. CRP-funded projects

tend to increase public access and environmental quality wherever implemented. Several have involved minority populations in coastal cities.

4.0 ENVIRONMENTAL CONSEQUENCES

This section evaluates the anticipated environmental impacts resulting from implementation of each of the project types not previously evaluated by the CRP and presented in Section 2.0. Due to the programmatic nature of this document, general characteristic impacts are described for each project type discussed in Section 2.0. The potential impacts would be applicable to the affected environment described in Section 3.0, with slight variations due to local project-level site conditions and resources. Potential impacts would be documented in the manner described in Section 1.0. Also discussed are potential cumulative impacts, adaptive management and project-level mitigation monitoring and evaluation, unavoidable adverse impacts, the relationship between short-term uses and long-term productivity, and the irreversible and irretrievable commitment of resources.

The potential impacts have been described by their characteristics—type (direct, indirect, or cumulative), duration (short- or long-term), and significance. Each of these characteristics is described below.

Type of Potential Impacts

Direct, indirect, and cumulative impacts are defined at 40 CFR 1508.7 and 1508.8, and these definitions are presented below. These categories are used to describe the timing and proximity of potential impacts on the affected area only. They have no bearing on the significance of the potential impacts, as described below, and are used only to describe or characterize the nature of the potential impacts. Cumulative impacts are defined below, and are discussed in Section 4.6.

- **Direct Impact:** A potential impact caused by the proposed action or project that occurs at the time and place of the action.
- **Indirect Impact:** A potential impact caused or induced by the proposed action or project that occurs later than the action or is removed in distance from it, but is still reasonably foreseeable.
- **Cumulative Impact:** A potential impact resulting from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions.

Duration of Potential Impacts

The duration of the potential impact can be defined as either short-term or long-term and indicates the period of time during which the environmental resource would be impacted. In general, the impacts of construction and other activities undertaken to implement a proposed project would be short-term, and the impacts of the project results would be long-term. The duration of each potential impact is defined as follows:

- **Short-Term Impact:** A potential impact of short duration, relative to the proposed project and the environmental resource.
- **Long-Term Impact:** A potential impact of long duration, relative to the proposed project and the environmental resource.

Significance of the Potential Impacts

To determine the proposed action's significance, the CRP qualitatively assessed the degree to which the alternatives would impact a particular resource. The significance of a potential impact is defined on a

spectrum ranging from no impacts to significant impacts. The potential impacts could be either beneficial or adverse for a particular resource (impacts described in the following sections are adverse, unless specified as beneficial).

The general practice with most NEPA documents is to focus on, describe, and evaluate *adverse* impacts to the natural and human environments. However, the S-PEA considers the relative significance of both adverse and beneficial impacts, because the intent of CRP's proposed action is to provide *beneficial* impacts to habitat. The qualitative assessment is based on a review of the available and relevant reference material, and based on professional judgment using standards that include consideration of the permanence of an impact or the potential for natural attenuation of an impact; the uniqueness or replaceability of the resource; the abundance or scarcity of the resource; and the potential that mitigation measures can offset the anticipated impact. Each impact is described by one of the following definitions:

- **Minor Impact:** A minor degradation of the existing quality of the environmental resource or a minor disruption of that resource.
- **Moderate Impact:** A moderate degradation of the existing quality of the environmental resource or a moderate disruption of that resource.
- **Substantial Impact:** A highly desirable outcome in terms of increasing the existing quality of the environmental resource.
- **Major Impact:** An undesirable outcome in terms of degrading the existing quality of the environmental resource or an undesirable disruption to that resource.
- **Severe Impact:** A highly undesirable outcome in terms of degrading the existing quality of the environmental resource or extremely disrupting that resource.

Table 4 displays the terms used to describe potential impacts in this S-PEA. The type of impact is defined, the duration is identified, and the qualitative assessment is performed to determine the level of significance and assign a qualifier. Table 5 presents a summary of environmental consequences and mitigation measures of the proposed action, as presented in the following sections. The environmental consequences described and their associated level of impact are typical for project types described here. However, *it is possible that the CRP may tentatively select a project for funding that would have impacts that exceed the levels anticipated and described in the PEA or S-PEA* (i.e., funding a dam removal project that due to contaminated upstream sediments would have associated impacts that exceed those described in the PEA or S-PEA). *In that case, a separate NEPA analysis would be required, and would be completed and documented independently*.

TABLE 4
TERMS USED TO DESCRIBE POTENTIAL IMPACTS

Type of Environmental Impact	Duration of Environmental Impact	Level of Significance	Qualifier for Level of Significance
No Effect or Impact Direct Indirect Cumulative	Short-term or Long-term	Not Significant	Minor Moderate Substantial
		Significant	Major Severe

TABLE 5
SUMMARY OF ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION[5]

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
HABITAT RESTORATION							
Installation of Fish Screens or Other Structures	No impacts	Direct, short-term, minor impacts	Indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	No impacts	No impacts	No impacts
Fish and Wildlife Monitoring	Direct, long-term, minor beneficial impacts	Direct and indirect, long-term, minor beneficial impacts (habitat)	Direct and indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and direct and indirect, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts (habitat)	Direct, long-term, minor beneficial impacts

[5] Impacts described in Table 6 are adverse, unless specified as beneficial.

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Debris Removal	Direct, long-term, minor beneficial impacts	Direct, long-term, moderate beneficial impacts	Indirect, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	No impacts	Direct, long-term, minor beneficial impacts	No impacts
Small Dam Removal	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, substantial beneficial impacts	Direct, long-term, moderate impacts	Direct, long-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, long-term, moderate beneficial impacts
Levee Modifications or Removal	Direct, short-term, minor impacts	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	Direct and indirect, short-term, moderate impacts and indirect, long-term, moderate beneficial impacts	Indirect, long-term, minor impacts	Indirect, long-term, minor impacts	No impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Bioengineering to Prevent Erosion	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Direct, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Indirect, long-term, minor impacts	Indirect, short-term, minor impacts	No impacts
Sediment Removal or Materials Placement	Direct, short-term, minor impacts	Direct, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, short-term, minor and moderate impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, moderate beneficial impacts	Indirect, long-term, minor impacts	Indirect, long-term, minor impacts	No impacts
Feasibility Studies, Modeling, Surveying, and Mapping	Indirect, long-term, beneficial impacts and direct, short-term, minor impacts	Indirect, long-term, beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Invasive Species Control Using Herbicides	Direct, short-term, minor impacts	Direct, short-term, moderate impacts	Direct, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Indirect, long-term, substantial beneficial impacts	No impacts	Direct, short-term, moderate impacts	No impacts
LAND AND EASEMENT ACQUISITION							
Land Acquisition and Acquisition of Existing Structures	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, moderate impacts	Direct, long-term, minor beneficial or adverse impacts
EROSION REDUCTION							
Trail Restoration	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Direct, short-term, minor impacts and direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and direct and indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts	Indirect, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Road Upgrading	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Indirect, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct and indirect, short-term, minor impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts	No impacts
Road Decommissioning	Direct, short-term, moderate impacts and direct, long-term, moderate beneficial impacts	Direct, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Indirect, short-term, moderate impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, moderate impacts and direct and indirect, long-term, moderate beneficial impacts	Direct, long-term, minor beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, minor impacts	Indirect, long-term, minor adverse and beneficial impacts
Exclusionary Fencing or Signage	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, minor beneficial impacts	No impacts	Direct, long-term, minor impacts	No impacts
PUBLIC OUTREACH							
Youth Group Projects	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts

Project Type	Resources						
	Geology and Soils	**Water**	**Living Coastal and marine resources and EFH**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Land Use and Recreation**	**Socioeconomics and Environmental Justice**
Training Programs	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts
Environmental Education Classes, etc.	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Indirect, long-term, minor beneficial impacts	Direct and indirect, long-term, minor beneficial impacts	No impacts	Indirect, long-term, minor beneficial impacts	Direct, long-term, minor beneficial impacts
RESTORATION RESEARCH							
Hypothesis-Driven Research and Monitoring Methods	No impacts	Direct, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Direct and indirect, short-term, minor impacts and direct, long-term, substantial beneficial impacts	Indirect, short-term, minor impacts	No impacts	No impacts

The following sections discuss the potential impacts resulting from the various project types, and the potential mitigation of such impacts. In addition to the specific mitigation measures outlined below, NOAA and partner organizations would use adaptive management techniques at the project level and conduct monitoring activities, as described in Section 4.7.

4.1 PREFERRED RESTORATION ALTERNATIVE-- RESTORATION PROJECTS

The following sections generally describe the potential impacts that would result from implementing the following project types: installation of fish screens; fish and wildlife monitoring; debris removal; dam removal; levee modification or removal; bioengineering to prevent erosion; sediment removal; and feasibility studies, modeling, surveying, and mapping.

4.1.1 Installation of Fish Screens or Other Structures

Installation of fish screens or other structures could cause direct, short-term, minor adverse impacts on water resources, because many project sites would need to be dewatered before work could begin. Although these projects may also introduce minor amounts of localized sediment into the water resources, the amount of sediment would not be sufficient to alter downstream habitat or degrade water quality downstream.

These projects also could cause indirect, short-term, minor impacts on living coastal or marine resources. Indirect and direct, short-term, minor impacts to threatened and endangered species may include handling, noise, sedimentation, hydrology, and displacement (see Section 4.1.10 for more details). These minor impacts would result from harassment during fish relocation activities, due to the requirement for dewatering. Captured fish are sometimes relocated in areas with lower habitat quality, potentially altering essential behavior and increasing predation risk in the short term (NOAA NMFS 2004d). These minor, short-term impacts would be balanced by the direct, long-term, substantial beneficial impacts. The fish screens would protect fish species from entrainment in water diverted for agriculture, power generation, or domestic use. Other structures with similar functions may be designed and used to control the spread of invasive species.

4.1.2 Fish and Wildlife Monitoring

Wildlife monitoring projects would cause indirect, long-term, minor beneficial impacts to wildlife resources and habitat in the coastal regions of the United States. The observational data gathered by trained individuals would be used to develop baseline measurements on species composition, diversity, and richness of habitat. These baseline data would then be used as a basis for future habitat management decisions to benefit various wildlife species. CRP would also use the data to report on the success of individual projects over time, thus indirectly and positively affecting future funding of the program.

Projects that establish volunteer programs to monitor restoration projects would have direct, long-term, minor beneficial impacts on geology and soils, water resources, living coastal and marine resources and EFH, and threatened and endangered species that are directly related to monitoring the performance and progress of the restoration projects relative to the established project goals. In addition, indirect and direct, short-term, minor impacts to threatened and endangered species may include handling, noise, sedimentation, and displacement (see Appendix C for more details). Projects with successful monitoring programs would likely be more successful than those without such programs because monitoring would allow problems and flaws to be identified early in the process and corrected. Public volunteer monitoring programs would have direct and indirect, long-term, minor beneficial impacts on land use,

socioeconomics, and environmental justice, because the involvement of local citizens in environmental projects would promote environmental stewardship and understanding of living coastal and marine resources and environmental issues and a sense of community pride.

4.1.3 Debris Removal

Debris removal projects would cause direct, long-term, minor beneficial impacts on geology, soils, and land use. By identifying, locating, and removing unwanted debris from underwater and coastal environments, the geology, soils, and landscape would be inherently cleaner and proper disposal of solid waste would occur. Derelict fishing gear, general solid waste, and unwanted natural debris would no longer pollute local project areas, thereby causing direct, long-term, moderate beneficial impacts to water quality. Implementation of debris removal projects also would result in indirect, long-term, moderate beneficial impacts on living coastal and marine resources and EFH, and on threatened and endangered species because habitats would be cleared of potentially harmful debris. In addition, indirect and direct, short-term, minor and moderate impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, and displacement (see Section 4.1.10 for more details).

4.1.4 Small Dam Removal

Dam Impacts Overview

In general, small dam removal projects would produce some short-term ecological impacts and considerations, but the long-term ecological benefits—improved water quality, sediment transport, and native resident and migratory species recovery—demonstrate that dam removal could be an effective long-term river restoration tool (Bednarek 2001). Although some removals could cause significant impacts (e.g., flooding, water quality contamination and loss of historic resources), these projects are not covered by this S-PEA and therefore the relevant impacts are not described below. The impacts described are for small dams and are associated with the actual removal or modification phase of the project.

Small dam removals may include indirect and direct, short-term, minor and moderate impacts on geology and soils, water resources, and living coastal and marine resources and EFH, as well as direct, long-term, minor or moderate cultural/historic and land use impacts. Indirect and direct, short-term, minor and moderate adverse impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 and below for more details). However, indirect and direct, long-term, moderate and substantial benefits to threatened and endangered species, as well as to other resources may result as well.

Dam removal projects would cause direct and indirect, short-term, minor and moderate impacts during the removal (construction) phase of the project. Impacts would stem from the use of heavy machinery and construction equipment, and would include soil compaction, temporary grading, removal or crushing of understory vegetation, and increased soil erosion and runoff in the immediate area of construction operations. In addition, wildlife species may be temporarily displaced or harassed during construction activities due to reverberations and noise. Human activities may also be temporarily affected by the latter.

After the construction phase, the change in obstruction (e.g., fully or partially removed dam) would produce direct and indirect, short-term and long-term impacts, generally resulting from altered hydrology and geomorphology and an increased connection between upstream and downstream areas. In general, small dams store limited water and sediment, and the removal of a run-of-river dam is unlikely to alter

downstream hydrology (Heinz Center 2002). Short-term impacts may include downstream turbidity and sedimentation and/or scouring of the channel bed caused by a release of water and sediments accumulated in the impounded area. This impact may also be affected by a potential increase in site-specific (local) erosion and changes in channel geomorphology. These sediments could impact downstream aquatic habitat, as well as water and food quality. However, during many small dam removals sediments are quickly flushed out (Heinz Center 2002; Stanley and Doyle 2003), and sediment deposition does not always cause measurable changes in algal or invertebrate communities (Stanley and Doyle 2003). Also, areas exposed by the drawdown often revegetate quickly (Aspen 2002). One study showed that some fish were impacted by sediment accumulation downstream, but effects appeared short-term (Bushaw-Newton et al. 2002). Additional short-term, direct impacts may include supersaturation of gases, which could lead to gas-bubble disease and kill some fish. Bednarek (2001) noted that supersaturation results from one study were short-term and did not affect overall populations. Although contaminants can be released through resuspension of sediments behind dams, sediments with contaminant levels consistent with published sediment quality guidelines and background concentrations rarely impact biota, and will be considered non-significant (see Section 2.1). Minor changes may also occur in groundwater supplies at the impounded area after drawdown.

Long-term impacts may also result from the removal of a small dam. There may be a shift in temperature and nutrient gradients, as well as fish assemblages and behavior. Temperature may increase or decrease, depending on whether water was previously released from the top or bottom of the dam, and therefore may affect cold- or warm-water fish populations, respectively. Removal of small dams may reintroduce nutrients downstream. Although, many small, run-of-river dams are unlikely to substantially alter thermal regimes (Poff and Hart 2002) and water quality is unlikely to change noticeably if the impoundment had a short residence time and infrequent stratification (Bushaw-Newton et al. 2002). A reduction in species preferring reservoir habitats may occur, as conditions change to favor more lotic than lentic species. Direct impacts also may include the elimination of wetland areas around the former reservoir margins, as well as the potential colonization of invasive vegetation on exposed soils. Dam removal could impact some recreational users, as well as aesthetic conditions for those who prefer flat water created by an impoundment. In addition, the dam may meet criteria for eligibility in the National Register of Historic Places, and consequently removal may have impacts to historic resources. These dams will be removed under this S-PEA or a supplemental EA only if removal is deemed non-significant (see Section 3.9).

Many of the impacts described above can be avoided, minimized, or mitigated. Pre-removal reconnaissance and project design can identify potential impacts and strategies to achieve these actions. Techniques may include minimizing the number and types of heavy machinery used; using specific routes for heavy machinery within the project site (thereby minimizing the area of soil compacted); anticipating erosion and head cuts through grade control structures or bank recontouring; and using sediment management, such as silt fencing to minimize the amount of soil potentially moving offsite. Construction activities can also be timed to avoid important life history phases of sensitive species, such as spawning of migratory fish. Removal could also be timed during appropriate flow periods. In addition, the release of accumulated sediment can be managed, including the slow drawdown of the reservoir, which would also help to avoid supersaturation. Regarding areas exposed by drawdown, actions are frequently taken to encourage the growth of native vegetation and discourage invasive plants, if natural revegetation is unlikely to occur quickly enough. Sociocultural issues may be addressed by educating the public on the benefits of free-flowing rivers. In addition, signs can be displayed at the former dam site to signify its historic importance.

Dam removal projects would also result in direct and indirect, long-term, moderate and substantial beneficial impacts. Without obstruction, migratory fish could reach historic spawning areas (Baish et al. 2002); natural flow regimes would be re-established; sediment, nutrient, and organic material would be available to downstream habitats; temperature and dissolved oxygen gradients would stabilize; and

flooding may be reduced upstream. Dam removal may increase the abundance and diversity of aquatic insects, fish, and other organisms (Heinz Center 2002), and decrease invasive and undesirable species (Bednarek 2001). Although wetlands may decrease at the former impounded area edge, they could redevelop both above and below the dam site. The downstream channel may also improve its connection to the floodplain, enhancing existing riparian wetlands. In addition, these projects could create new recreational opportunities and waterfront revitalization, replenish beaches, and decrease safety and liability concerns. Lastly, despite dam removal costs and the value of lost services (if applicable), removal may save financial resources otherwise required for operating costs and rehabilitation of the dam for safety or ecological reasons.

Impacts of Previous CRP Projects

In the past 5 years, the CRP has helped fund the construction of 30 completed dam removal projects, and has found that actual impacts correspond with those summarized in scientific literature. Also, several projects were awarded contingent on the applicant meeting prescribed criteria before moving to construction. The CRP found that, in several instances, projects were halted before construction. A few of these projects (both successful and halted) are presented here as case studies.

Case studies of successfully implemented projects

Mt. Scott, Oregon
The Mt. Scott Dam Removal in Oregon was seen as a great success overall. The project eliminated a public safety hazard, as the pond behind the dam created a drowning hazard and supported a large mosquito population. The project was also very successful biologically—it opened 3.2 miles of habitat to Chinook and steelhead. Also, the stream temperature downstream of the dam, which had been elevated due to the dam and artificial pond, decreased by 5 degrees Celsius immediately post-construction. There were some short-term, moderate, negative impacts related to elevated turbidity levels, but no long-term negative impacts. This project was considered to have fit under the PEA, and would still be expected to fit under the PEA/S-PEA.

Charming Forge Dam, Pennsylvania
The Charming Forge Dam is an example of a removal project that was flawlessly executed and then monitored after removal. The goals were to pass anadromous fish upstream to their native spawning ground, improve water quality, and secure long-term access for the fishing public. One acre of in-stream habitat and one acre of riparian habitat were restored. There were no significant impacts to any resources considered under NEPA. There were noticeable improvements to water quality as the impounded area was reduced to its original riverine state, and the fish community did change as anadromous fish reentered the stretch of stream. The only recreational use of this stream was fishing, and access for fishers increased when the landowner granted an access easement.

Goldsboro Dam, Pennsylvania
The Goldsboro Dam was removed and replaced with a rock weir structure. This maintained water levels in the pond, allowing the annual fishing tournament to be held in subsequent years. Two uses of the pond had the potential to cause significant impacts, had they not been minimized: (1)the loss of the fishing tournament would have had a cultural and economic impact and (2) the pond was used by the fire department as a water supply. As part of the project, a dry hydrant system was installed, allowing continued use of the water supply for fire suppression. Benefits of the project included the return of shad and river herrings to their native spawning habitat.

Irving Dam, Pennsylvania
Irving Dam removal on Ridley Creek opened 3.4 miles of stream habitat to anadromous fish. The dam was built in 1767, and had resulted in an artificially lowered head-of-tide and an incised stream channel above the dam. After thorough consultation and documentation under Section 106 of the National Historic Preservation Act, the dam was completely removed. The sediment behind the dam was released slowly downstream due to the phased removal process. After removal, impacts to resources include the upstream progression of tidal waters to their historic level, a stream channel that is reconnected to its floodplain, and increased dissolved oxygen and decreased turbidity.

Case study of a project that was not implemented because it would not have satisfied NEPA requirements

Apanolio Fish Passage Improvement Project
The CRP provided contingent funds to the Apanolio Fish Passage Improvement Project in California's central coast. This project would have helped to remove fish blockages from three locations on Apanolio Creek, and would have opened access to several miles of habitat for steelhead. One of these locations included a proposed removal of a small earthen dam. The pond behind the dam had been used to provide water for irrigation, and the proposal included an alternative way for the project proponent to remove water from the stream. The project would have fallen under the PEA, and the project was "contingent" because the partner, American Rivers, required that all appropriate state and federal permits were satisfied prior to implementation. However, the proponent could not resolve issues related to in-stream water use, and therefore could not acquire necessary permits from either the California Department of Fish and Game or NMFS. Because these permits were not obtained, the conditions of the award were not satisfied, NEPA analysis and documentation were not completed, and no CRP funds were spent for on-the-ground activities.

Projects that are excluded from this S-PEA, but may be documented under a supplemental EA

Sandy River Dam, Maine
The Sandy River Dam in Maine is an example of a potential dam removal project that would not fit under the S-PEA. The CRP has provided technical assistance and funding for a feasibility study to remove this dam, which has an impoundment of over 10,000 acre-ft. However, if this project were to receive removal funds from the CRP, NEPA documentation would consist of a supplemental EA (see Section 1.3.2) with corresponding FONSI, because the dam exceeds the 100 acre-ft threshold established in the S-PEA. The potential effects are similar to those of smaller projects (e.g., short-term increase in turbidity and long-term benefits to living marine resources). Also, as is typical for dam removal projects, a series of public meetings would be held before implementation, and the types of issues raised would be similar to those for any dam removal project (in this case, the most complex issue is expected to involve the re-introduction of native fish above an artificial barrier). However, because the project's magnitude would potentially affect more stakeholders and have a greater impact on natural resources, a separate FONSI would be prepared to confirm that no significant impacts are expected. This would allow for a final "significance" check for larger-scale projects that may be slightly more complex than the smaller-scale project types.

Good Hope Dam, Pennsylvania
The Good Hope Dam was an orphaned dam that created a pool of 52 acre-ft. Although the dam had no owner, it was located on land owned by the Commonwealth of Pennsylvania and posed a public hazard to recreational users of the stream. This removal would not have been covered under the S-PEA, as the project remained contentious among local landowners. The Commonwealth worked with adjacent landowners for several years and although these landowners wished to retain the impoundment, they did not wish to take responsibility for the dilapidated dam. After removal, the Commonwealth revegetated private property along the shoreline and stabilized slopes where necessary to avoid impacting the

residents as much as possible. Beneficial project impacts included substantial benefits in water quality and temperature, and the immediate return of anadromous fish. Recreational use by power boaters has likely decreased, but recent site visits by project proponents suggest that local landowners make use of canoes and kayaks on the stream. Similar projects with public conflicts could be documented by a targeted supplemental EA addressing conflict and recreational use.

Dam Removal Conclusions

On review of a representative sample of past CRP-funded construction-related dam removal projects, the CRP has found that the impacts have fallen within the expected non-significance range, in terms of NEPA analysis. Although some minor and moderate impacts occurred, most were short term and all fell under the threshold for significance. Furthermore, when a proposed project could not satisfy all NEPA requirements before implementation, mechanisms were in place to stop CRP funds from being used. The S-PEA and updates to the NEPA checklist further enhance CRP's ability to ensure that CRP money is only used for projects that fall within appropriate NEPA analysis. The detailed analysis used to describe the impacts listed in Table 5 can be found in the CRP Program record (CRP 2006).

4.1.5 Levee Modification or Removal

Levee modification or removal projects would cause direct and indirect, short-term, minor and moderate impacts on geology and soils, water, living coastal and marine resources and EFH, and threatened and endangered species during the removal (construction) phase of the project. Impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details). The reasons for these impacts stem from the use of heavy machinery and construction equipment, as for dam removal (described above). Mitigation for potential impacts would focus on implementation of BMPs, as described above. Levee modification or removal projects would cause direct and indirect, long-term, minor beneficial impacts to water resources and fish. Restoration of these areas to natural states would enhance water quality, reduce sedimentation and erosion, and enhance habitat quality. Cultural and historic resources and land use would experience indirect, long-term, minor impacts resulting from levee modification or removal. The land use in the floodplain, including any potential culturally sensitive areas, would change as the water resources in the floodplain changed. Because land use would stabilize in the floodplain over time, the impact would be minor. Projects included under the PEA and S-PEA are limited to those meeting the criteria set out in Section 2.2.5.

4.1.6 Bioengineering to Prevent Erosion

Bioengineering, or "soft engineering," projects would cause direct and indirect, short-term, minor impacts on geology and soils, water, living coastal and marine resources and EFH, and threatened and endangered species during the implementation phase. Impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details). These impacts would result from installation of natural features or geotextile materials, or from introduction of new vegetation (planting) in some areas. Depending on the nature of each site-specific project, installation of materials could require small earth-moving machines, which would cause minor amounts of soil compaction and other impacts as described above. Wildlife also would potentially be displaced temporarily during construction activities. Mitigation measures would include those previously presented for such construction activities. By protecting erodable or unstable soils, bioengineering would result in indirect, long-term, minor and moderate beneficial impacts to water quality and benthic habitat in wetlands, waterbodies, and other sensitive riparian or coastal habitats where erosion is a problem. Natural processes (beginning after

planting) would help stabilize banks and shorelines. Installation of bio-logs or geotextile materials also would stabilize areas of high erosion.

Bioengineering projects also could cause indirect, long-term, minor impacts on cultural and historic resources and land use. The land use would change from its presently managed or otherwise cultural/ historic condition to a vegetated, more natural condition at each proposed project site. Any cultural and historic resources nearby could be impacted by ground disturbance during construction or from the change in land use. These impacts would be mitigated through the consultation process described in Sections 1.0 and 3.0. However, many projects of this type are in areas that historically functioned as wetlands but were altered or eroded away to their present condition, and bioengineering is used to stabilize the site and return the land to its former wetland use.

4.1.7 Sediment Removal and Materials Placement

Sediment removal and materials placement projects would cause direct and indirect, short-term, minor impacts on geology and soils, water, living coastal and marine resources and EFH, and threatened and endangered species during the implementation phase of the projects. Impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details). These impacts would result from the use of machinery and construction equipment, as described above for dam removal (Section 4.1.4). Mitigation for potential impacts would focus on implementation of BMPs, as described above. Sediment removal projects would result in direct, long-term, moderate beneficial impacts by restoring normal water flow patterns; avoiding burial and suffocation of living coastal and marine resources such as shellfish and SAV; and minimizing entrapment or demobilization of fish, flooding, and blocking of migratory fish from spawning areas. Sediment removal projects also would cause indirect, long-term, minor impacts on cultural and historic resources and land use. Materials placement projects would also result in direct, long-term, moderate beneficial impacts by restoring or creating wetland and/or tidal marsh that provide habitat and nutrient cycling capabilities. Direct, short-term, moderate impacts would be expected on benthic fauna and infauna as a result of burial. Materials placement projects would also cause indirect, long-term, minor impacts on cultural and historic resources and land use. Materials with contaminant concentrations consistent with published sediment quality guidelines and background levels rarely impact biota, and will be considered non-significant (see Section 2.1).

4.1.8 Feasibility Studies, Modeling, Surveying, and Mapping

The completion of feasibility studies, modeling, surveying, and mapping activities would cause indirect, long-term, beneficial impacts for all project types funded by the CRP. The studies, modeling, and planning would support the continued implementation of the most successful projects and therefore result in effective and efficient habitat restoration. Some studies would cause direct, short-term, minor impacts through associated fieldwork, including drilling into soil or sediment with an augur, drill rig, or Geoprobe™ to remove core samples. These impacts would be very minor and site-specific, given the scope of the program and scale of some program-funded projects. Impacts to threatened and endangered species may include handling, noise, and displacement (see Section 4.1.10 for more details).

4.1.9 Invasive Species Control Using Herbicides

Herbicide use for removal of invasive plant species would cause direct, short-term, moderate impacts to geology and soils, water, living coastal and marine resources and EFH, threatened and endangered species, and land use and recreation. These impacts would result from the potential for lethal effects on

soil biota and the short-term loss of shading and habitat for prey species provided by the invasive plant. The potential impacts to birds, aquatic organisms, and terrestrial organisms have been mitigated by the use of the least toxic herbicides and surfactants available, but sublethal impacts are possible. These include impacts to reproduction, survival to adulthood, and disrupted food webs (NOAA NMFS 2005). Potential impact to non-target plant species is reduced due to the application methods prescribed (see Section 2.2.9). These methods also greatly reduce the chance of exposing surface waters and their ecological communities to these chemicals due to the high level of applicator control. Long-term substantial beneficial impacts to coastal and marine resources and EFH and threatened and endangered species will result as non-native species are replaced by diverse native plant communities.

4.1.10 Potential Impacts to Threatened and Endangered Species for All Projects

The following section describes the potential impacts to threatened and endangered species listed under the Endangered Species Act (ESA) that may occur as a result of implementing this alternative. In addition to the minimization efforts noted below for particular impacts, all project types will attempt to time or locate activities to eliminate or avoid interaction with listed species, especially during critical activity periods such as migration, breeding, and nesting. When feasible, some species can be effectively harassed out of the project area to minimize impacts to them prior to and during project activities, reducing the need for capture and release (see *Displacement* below). No major or severe adverse impacts to federally listed species are expected due to the temporary and small-scale nature of the activities. The direct and indirect impacts described below note which listed species types (categorized in Section 3.8 as fish, terrestrial mammals, marine mammals, birds, amphibians, reptiles, sessile invertebrates, mobile invertebrates, and plants) are most likely to be affected.

The impacts to listed species or critical habitat that are discussed below and covered by this PEA and S-PEA are those that are either determined not to adversely affect these resources, or the project type and affected species or habitat are included in an existing programmatic Biological Opinion and the project can be implemented according to the requirements of that Opinion. Examples of these programmatic Biological Opinions include Endangered Species Act Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation Programmatic Biological Opinion for NOAA Restoration Center Programs in the Pacific Northwest (NOAA NMFS 2004e), Issuance of a Regional General Permit to the California Department of Fish and Game for the Placement of Fill Material into the Waters of the United States in Coastal Central and Northern California to Implement Salmonid Habitat Restoration Projects (NOAA NMFS 2004d), and Permitting of Fisheries Restoration Projects within the Geographic Boundaries of NMFS' Santa Rosa, California, Field Office (NOAA NMFS in press).

Otherwise, individual projects that require formal consultation because they have been determined to likely adversely affect a listed species or critical habitat are not covered under this assessment. Rather, their impacts will be analyzed in a supplemental targeted EA based on the results of the consultation (see Guidance for Using the CRP NEPA Checklist and Attachment in Appendix A).

Handling and Direct Contact

If avoidance is infeasible due to project-specific requirements, some project types may require the capture and handling of listed species, either to remove them from the project site or as a method of monitoring. This would require a project-specific consultation with NOAA or USFWS, and adherence to any terms and conditions of an approval as required by the agencies. Protected species may be stressed, injured, or killed by either physical or chemical effects. Physical impacts may be indirect or direct, including strike impacts (from boats, vehicles, or equipment); entrapment; burial (including eggs); or incidental effects to food sources, cover/shelter, or exposure to temperature or moisture changes, etc. Chemical factors are

mostly relevant to aquatic species, and may contribute to stress, injury, or mortality from changes in dissolved oxygen, carbon dioxide, salinity, and other soluble minerals, metals, etc. Trauma that can occur will vary with the duration of capture or handling; physical extent of an injury; extent of overcrowding or debris buildup in traps; and exposure to predation, harmful chemistry, or bacteria.

Fish are the most likely species type to require handling; however, it is possible that mammals, amphibians, reptiles, sessile invertebrates, and plants may also need to be handled during restoration activities. It is unlikely that birds and mobile invertebrates will be handled. NOAA NMFS (2004e) noted that capturing and handling can stress fish; however, these effects are generally short-lived, as fish typically recover fairly rapidly from the process (NOAA NMFS 2003a). Another biological opinion (NOAA NMFS 2003b) noted that passive (Hubert 1983) or active (Hayes 1983) fish gear may pose some risk to the fish, including stress, disease transmission, injury, or death. Electrofishing can kill both juvenile and adult fish, and researchers have found serious sub-lethal effects including spinal injuries (Reynolds 1983; Sharber and Carothers 1988; Zeigenfuss 1995; Habera et al. 1996; Nielsen 1998; Habera et al. 1999; Nordwall 1999). However, through the use of appropriate relocation techniques and protocols, it is unlikely that unintentional mortality of listed juvenile salmonids would exceed 3 percent of the fish subjected to handling, and a skilled operator can reduce this statistic to near 1 percent. Although the long-term effects of electrofishing on salmonids are not well known, it is generally thought that most impacts occur either during the handling process, or immediately after release when an individual may be susceptible to predation.

Mammals, amphibians, reptiles, sessile invertebrates, and plants may also experience similar impacts from handling as those to fish, including stress and injury. However, handling of listed species will be avoided whenever possible, and handling is only likely to be needed with a relatively small number of individuals. Handling effects will be minimized by following proper procedures and conservation measures (e.g., minimizing handling time). In addition, the handling of any listed species will be conducted or supervised by a trained biologist experienced with work area isolation and competent to ensure the safe handling of listed species.

Displacement

All types of mobile listed species covered by this document may be temporarily displaced due to altered environmental conditions, such as noise, reverberations, contaminants, increased turbidity, or modifications in flow. In addition, immobile species may be moved to other areas through handling processes. The NOAA NMFS (2004e) stated that salmonids are generally able to avoid these adverse conditions created from restoration activities if the disturbances are relatively small compared to the total habitat area, and if recovery can occur before the next disturbance. Most other types of mobile species should be able to avoid these areas of disturbance as well. This displacement may cause species to occupy areas with lower habitat quality, potentially altering essential behavior and increasing predation risk in the short term (NOAA NMFS 2004d). Additional impacts may include increased inter-specific and intra-specific competition, stress due to different thermal regimes, or altered feeding and movement patterns of listed species due to the temporary displacement of other fauna. NOAA NMFS (2005) acknowledged that the latter impact may result in altered feeding and movement patterns of sturgeon, but effects were expected to be temporary and small-scale. In general, the small scale and short duration associated with displacement caused by restoration activities will minimize impacts on listed species.

Noise and Reverberations

Wildlife species may be temporarily impacted during some project types due to reverberations caused by the operation of equipment, and/or noise caused by equipment or the general presence of people (e.g., volunteers, work crews). USFWS (1997) stated that the effects of noise disturbances on fish and wildlife

are not well understood (U.S. Environmental Protection Agency 1971; Fletcher and Busnel 1978; Fraser et al. 1985; White and Thurow 1985; Andersen et al. 1989; Henson and Grant 1991; Reijnen et al. 1995). Noise from construction and other activities may cause stress, and although the extent of the impact cannot be determined, it can be related to the degree of species habituation to various levels and types of noise. Noise disturbances to fish and wildlife species may also result in, but are not limited to, the following: reduced reproductive success; interference with foraging, resting, roosting, or species communication; decreased species or prey densities; and the attraction of predators to project sites. Noise is most likely to lead to avoidance and displacement (see *Displacement* below).

Noise and reverberations may affect all listed species covered by this document except plants (fish, terrestrial mammals, marine mammals, birds, amphibians, reptiles, sessile invertebrates, and mobile invertebrates). However, noise levels created by restoration activities are not likely to significantly add to ambient noise levels resulting from normal nearby activities, such as farming and ranching practices, timber harvests, and nearby vehicular traffic. Projects will also minimize impacts from noise and reverberations. For example, cofferdams can isolate the work area from the stream and minimize impacts affecting the water column. Furthermore impacts would be temporary and generally occur at a small spatial scale relative to the species' typical home range.

Sedimentation and Turbidity

Restoration activities may cause limited erosion, temporarily increasing sediment input and turbidity. Impacts on fish are first described and were gathered from biological opinions related to restoration activities' impacts on Pacific and Atlantic salmonids (NOAA NMFS 2001, 2004e, 2004d; USFWS 2005). Beneficial impacts of increased turbidity to fish include enhanced cover conditions, reduction in fish/bird predation rates, and improved survival. Detrimental impacts include physiological stress, reduced growth, and adverse effects on survival. High turbidity concentrations can reduce feeding efficiency, decrease food availability, reduce dissolved oxygen in the water column, result in reduced respiratory functions, reduce tolerance to diseases, and also cause fish mortality (Berg and Northcote 1985; Gregory and Northcote 1993; Velagic 1995; Waters 1995). Additional sub-lethal effects could include impairment of swimming activity and predator avoidance. Fine sediments may adversely affect primary and secondary productivity (Spence et al. 1996), as well as reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Newly emerged juvenile salmonids may be especially sensitive to even moderate amounts of turbidity (Bjornn and Reiser 1991), and smolts may be vulnerable to stress-induced mortality during migration to the ocean. Large amounts of sediment may also disrupt olfactory senses of adult salmon, impairing migratory behavior.

The occurrence and magnitude of many of the physical and behavioral effects noted above are greatly determined by the frequency and the duration of the exposure, in addition to the amount of sediment input. Since the project types should only affect turbidity for short durations, it is unlikely that the degree of impact will be significant. This is especially true if the background levels of turbidity are high. In addition, it is anticipated that the turbidity levels resulting from restoration activities will be much lower than those levels focused on by the research noted above. Also, high concentrations of suspended sediments associated with storm and snowmelt runoff episodes do not appear to cause much effect on adult and larger juvenile salmonids (Bjorn and Reiser 1991). And, recent studies reported in northern California, which compared control streams to those with moderate turbidity levels and short-term high turbidity levels, showed little to no difference in measurements of salmonid growth and abundance (Rogers 2000; U.S. Forest Service 2004). However, although turbidity may lead to the impacts described above, this generally only occurs when species cannot leave the area. Therefore, the most likely effect of suspended sediments on salmonids is behavioral avoidance of turbid waters (DeVore et al. 1980; Birtwell et al. 1984; Scannell 1988) (see *Displacement* below). In order to avoid turbid plumes, researchers have

found that salmonids may move laterally and downstream (McLeay et al. 1984, 1987; Sigler et al. 1984; Lloyd 1987; Scannell 1988; Servizi and Martens 1991).

In addition to the information on fish noted above, elevated turbidity levels could similarly impact the remaining listed species types covered by this document, especially aquatic species. Marine mammals, reptiles, amphibians, and sessile invertebrates may also be affected, whereas terrestrial mammals, birds, mobile invertebrates, and plants are less likely to be affected. Sedimentation can have physical and behavioral effects, through altering food sources (e.g., effects on aquatic macroinvertebrates and algae), as well as by causing stress, injury, mortality, and displacement. Amphibians and reptiles may be especially sensitive to turbidity impacts, and sediment may smother eggs. Immobile invertebrates listed species (e.g., mollusks) may be the most impacted by turbidity because they are unable to avoid sediment plumes. As referred to above, elevated turbidity may also decrease fish/bird predation rates, affecting feeding opportunities of listed bird species.

However, the short-term duration and relatively small scale of turbidity increases are unlikely to cause significant impacts to listed species. Species can avoid areas of increased sediment as noted above, and can be temporarily or permanently moved (see *Displacement* below). Restoration activities will include best management practices to decrease the amount of sediment entering the stream and potential impacts on listed species. Also, the goal of many of these restoration activities is to reduce sediment delivery to streams, which will generally result in long-term beneficial effects to listed species.

Contaminants

Contaminants may be released during project construction. The following information on contaminants was gathered from several biological opinions related to the impacts of restoration activities (NOAA NMFS 2001, 2004e, 2004d). Soils mobilized during project work may act as a delivery mechanism for chemical pollutants. In general, chemical exposure can alter fecundity, increase disease, shift biotic communities, and reduce the overall health of listed species. The use of heavy equipment can result in accidental spills of fuel, oil, lubricants, and hydraulic fluids, injuring or killing organisms. Petroleum-based materials contain polycyclic aromatic hydrocarbons (PAHs), which at high levels of exposure can cause acute toxicity to salmonids, and also cause chronic lethal as well as acute and chronic sub-lethal effects to aquatic organisms (Neff 1985). However, the consequences of many project types will also lead to a long-term, beneficial reduction in contaminants, through reduction in sediment delivery, increased filtering capacity at the project site, and removal of debris.

Herbicides may also be used in restoration activities involving the control of invasive species. Exposure to herbicides can have lethal and sub-lethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation (Spence et al. 1996). Sub-lethal effects may be uncertain, but changes in physiological or behavioral functions can adversely affect the survival, reproductive success, or migratory behavior of individual fish. Indirect effects on salmonids may also occur at lesser thresholds, due to the greater sensitivities of aquatic plants and macroinvertebrates to the acutely toxic effects of herbicides. All proposed application methods are designed to reduce impact to non-target species and surface waters, as the proposed methods allow the applicator to specifically target herbicide application. In addition, long-term substantial beneficial impacts to threatened and endangered species will result as non-native species are replaced by diverse native plant communities.

Exposure from contaminants during restoration activities is not expected to result in significant impacts, although all listed species covered by this document, especially aquatic types, could experience non-significant impacts. Fish, marine mammals, reptiles, amphibians, and sessile invertebrates may be affected, whereas terrestrial mammals, birds, mobile invertebrates, and plants are less likely to be affected. See Sections 2.2.9 and 4.1.9 (for herbicides) and Section 2.1 (for contaminated sediments) for

more information on actions that will be taken to minimize exposure. In all cases, project proponents will obtain necessary permits and consultations before proceeding with a project involving herbicides or contaminated sediments. If listed species are present in the project area, assessment of impacts under NEPA will rely heavily on ESA consultations.

Hydrology

Restoration activities may alter the hydrology of the stream area adjacent to the site. Soil compaction from heavy equipment use and road upgrades can reduce soil permeability and infiltration, and increase runoff. The consequences of this effect may include increasing peak flow events, scouring, and sediment transport (see *Sedimentation and turbidity* above), as well as decreasing groundwater storage and lower streamflow during dry weather. High flows can injure and displace eggs, juveniles, and smaller adult species. Low flows can result in desiccation, decreased oxygen, and silt deposition affecting spawning areas. In addition, hydrologic changes can result in shifts in the aquatic community, altering the prey base and trophic dynamics related to listed species.

Some project types may also involve dewatering and diversion activities, which can lead to stranding, desiccation, or displacement. Dewatering may temporarily impact macroinvertebrates in the disturbed area; however, a biological opinion regarding salmonid habitat restoration projects (NOAA NMFS 2004d) stated that impacts would likely be negligible for salmonids because rapid recolonization of macroinvertebrates is expected following rewatering (Cushman 1985; Thomas 1985; Harvey 1986). Water diversions are also likely to maintain the flow of these food sources from upstream areas. In addition, changes in flow due to dewatering are expected to be small, gradual, and short-term.

Hydrologic changes are most likely to affect listed aquatic species types, but may indirectly affect terrestrial listed species that rely on aquatic prey. Fish, reptiles, amphibians, and sessile invertebrates may be affected, whereas marine mammals, terrestrial mammals, birds, mobile invertebrates, and plants are less likely to be affected. However, due to the small scale and short duration of construction activities the impacts are expected to be minimal. In addition, NOAA NMFS (2004e) noted that riparian areas will likely be less affected by changes in hydrology due to the presence of saturated soils, high water tables, and runoff processes dominated by direct precipitation and overland flow (Dunn and Leopold 1978). The overall and long-term goal of most project types is to improve impaired watershed hydrology, including reducing peak flows, minimizing low flow events, and creating more backwater areas, which will benefit many listed species.

Additional Habitat Quality and Quantity Impacts

In addition to the habitat changes noted above, restoration activities may have other minor impacts on habitat quality and quantity. Construction activities may result in the removal or crushing of vegetation, which can lead to decreased shade and organic input to the stream. Dam-related activities may include the elimination of wetland areas around the former reservoir margins; however, wetland areas are often created downstream and the growth of native vegetation can be encouraged in areas exposed by the reservoir drawdown. Dam removal activities may also favor more lotic than lentic species due to a decrease in reservoir area.

Fish, reptiles, amphibians, birds, sessile invertebrates, and plants may be affected, whereas marine mammals, terrestrial mammals, and mobile invertebrates are less likely to be affected. These habitat changes are expected to be minor, and restoration activities will provide more beneficial improvements in habitat quality and quantity, such as opening up additional upstream habitat for fish, improving connections between the channel and floodplain, and providing more complex habitat. In addition,

habitat quality will increase through the improvements in hydrology and water quality, as well as organic and sediment input, as noted above.

4.2 PREFERRED RESTORATION ALTERNATIVE-- LAND AND EASEMENT ACQUISITION PROJECTS

Generally, land and property acquisition projects would cause indirect, long-term, minor beneficial impacts to geology and soils, water, living coastal and marine resources and EFH, threatened and endangered species, and cultural and historic resources. Projects are not likely to adversely impact threatened and endangered species. These impacts would result from new management of parcels of land to improve access to coastal areas or from creation of buffer zones between sensitive resources and other factors that could impact such resources. Purchase of structures such as docks or boathouses would directly benefit the local public in the long term. Depending on the nature of the land acquisition, land use could be directly and moderately affected over the long term, as less environmentally impacting land uses may occur. These impacts would be evaluated on a project-level basis and would depend on the specific acquisition proposal.

4.3 PREFERRED RESTORATION ALTERNATIVE-- EROSION REDUCTION PROJECTS

The following sections generally describe the potential impacts resulting from implementation of the following project types: trail restoration, road upgrading, road decommissioning, and exclusionary fencing.

4.3.1 Trail Restoration

Trail restoration projects would cause direct, short-term, minor impacts on geology, soils, and water, and would cause direct and indirect, short-term, minor impacts on living coastal and marine resources and EFH, and threatened and endangered species, resulting from temporary construction activities, as previously described. Most of the impacts resulting from such activities would be minor, due to the probable relative proximity of trails to sensitive areas. Trail restoration projects would cause indirect, short-term, minor impacts on land use, resulting from construction activities required to restore the trail (e.g., temporarily blocking trails with machinery). Impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details).

Trail restoration projects also would cause direct and indirect, long-term, minor beneficial impacts on geology and soils, water, living coastal and marine resources and EFH, threatened and endangered species, cultural and historic resources, and socioeconomics. The beneficial impacts would result from reduced erosion potential and rates after projects were implemented and from both allowing and controlling access to sensitive areas.

4.3.2 Road Upgrading

Similar to trail restoration projects, road upgrading projects would cause direct and indirect, short-term, minor and moderate impacts resulting from temporary construction activities, as previously described. Most of the impacts resulting from these projects would be moderate due to the probable relative

proximity of roads to sensitive areas. Road upgrading projects also would cause direct, long-term, minor and moderate beneficial impacts to geology and soils, water, living coastal and marine resources and EFH, threatened and endangered species, and cultural and historic resources. The beneficial impacts would result from allowing and controlling access to sensitive areas and from limiting the use of sensitive areas as alternate routes for vehicular transportation.

4.3.3 Road Decommissioning

Projects involving the decommissioning of roads through or adjacent to environmentally sensitive areas would have direct and indirect, short-term, minor and moderate impacts on geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, and land use. Impacts to threatened and endangered species may include handling, noise, sedimentation, contaminants, hydrology, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details). These impacts would result from temporary construction activities necessary to decommission the road. Road decommissioning would cause direct; long-term; minor, moderate, and substantial beneficial impacts on geology and soils, water, living coastal and marine resources and EFH, threatened and endangered species, and cultural and historic resources because removal of roads in sensitive areas would protect sensitive resources from disturbance and erosion caused by human and vehicle traffic. The decommissioning of roads would have direct, long-term, minor impacts on land use because such actions would limit access to the areas served by the roads. However, most adverse impacts on land use would be offset by the protection of the sensitive area. Lastly, as long as the roads decommissioned do not prevent people from accessing work, home, or other necessary destinations, projects involving the decommissioning of roads would have minor beneficial impacts on socioeconomics and environmental justice.

4.3.4 Exclusionary Fencing or Signage

Projects involving placement of exclusionary fencing or signage around environmentally sensitive areas would have direct, long-term, minor beneficial impacts on geology and soils, water resources, living coastal and marine resources and EFH, and threatened and endangered species, because the fencing would protect the excluded area from predators and disturbance by humans, animals, and vehicles. Direct and indirect, long-term and short-term, minor impacts on threatened and endangered species may include handling, noise, sedimentation, additional habitat quality/quantity, and displacement (see Section 4.1.10 for more details). The placement of exclusionary fencing or signage would have direct, long-term, minor impacts on land use, because exclusionary fencing would limit public access and recreational activities to areas outside the fence. Projects involving the placement of exclusionary fencing or signage would have no impacts on socioeconomics or environmental justice.

4.4 PREFERRED RESTORATION ALTERNATIVE-- PUBLIC OUTREACH PROJECTS

The following sections generally describe the potential impacts resulting from implementation of the following project types: youth group projects; training programs; and environmental education classes, programs, centers, partnerships, and materials.

4.4.1 Youth Group Projects

Projects that encourage and enlist the participation of youth groups in restoration projects and provide outreach and education to youth groups would have direct, long-term, minor beneficial impacts on geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, and socioeconomics and environmental justice. Projects conducted by youth groups would generally benefit the community both through their results and by promoting community cohesion. These projects would have indirect, long-term, minor beneficial impacts on land use, because education and involvement of youth in environmental projects would promote environmental stewardship and understanding of living coastal and marine resources and environmental issues, and a sense of community pride. Projects are not likely to adversely impact threatened and endangered species.

4.4.2 Training Programs

Projects that train volunteers to participate in restoration projects and provide outreach and education to the community would have direct, long-term, minor beneficial impacts on geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, and socioeconomics and environmental justice. These projects would have indirect, long-term, minor beneficial impacts on land use, because training and involvement of local citizens in environmental projects would promote environmental stewardship and understanding of living coastal and marine resources and environmental issues, and a sense of community pride. Projects are not likely to adversely impact threatened and endangered species.

4.4.3 Environmental Education Classes, Programs, Centers, Partnerships, and Materials

Projects that provide environmental education classes, programs, and centers; encourage and maintain partnerships with local school systems; and fund the development of education materials would have direct and indirect, long-term, minor beneficial impacts on geology and soils, water resources, living coastal and marine resources and EFH, threatened and endangered species, land use, and socioeconomics and environmental justice. The beneficial impacts would result because education of local citizens and youth about environmental issues in the community and beyond, habitat restoration, and conservation would promote environmental stewardship and understanding of living coastal and marine resources and environmental issues, and a sense of community pride. Educational materials developed would encourage conservation and environmental stewardship, and educate the public on the benefits of habitat restoration projects.

Projects that provide education programs on wildlife would have indirect, long-term, minor beneficial impacts on water resources, living coastal and marine resources and EFH, and threatened and endangered species, because they would encourage conservation, understanding, and environmental stewardship with respect to wildlife. Wildlife education programs would have no impacts on geology and soils, cultural and historical resources, land use, or socioeconomics or environmental justice. Projects are not likely to adversely impact threatened and endangered species.

4.5 PREFERRED RESTORATION ALTERNATIVE-- RESTORATION RESEARCH PROJECTS

The environmental consequences of restoration research would cause direct and indirect, short-term, minor impacts resulting from the initial implementation of research projects. Impacts to threatened and endangered species may include handling, noise, sedimentation, and displacement (see Section 4.1.10 for more details). These impacts would result from activities associated with in-water experimentation, such as the installation of vegetative or inorganic materials for habitat improvement (e.g., transplanting, sediment stabilization devices, and woody debris placement) or instruments used for sampling or monitoring of organisms (for example, above-ground or benthic). However, the research would result in direct, long-term, moderate or substantial beneficial impacts. The benefits would allow future restoration proposals to be planned with better information and implemented more effectively by using the most successful methods, materials, or equipment for achieving the goal of restoration.

4.6 RESTORATION ALTERNATIVE WITHOUT STREAMLINED APPROACH

Under this alternative the adverse impacts of individual restoration projects will be the same as described under the preferred alternative. However, there will likely be fewer projects implemented and the short term adverse impacts, as well as long-term beneficial impacts will be less. Long-term adverse impacts will be greater, as described in the No-Action Alternative, due to increased resource destruction with fewer projects funded to reverse the impacts to these resources..

4.7 NO-ACTION ALTERNATIVE

Under the no-action alternative, NOAA CRP would implement projects under the existing PEA Under this alternative, new and independent environmental compliance review and NEPA documentation would be required for each funding action, regardless of the potential redundancy of federal effort. As a result, CRP would not completely fulfill its purpose, and communities seeking habitat restoration grant funds would need to look for other sources. Long-term negative impacts on geology and soils (continued erosion), water resources (continued pollution), living marine resources and EFH (continued stress to living resources due to lack of prime habitat), threatened and endangered species (continued stress due to lack of prime habitat), and socioeconomics and environmental justice (inability to participate in activities that increase the value of fisheries and a sense of community) can all be anticipated, as habitat destruction is certain to continue for the foreseeable future.

4.8 CUMULATIVE IMPACTS

The CEQ defines cumulative effects as “the impact on the environment which 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” (CEQ 1997a). Therefore, analyzing cumulative effects is challenging, primarily because of the difficulty in defining the spatial and temporal boundaries of such analyses. Due to the nature and scope of this S-PEA and the analyses previously presented, the spatial boundaries of the cumulative effects analysis are the coastal regions of the United States, and the temporal boundaries shall be 3 years in the past (since the development of the PEA in 2002) and 5 years in the future (2010). This timeframe was chosen to help characterize projects already implemented under the existing PEA (during the past 3 years) and because the CRP expects a growing number of requests for funds for projects analyzed in the PEA and this S-PEA during the next 5 years. The CRP expects to restore an average of 3,800 acres per year, and open over

6,000 miles of stream habitat between now and 2010 by implementing an average of 250 projects per year. As each project receives an individual review, CRP staff can check the project location against other past projects in the Restoration Center Database to determine whether cumulative effects are likely.

The adverse impacts caused by the proposed action are, in general, short-term minor to moderate impacts related to implementation of specific projects, which then lead to longer-term minor to moderate beneficial impacts on the community, resources, and ecosystems of the United States. This is consistent with past projects funded by the CRP (see the list of representative sample projects in Appendix B). When temporary adverse impacts of proposed projects are added to past, ongoing, or future projects, the net impacts related to implementation would be not significant, as implementation of specific projects (construction, special studies) cause temporary impacts to isolated project locations. Consequently, when other unrelated projects with adverse impacts are planned in the project area, CRP staff can work with grantees to implement BMPs or time projects to avoid cumulative adverse impacts, as described in previous sections of this S-PEA.

The net beneficial impacts resulting from past projects, proposed actions, and foreseeable projects are long-term, moderate beneficial impacts. Since European settlement, over 110 billion acres of wetlands have been lost (Fretwell et al. 1996). Estimated loss of anadromous fish habitat is up to 90%, based on studies of habitat lost for American eel and California steelhead trout and Chinook salmon (Busch et al 1998, Friends of the River 1999, Wolf and Zuckermann 1999). In this context, the restoration of habitat by the CRP is not significant. Overall, the sustainability of resources, especially living coastal and marine resources, would be enhanced, and coastal ecosystems and communities would experience greater diversity and better health.

4.9 ADAPTIVE MANAGEMENT AND PROJECT-LEVEL MITIGATION MONITORING AND EVALUATION

The term “adaptive management” has been used since the late 1970s to describe particular approaches to natural resource management, including ecosystem management. CEQ first addressed the potential for using adaptive management in the NEPA process in its report, *The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years* (1997b). In that report, CEQ recognized that environmental protection afforded by the traditional environmental management model (“predict, mitigate, and implement”) did not account for unanticipated changes in environmental conditions, inaccurate predictions, or subsequent information that might affect the original environmental protections (CEQ 1997b). The adaptive management model adds the ideas of “monitor and adapt” to the model, thus increasing the flexibility of impact analyses under NEPA. Many agencies have been using the adaptive management model successfully in their NEPA analyses for several years, and the NEPA Task Force recently recommended that CEQ convene an adaptive management work group to consider revising existing regulations or establishing new guidance to facilitate agencies’ ability to incorporate adaptive management into their NEPA processes (NEPA Task Force 2003).

Adaptive management is based on the premise that ecosystems are complex and inherently unpredictable. The adaptive approach embraces the uncertainties of system responses and attempts to structure management actions as planned and monitored experiments, from which learning is a critical product to be used in subsequent management actions for the benefit of the system. Adaptive management (or learning by doing) involves four iterative, continual types of actions: monitoring and gathering of information, evaluating (lessons learned), planning and setting directions, and acting. Critical to the use of adaptive management techniques is the need to establish measurable objectives (measurable desired future conditions, or targets to be achieved or maintained), indications, and monitoring protocols to determine whether the management actions undertaken have in fact achieved the desired results. Thus, an

adaptive management plan must be designed before implementation of the strategy. Collaboration with other agencies and neighboring communities occurs often. An example of the use of adaptive management would include the installation of water control structures. Variables that are unforeseen during the NEPA process could impact water levels and affect the outcomes of and impacts associated with the project. The CRP would use adaptive management to adjust water levels for optimal performance during implementation of the project and during operation of the water control structures.

The concept of adaptive management is important to the CRP for two reasons. First, the programmatic nature of NEPA compliance employed by the CRP must allow the flexibility necessary for a nationwide program to simultaneously maintain compliance, implement community-based projects, and streamline documentation. Adaptive management at the project level enhances programmatic flexibility by relying on regional NOAA personnel and staff from partner organizations to make informed and wise decisions during the planning and implementation stages of various types of projects. Second, many of the projects supported by the CRP would meet minimum project monitoring and evaluation requirements (NOAA CRP 2004d). The monitoring information helps the CRP evaluate the success of projects, which is driven by the overall NOAA organizational performance measures and reporting requirements. Adaptive management allows the CRP and partner organizations to implement lessons learned during execution of various projects in other geographic locations.

4.10 UNAVOIDABLE ADVERSE EFFECTS

The proposed action is not anticipated to cause any significant adverse effects on any resources in the United States, although specific impacts may be examined at the project level. Some resources would experience minor or moderate adverse effects, as described in previous sections, including removal of historic dams and temporary loss of poor quality habitats while natural habitats regenerate. However, per 40 CFR 1502.16, adverse environmental effects would be avoided through project redesign, mitigation measures, or the selection of environmentally superior alternatives. The mitigation measures previously described would reduce the minor or moderate adverse effects of the proposed actions. The CRP may tentatively select projects with impacts that exceed those described in the PEA or S-PEA; however, a separate NEPA analysis would be conducted prior to funding the award.

4.11 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The proposed actions would, in general, affect short-term impacts to many resources because of short-term construction and implementation activities. However, the short-term impacts and uses would lead to a higher level of long-term productivity. The long-term productivity would result from proposed habitat restoration activities, proposed land use changes, proposed cleanup and remediation, and indirectly from public education programs.

4.12 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Although the proposed actions would commit specific sites to a long-term conversion of land use (through habitat restoration, land and easement acquisition, and enhancement of public access), only some of the impacts would be irreversible and irretrievable. Habitat restoration would involve the removal of specific types of vegetation (mostly invasive species) in favor of natural vegetation. Land and easement acquisition and enhancement of public access would change the long-term land use for some parcels of land. This land use could be changed again in the future if necessary, and is therefore not irreversible. In

addition, the commitment of time, money, and human effort to implement the proposed action would be irretrievable.

5.0 CONCLUSIONS

This S-PEA considers the potential environmental, economic, and social impacts of releasing funds for habitat restoration and associated projects by the CRP, as well as similar activities that might be expected to take place as a result of NOAA activities. The proposed action would include habitat restoration, land and easement acquisition, erosion reduction, public outreach, and restoration research activities, as well as projects combining two or more of these activities. The proposed action is needed to benefit living coastal and marine resources, and social and economic conditions in the United States.

This S-PEA concludes that the proposed action would have no significant adverse impacts on the resources examined herein. The proposed action would cause direct and indirect minor to moderate, short-term adverse impacts (mostly related to construction and associated activities) to several of the resources examined, but those impacts would not be significant and would themselves be reduced through the use of a variety of BMPs and mitigation measures. Therefore, preparation of an EIS is not warranted at this time. This decision will be documented for public record through the formal submission of a FONSI.

6.0 COMPLIANCE WITH ALL APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

The following is a list of general, federal environmental regulations that are likely to apply to proposed projects, as well as a description of compliance by the CRP with applicable regulations. Other federal or state-level regulations may apply on a project-specific basis, and the CRP and its partners consider and comply with all other applicable regulations for specific projects as well (Tetra Tech 2005a, 2005b, and 2005c). Some project types are not likely to be selected for funding if they trigger other regulatory considerations. For example, the CRP would not likely fund a project that triggered regulatory concerns related to contamination under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (Tetra Tech 2005c and 2005d).

Clean Water Act (CWA): The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's water. In 1989, the U.S. Army and EPA reached a memorandum of agreement on federal enforcement of Section 404 of the CWA. The memorandum of agreement stipulates that a permit is required for the removal of less than one-third acre of wetlands and that mitigation measures may be required for removal or disturbance of more than one-third acre of wetlands.

Many activities under this program require consultation with the USACE and a permit under Section 404 of the CWA. For example, approximately 75 percent of all projects in the Southeast Region require a Section 404 permit and, accordingly, must undergo an extra level of regulatory review (Tetra Tech 2005c). All regions examine each project for compliance with the CWA and incorporate the information into NEPA compliance documentation and decision-making.

Coastal Zone Management Act (CZMA): The CZMA provides for protection of resources found in the coastal zone, proactive land management practices, and preservation of unique coastal resources.

Activities under this program are consistent with the enforceable policies of approved state coastal management programs (CMP). The regions consider compliance with the CZMA on a project-level basis (Tetra Tech 2005a, 2005b, 2005c, 2005d).

Endangered Species Act (ESA): The ESA requires all federal agencies, in consultation with the Departments of the Interior (USFWS) and Commerce (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of such species.

For any proposal with a potential for impacts to federally protected species, the CRP will evaluate the effects, and if needed, prepare a biological assessment to determine the significance. For any proposal with a potential to impact federally protected species or critical habitat, the CRP will first determine if (1) the project type and affected species or habitat are included in an existing programmatic Biological Opinion, such as those referenced in Section 4.1.10, and (2) the project can be implemented according to the requirements of that Opinion. If both of these conditions are met, a new consultation will not be initiated. If the above conditions cannot be met for an existing programmatic Biological Opinion or there is no existing programmatic Biological Opinion for the proposed activity or its potential impacts, the CRP will initiate consultation. The CRP must consider the USFWS' or NMFS' response(s) prior to making a final project implementation decision. If either the USFWS or NMFS issue a Biological Opinion, and recommend any reasonable and prudent measures or terms and conditions for protecting species or specific critical habitat, the CRP must ensure that the effects are appropriately avoided, minimized, or mitigated for with the use of SACs. All consultations are documented in a memorandum for the Project Record.

Estuary Protection Act: The Estuary Protection Act ensures conservation of sensitive estuary ecosystems and habitats through sound management of estuary resources.

By intent, activities under the CRP program have no long-term adverse impacts on any estuary, and are conducted specifically to result in long-term or permanent beneficial impacts, by funding projects that help to restore and improve habitats within estuaries. Consequently, no review for compliance with this legislation is conducted.

Executive Order 11990, Protection of Wetlands: The intent of Executive Order 11990 is to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support for new construction in wetlands whenever there is a practicable alternative.

Generally, activities under this program do not have an adverse impact on any wetlands, and usually result in beneficial impacts as individual projects would help to restore and improve some habitats within wetlands. NOAA regional staff consider any impacts to wetlands on a project-level basis, as described above for the CWA.

Executive Order 11998, Floodplain Management: Executive Order 11998 requires each agency (including military departments) to determine whether any action undertaken would occur in a floodplain.

Generally, activities under this program have no adverse impacts on floodplains, and when conducted within floodplains, they intentionally result in long-term or permanent beneficial impacts withal projects that help to restore and improve habitats within floodplains. Consequently, no review for compliance with this legislation is needed.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations: Executive Order 12898 directs that the programs of federal agencies identify and address disproportionately high and adverse effects on human health and the environment of minority or low-income populations.

Activities under this program help to ensure the enhancement of environmental quality for all populations in the United States. Generally, activities under this program do not have an adverse impact on any minority or low-income population, and result in long-term or permanent beneficial impacts, by funding projects that help to restore and improve coastal or marine habitats for all populations of the United States.

Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Reauthorized by the Sustainable Fisheries Act of 1996: The MSFCMA encourages the conservation and restoration of essential fish habitat (EFH) and resources. The act authorized NOAA NMFS to manage fisheries within the 200-mile-wide EEZ along the coasts of the United States, and to address human impacts on the marine environment and prioritize identification and management of EFH. Activities under the program would support the goals of this legislation.

Each region successfully employs programmatic EFH consultations or a regional BiOp to achieve compliance with applicable EFH regulations. The programmatic EFH consultations are included in the appendices of the original PEA, and activities covered by these documents are considered non-significant under this S-PEA.

National Historic Preservation Act of 1966 (NHPA): The NHPA, amended in 1992, requires that responsible agencies taking action that potentially affects any property with historic, architectural, archeological, or cultural value that is listed on or eligible for listing on the National Register of Historic Places (NRHP) comply with the procedures for consultation and comment issued by the Advisory Council on Historic Preservation. The responsible agency also must identify properties affected by the action that are listed on or potentially eligible for listing on the NRHP, usually through consultation with the state historic preservation officer.

The CRP complies with Section 106 of NHPA on a project-by-project basis, and recognizes that habitat restoration projects close to streams and coasts often have an inherent nexus with both pre-Columbian and early European settlement in the United States The RC staff receive Sec. 106 training, and the CRP or its designee will consult with State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), and/or review projects with NOAA's designated Federal Preservation Officer (FPO). This consultation with SHPOs and/or review by NOAA's FPO is documented in a memorandum for the Administrative Record. See Section 3.9 of this document for detailed information on compliance with NHPA.

Rivers and Harbors Act of 1899: The Rivers and Harbors Act of 1899 regulates the following: (1) construction of bridges, causeways, dams, or dikes; (2) obstruction of excavations and filling of navigable waters (generally, construction of wharves, piers, and similar structures); (3) establishment of harbor lines and conditions related to grants for the extension of piers; and (4) penalties related to the regulated actions, and to the removal of existing structures.

Activities under this program involving proposed actions regulated under this act maintain full compliance with the applicable statutory and regulatory guidelines. Dam removal projects are of specific importance to the CRP, especially in the Northeast Region (Tetra Tech 2005b). In addition to the specific regulatory concerns under this act, many states also have regulatory standards related to the removal of dams. The CRP examines these considerations on a project-level basis.

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8.0 REFERENCES

Andersen, D.E., O.J. Rongstad, and W.R. Mytton. 1989. Response of nesting red-tailed hawks to helicopter overflights. Condor 91(2):296–299.

Aspen Institute. 2002. Dam removal: a new option for a new century. The Aspen Institute, Program on Energy, the Environment, and the Economy, Washington, D.C.

Bailey, R.G. 1995. Description of the ecoregions of the United States, 2nd edition. Miscellaneous Publication 1391. U.S. Department of Agriculture, Forest Service, Washington, D.C.

Baish, S.K., S.D. David, and W.L. Graf. 2002. The complex decision-making process for removing dams. Environment. 44(4):21.

Bednarek, A. 2001. Undamming rivers: A review of the ecological impacts of dam removal. Environmental Management 27(6):803–814.

Bell, M.C. 1991. Fisheries handbook of engineering requirements and biological criteria. U.S. Army Corps of Engineers, North Pacific Division, Fish Passage Development and Evaluation Program, Portland, Oregon.

Berg, L., and T.G. Northcote. 1985. Changes in territorial, gill-flaring, and feeding behavior in juvenile coho salmon (*Oncorhynchus kisutch*) following short-term pulses of suspended sediment. Canadian Journal of Fisheries and Aquatic Sciences 42:1410–1417.

Birtwell, I.K., G.F. Hartman, B. Anderson, D.J. McLeay, and J.G. Malick. 1984. A brief investigation of arctic grayling *(Thymallus arcticus)* and aquatic invertebrates in the Minto Creek Drainage, Mayo, Yukon Territory: an area subjected to placer mining. Canadian Technical Report of Fisheries and Aquatic Sciences 1287.

Bjornn, T.C., and D.W. Reiser. 1991. Habitat Requirements of Salmonids in Streams. Pages 83–138 *in* W.R. Meehan, editor. Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19, Bethesda, Maryland.

Busch, W. D. N., S. J. Lary, C. M. Castilione and R. P. McDonald. 1998. Distribution and availability of Atlantic coast freshwater habitats for American eel (*Anguilla rostrata*). Administrative Report #98-2. USFWS, Amherst, NY 28 pp.

Bushaw-Newton, K.L., D.D. Hart, J.E. Pizzuto, J.R. Thomson, J. Egan, J.T. Ashley, T.E. Johnson, R.J. Horwitz, M. Keeley, J. Lawrence, D. Charles, C. Gatenby, D.A. Kreeger, T. Nightengale, R.L Thomas, and D.J. Velinsky. 2002. An integrative approach towards understanding ecological responses to dam removal; the Manatawny Creek Study. Journal of the American Water Resources Association 38(6):1581-1599.

Canadian Council of Ministers of the Environment (CCME). 2001. Canadian sediment quality guidelines for the protection of aquatic life: summary tables. Updated in Canadian Environmental Quality Guidelines, 1999. Canadian Council of Ministers of the Environment, Winnipeg.

Canter, L.W. 1996. Environmental impact assessment, 2nd edition. McGraw-Hill, New York.

Copeland, B.J. 1998. Salt marsh restoration: coastal habitat enhancement. UNC-SG-98-08. North Carolina Sea Grant College Program, Raleigh, North Carolina.

Council on Environmental Quality (CEQ). 1992. Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR 1500-1508). Executive Office of the President, Washington, D.C.

———. 1993. Incorporating biodiversity considerations into environmental impact analysis under the National Environmental Policy Act. Executive Office of the President, Washington, D.C.

———. 1997a. Considering cumulative effects under the National Environmental Policy Act. Executive Office of the President, Washington, D.C.

———. 1997b. The National Environmental Policy Act: a study of its effectiveness after twenty-five years. Executive Office of the President, Washington, D.C.

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, Office of Biological Services, Washington, D.C.

Cushman, R.M. 1985. Review of ecological effects of rapidly varying flows downstream from hydroelectric facilities. North American Journal of Fisheries Management 5:330–339.

Dahl, T.E. 2000. Status and trends of wetlands in the conterminous United States 1986 to 1997. U.S. Fish and Wildlife Service, Washington, D.C.

DeVore, P.W., L.T. Brooke, and W.A. Swenson. 1980. The effects of red clay turbidity and sedimentation on aquatic life in the Nemadji River system. *In* S.C. Andrews, R.G. Christensen, and C.D. Wilson. Impact of nonpoint pollution control on western Lake Superior. EPA Report 905/9-79-002-B. U.S. Environmental Protection Agency, Washington, D.C.

Dunn, T., and L.B. Leopold. 1978. Water in environmental planning. W.H. Freeman Press, San Francisco.

Federal Emergency Management Agency (FEMA). 2004. Flood hazard mapping. Available: http://www.fema.gov/fhm/fq_term.shtm.

Fletcher, J.L., and R.G. Busnel, editors. 1978. Effects of noise on wildlife. Academic Press, New York.

Fraser, J.D., L.D. Frenzel, and J.E. Mathisen. 1985. The impact of human activities on breeding bald eagles in north-central Minnesota. Journal of Wildlife Management 49(3):585–592.

Fretwell, J.D., J.S. Williams, and P.J. Redman. 1996. National water summary on wetland resources. USGS Water-supply Paper 2425. U.S. Geological Survey, Washington, D.C.

Friends of the River. 1999. Rivers reborn: removing dams and restoring rivers in California. Friends of the River, Sacramento, 16pp.

Gregory, R.S., and T.G. Northcote. 1993. Surface, planktonic, and benthic foraging by juvenile Chinook salmon (*Oncorhynchus tshawytcha*) in turbid laboratory conditions. Canadian Journal of Fisheries and Aquatic Sciences 50:233–240.

H. John Heinz III Center for Science, Economics, and the Environment. 2002. Dam removal: science and decision making. Washington, D.C.

Habera, J.W., R.J. Strange, B.D. Carter, and S.E. Moore. 1996. Short-term mortality and injury of rainbow trout caused by three-pass AC electrofishing in a southern Appalachian stream. North American Journal of Fisheries Management 11:192–200.

Habera, J.W., R.J. Strange, and A.M. Saxton. 1999. AC electrofishing injury of large brown trout in low-conductivity streams. North American Journal of Fisheries Management 19:120–126.

Harvey, B.C. 1986. Effects of suction gold dredging on fish and invertebrates in two California streams. North American Journal of Fisheries Management 6:401–409.

Hayes, M.L. 1983. Active capture techniques. Pages 123–146 *in* L.A. Nielsen and D.L. Johnson, editors. Fisheries techniques. American Fisheries Society, Bethesda, Maryland.

Henson, P., and T.A. Grant. 1991. The effects of human disturbance on trumpeter swan breeding behavior. Wildlife Society Bulletin 19(3):248–257.

Hubert, W.A. 1983. Passive capture techniques. Pages 95–122 *in* L.A. Nielsen and D.L. Johnson, editors. Fisheries techniques. American Fisheries Society, Bethesda, Maryland.

Konisky, R., D. Burdick, M. Dionne, and H. Neckles. 2004. A regional assessment of salt marsh monitoring and restoration in the Gulf of Maine. National Oceanic and Atmospheric Administration, Silver Spring, Maryland.

Lennox, M., D. Lewis, R. Jackson, J. Harper, R. Katz, S. Larson, B. Allen-Diaz, and K. Tate. 2004. Riparian revegetation evaluation in north coastal California. In: Proceedings of the American Water Resources Association Specialty Conference on Riparian Function, June 2004.

Linsley, R. K, M.A. Kohler, and J.L.H. Paulhus. 1982. Hydrology for engineers, 3rd edition. McGraw-Hill, New York.

Lloyd, D.S. 1987. Turbidity as a water quality standard for salmonid habitats in Alaska. North American Journal of Fisheries Management 7:34–45.

Long, E.R, D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. Environmental Management 19(1):81–97.

Long, E.R., L.J. Field, and D.D. MacDonald. 1998. Predicting toxicity in marine sediments with numerical sediment quality guidelines. Environmental Toxicology and Chemistry 17(4):714–727.

Long Island Sound Habitat Restoration Initiative. 2003. Technical support for coastal habitat restoration, section 1: tidal wetlands. November. Available: http://www.nmfs.noaa.gov/habitat/restoration/publications/tech_glines.html/.

McLeay, D.J., G.L. Ennis, I.K. Birtwell, and G.F. Hartman. 1984. Effects on Arctic grayling (*Thymallus arcticus*) of prolonged exposure to Yukon placer mining sediment: a laboratory study. Canadian Technical Report of Fisheries and Aquatic Sciences 1241.

McLeay, D.J., I.K. Birtwell, G.F. Hartman, and G.L. Ennis. 1987. Responses of Arctic grayling (*Thymallus arcticus*) to acute and prolonged exposure to Yukon placer mining sediment. Canadian Journal of Fisheries and Aquatic Sciences 44:658–673.

Mitsch, W.J., and J.G. Gosselink. 2000. Wetlands, 3rd edition. Wiley, New York.

National Inventory of Dams. 2005. Available: http://crunch.tec.army.mil/nid/webpages/nid.cfm.

National Oceanic and Atmospheric Administration (NOAA). 1999a. NOAA Administrative Order 216-6: Environmental review procedures for implementing the National Environmental Policy Act. Washington, D.C. Available: http://www.rdc.noaa.gov/~foia/216-6.html.

———. 1999b. NOAA SQRTs. Available: http://response.restoration.noaa.gov/book_shelf/122_squirt_cards.pdf.

———. 2002. Environmental assessment: NOAA Fisheries' implementation plan for the Community-based Restoration Program. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2003. Memorandum for distribution from Susan Kennedy, Acting NOAA NEPA Coordinator, regarding guidance on adopting National Environmental Policy Act documents prepared by other federal agencies. December 17. Silver Spring, Maryland.

———. 2004. About Estuaries. Available: http://www.estuaries.gov/about.html.

NOAA Community-based Restoration Program (CRP). 2004a. Announcement of federal funding opportunity. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2004b. Guidance for using the NEPA checklist and attachment." NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2004c. Inclusion memo. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2004d. NOAA Restoration Center minimum project monitoring/evaluation requirements. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2004e. Project proposal evaluation worksheet. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

———. 2004f. Restoration Center database queries and representative project descriptions from each region. NOAA Restoration Center, Office of Habitat Conservation, National Marine Fisheries Service, Silver Spring, Maryland.

_____. 2006. Memorandum for the record from Christopher Doley, Chief, Restoration Division, regarding analysis of dam removal projects funded by the Restoration Center, 1996-2005. April 21. Silver Spring, Maryland.

NOAA National Marine Fisheries Service (NMFS). 2001. Endangered Species Act Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation Programmatic Biological Opinion: 15 Categories of Activities Requiring Department of the Army Permits. March 21. Seattle, Washington.

———. 2003a. Endangered Species Act Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation Programmatic Biological Opinion: Revised Standard Local Operating Procedures for Endangered Species (SLOPES II) for Certain Activities Requiring Department of the Army Permits in Oregon and the North Shore of the Columbia River. OHB2001-0016 PEC, July 8. Portland, Oregon.

———. 2003b. Biological Opinion for Instream Gravel Mining and Salmonid Habitat Enhancement Project in Austin Creek. Prepared for the U.S. Army Corps of Engineers. File number 151422SWR03SR8613. Santa Rosa, California.

_____. 2004a. Memorandum for office directors, regional administrators, and science directors from William T. Hogarth, Ph.D. regarding delegation of responsible program manager responsibilities applicable to the processing of grants and cooperative agreements (June 21). Silver Spring, Maryland.

———. 2004b. NOAA Fisheries. Available: http://www.nmfs.noaa.gov/.

———. 2004c. Wetlands: why are coastal wetlands important to fish? Available: http://www.nmfs.noaa.gov/habitat/habitatprotection/wetlands3.htm/.

———. 2004d. Biological Opinion: Issuance of a regional general permit to the California Department of Fish and Game for the placement of fill material into the waters of the United States in coastal central and northern California to implement salmonid habitat restoration projects. May. Silver Spring, Maryland.

———. 2004e. Endangered Species Act Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation programmatic biological opinion: NOAA Restoration Center programs, all Pacific Northwest ESUs, Oregon, Washington, and Idaho. July 12. Silver Spring, Maryland.

_____. 2005. Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Pacific Northwest Region Invasive Plant Program, Oregon and Washington. September 8. Seattle, Washington.

_____. In press. Permitting of Fisheries Restoration Projects within the Geographic Boundaries of NMFS' Santa Rosa, California, Field Office. Santa Rosa, California.

NOAA et al. 2004. An introduction and user's guide to wetland restoration, creation, and enhancement. Interagency Workgroup on Wetland Restoration, including NOAA, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Fish and Wildlife Service, and Natural Resources Conservation Service. Available: http://www.nmfs.noaa.gov/habitat/habitatconservation/publications/introfinal.pdf.

———. 2005. Programmatic Biological Assessment for the Louisiana Regional Restoration Planning Program, Draft Final Regional Restoration Plan for Region 2. August 12. Baton Rouge, Louisiana.

National Research Council. 1997. Striking a balance: improving stewardship of marine areas. National Academy Press, Washington, D.C.

National Safety Council, Environmental Health Center. 1998. Coastal challenges: a guide to coastal and marine issues. Prepared in conjunction with Coastal America. Washington D.C.

NEPA Task Force. 2003. The NEPA Task Force Report to the Council on Environmental Quality: modernizing NEPA implementation. Executive Office of the President, Washington, D.C.

Neff, J.M. 1985. Polycyclic aromatic hydrocarbons. Pages 416–454 *in* G.M. Rand and S.R. Petrocelli, editors Fundamentals of aquatic toxicology. Hemisphere Publishing, Washington, D.C.

Nielsen, J.L. 1998. Electrofishing California's endangered fish populations. Fisheries 23:6–12.

Nordwall, F. 1999. Movements of brown trout in a small stream: effects of electrofishing and consequences for population estimates. North American Journal of Fisheries Management 19:462–469.

Plater, Z.J.B., et al. 1992. Environmental law and policy: nature, law, and society. West Publishing Company, St. Paul, Minnesota.

Poff, N.L. and D.D. Hart. 2002. How dams vary and why it matters for the emerging science of dam removal. Bioscience 52(8):659-668.

Reijnen, R., R. Foppen, C.T. Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodlands. III. Reduction of density in relation to the proximity of main roads. Journal of Applied Ecology 32(1):187–202.

Reynolds, J.B. 1983 . Electrofishing. Pages 147–164 *in* L.A. Nielsen and D.L. Johnson, editors. Fisheries techniques. American Fisheries Society, Bethesda, Maryland.

Ricketts, E.F., J. Calvin, and J.W. Hedgpeth. 1985. Between Pacific tides, 5th edition. Stanford University Press, Stanford, California.

Rogers, F.R. 2000. Assessing the effects of moderately elevated fine sediment levels on stream fish assemblages. Master's thesis. Humboldt State University, Arcata, California.

Scannell, P.O. 1988. Effects of elevated sediment levels from placer mining on survival and behavior of immature Arctic grayling. Unit Contribution 27. Alaska Cooperative Fishery Unit, University of Alaska, Fairbanks.

Servizi, J.A., and D.W. Martens. 1991. Effects of temperature, season, and fish size on acute lethality of suspended sediments to coho salmon. Canadian Journal of Fisheries and Aquatic Sciences 49:1389–1395.

Sharber, N.G., and S.W. Carothers. 1988. Influence of electrofishing pulse shape on spinal injuries in adult rainbow trout. North American Journal of Fisheries Management 8:117–122.

Sigler, J.W., T.C. Bjornn, and F.H. Everest. 1984. Effects of chronic turbidity on density and growth of steelheads and coho salmon. Transactions of the American Fisheries Society 113:142–150.

Spence, B.C., G.A. Lomnicky, R.M. Hughes, and R.P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. ManTech Environmental Research Services, Corvallis, Oregon.

Stanley, E.H. and M.W. Doyle. 2003. Trading off: the ecological effects of dam removal. Front Ecol Environ 1(1): 15-22.

Tetra Tech EM Inc. (Tetra Tech). 2005a. Personal communication between D.F. Barone (Tetra Tech) and D. Landsman (NOAA) regarding regional information. March 25.

———. 2005b. Personal communication between D.F. Barone (Tetra Tech) and E. Hutchins (NOAA) regarding regional information. March 25.

———. 2005c. Personal communication between D.F. Barone (Tetra Tech) and L. Craig (NOAA) regarding regional information. March 25.

———. 2005d. Personal communication between D.F. Barone (Tetra Tech) and M. Callahan (NOAA) regarding regional information. March 23.

Thayer, G.W., T.A. McTigue, R.J. Bellmer, F.M. Burrows, D.H. Merkey, A.D. Nickens, S.J. Lozano, P.F. Gayaldo, P.J. Polmateer, and P.T. Pinit. 2003. Science-based restoration monitoring of coastal habitats, volume one: A framework for monitoring plans under the Estuaries and Clean Waters Act of 2000 (Public Law 160-457). NOAA Coastal Ocean Program Decision Analysis Series No. 23, Volume 1. NOAA National Centers for Coastal Ocean Science, Silver Spring, MD.

Thomas, V.G. 1985. Experimentally determined impacts of a small, suction gold dredge on a Montana stream. North American Journal of Fisheries Management 5:480–488.

Turner, R.E., and D.F. Boesch. 1988. Aquatic animal protection and wetland relationships: insights gleaned following wetland loss or gain. *In* D.D. Hook, W.H. McKee, Jr., H.K. Smith, J. Gregory, V.G. Burrell, Jr., M.R. Devoe, R.E. Sojka, S. Gilbert, R. Banks, L.H. Stolzy, C. Brooks, T.D. Matthews, and T.H. Shear (editors). The ecology and management of wetlands. Volume 1: ecology of wetlands. Timber Press, Portland, Oregon.

U.S. Department of Agriculture (USDA). 2002. Programmatic Agreement among the United States Department of Agriculture Natural Resources Conservation Service, the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers. NRCS A-3A75-2-64.

U.S. Department of Interior (USDOI). 1997. Programmatic Agreement among the U.S. Fish and Wildlife Service Region 1, the Advisory Council on Historic Preservation, and the Oregon State Historic Preservation Officer Regarding the Administration of Routine Undertakings in the State of Oregon.

U.S. Environmental Protection Agency (EPA). 1971. Effects of noise on wildlife and other animals. Report No. NTID300.5. Office of Noise Abatement and Control, Washington, D.C.

_____. 2004. Draft National Coastline Conditions Report II. Available: http://www.epa.gov/owow/oceans/nccr2/.

U.S. EPA Mid-Atlantic Integrated Assessment (MAIA). 2004. Lakes and ponds. Available: http://www.epa.gov/maia/html/lakes.html.

U.S. EPA Office of Water. 2004. Monitoring and assessing water quality. Section 2.1, Watersheds. Available: http://www.epa.gov/volunteer/stream/vms21.html.

U.S. Fish and Wildlife Service (USFWS). 1997. Jobs in the woods program in western Oregon, Programmatic Environmental Assessment. May 5. Oregon State Office and Klamath Basin Ecoregion Offices, Portland and Klamath Falls, Oregon.

———. 2005. Intra-Service Formal and Informal Section 7 Consultation for the Oregon Restoration Programs: Coastal, Greenspaces, Jobs in the Woods, Partners for Fish and Wildlife, and Private Stewardship Grants Programs: 2004 to 2009. Ref. No.1-7-F-04-0133.

U.S. Forest Service (USFS). 2004. Project Completion Report for South Fork Caspar Creek Pond Cleanout. Prepared by Rodney Nakamoto, January 30, 2004. Pacific Southwest Research Station. Arcata, California.

U.S. Geological Survey (USGS). 2004. National assessment of shoreline change, part 1: historical shoreline change and coastal land loss along the Gulf of Mexico. Open File Report 2004-1043. Coastal Geology Program. Available: http://pubs.usgs.gov/of/2004/1043/ofr-2004-1043.pdf.

Velagic, E. 1995. Turbidity study: a literature review. Centers for Water and Wildland Resources, University of California, Davis.

Waters, T.F. 1995. Sediment in streams: sources, biological effects, and control. American Fisheries Society, Monograph 7, Bethesda, Maryland.

White, C.M., and T.L. Thurow. 1985. Reproduction of ferruginous hawks exposed to controlled disturbance. Condor 87(1):14–22.

Wetlands Training Institute. 1995. Field guide to wetland delineation (1987 Corps of Engineers manual). Technical Report Y-87-1, U.S. Army Engineer Waterways Station, Vicksburg, Mississippi.

Wolf, E. C., and S. Zuckerman, (eds). 1999. Salmon nation: people and fish at the edge. Ecotrust, Portland, OR.

Zeigenfuss, L.F. 1995. The effects of electrofishing and electrofishing induced injuries on the return and growth of rainbow trout. Master's thesis. Colorado State University, Fort Collins.

GLOSSARY

Adaptive Management – A type of management in which, as an ongoing process, the monitoring of results of management decisions, in relation to sustaining ecosystem characteristics and changes in societal goals, is used to modify management approaches.

Affected Environment – The baseline environment of the relative resource components.

Algae – Non-vascular plants that are very small; algae are the main producers of food and oxygen in aquatic environments.

Alluvial Plain – The floodplain of a river, where the soils are deposited by the overflowing river.

Alluvium – Any sediment deposited by flowing water, as in a riverbed, floodplain, or delta.

Analysis Area – The geographical boundary of the area to be analyzed.

Aquatic – Pertaining to standing and running water in streams, rivers, lakes, and ponds; living or growing in or on water.

Attainment Areas – Geographic areas where air pollution levels remain consistently below the National Ambient Air Quality Standards (see *National Ambient Air Quality Standards*).

Backwater – A body of water in which the flow is slowed or turned back by an obstruction such as a bridge or dam, an opposing current, of the movement of the tide.

Benthic – On the bottom or near the bottom of streams, lakes, or oceans.

Best Management Practices (BMP) – A practice or combination of practices that is determined by a state (or designated wide-area planning agency) after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.

Biodiversity – The diversity of life in an area, including the diversity of genes, species, plant and animal communities, ecosystems, and the interaction of these elements.

Biological Diversity – The variety and abundance of life forms, processes, functions, and structures, including the relative complexity of species, communities, gene pools, and ecosystems at spatial scales that range from local through global.

Biological Opinion (BiOp) – An official report by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service issued in response to a formal request for consultation or conference. It states whether an action is likely to result in jeopardy to a species or adverse modification of its critical habitat.

Brackish – Water with a salinity intermediate between seawater and freshwater, often referred to as oligohaline (salinity 0.5 to 5.0 ppt). Interlacing or tangled network of several small branching and reuniting shallow channels are also often present.

Brackish Marsh – Marsh areas containing a mixture of saltwater and freshwater; however, the salinity level is less than seawater.

Calcareous – Sediment or soil formed of calcium carbonate or magnesium carbonate due to biological deposition or inorganic precipitation.

Carbon Monoxide (CO) – A poisonous gas that, when introduced into the bloodstream, inhibits the delivery of oxygen to body tissue. Exposure creates a severe health risk to individuals with cardiovascular disease. The largest manmade source of CO is motor vehicle emissions. This pollutant is a health concern in areas of high traffic density or near industrial sources.

Catchment – The land area drained by a river or stream; also known as "watershed" or "drainage basin"; the area is determined by topography that divides drainage between watersheds.

Coastal Habitat Restoration – The process of reestablishing a self-sustaining habitat in coastal areas that in time can come to closely resemble a natural condition in terms of structure and function.

Coastal Habitat Restoration Monitoring – The systematic collection and analysis of data that provides information useful for measuring coastal habitat restoration project performance.

Code of Federal Regulations (CFR) – A codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the Federal Government. The Code is divided into 50 titles that represent broad areas subject to federal regulations. Each title is divided into chapters, which usually bear the name of the issuing agency. Each chapter is further subdivided into parts covering specific regulatory areas.

Community – All the groups of organisms living together in the same area, usually interacting or depending on each other for existence; all the living organisms present in an ecosystem.

Connected Actions other free-moving organisms.

Diatoms – Any of a class (Bacillariophyceae) of minute planktonic unicellular or colonial algae with silica-based skeletons. – Management practices or actions that (1) automatically trigger other actions that may require environmental impact statements, (2) cannot or would not proceed unless other actions are taken previously or simultaneously, or (3) are interdependent parts of a larger action and depend on the larger action for their justification.

Coral Reefs – Highly diverse ecosystems, found in warm, clear, shallow waters of tropical oceans worldwide. They are composed of marine polyps that secrete a hard calcium carbonate skeleton, which serves as a base or substrate for the colony.

Cultural Resources (Heritage Resources) – The tangible and intangible aspects or cultural systems, living or dead, that are valued by a given culture or which contain information about the culture. Cultural resources include but are not limited to sites, structures, buildings, districts, and objects associated with or representative of people, cultures, and human activities and events. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of culture values from the earliest to the most recent.

Cumulative Impacts – The impact on the environment resulting 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 actions. Cumulative impacts can result from individually minor but collectively significant action taking place over a period of time (40 CFR 1508.7).

Demersal – Bottom-feeding or bottom-dwelling fish, crustaceans, and other free moving organisms.

Downwelling – The process of build-up and sinking of warm surface waters along coastlines.

EA – See *environmental assessment*.

Ebb – A period of fading away; low tide.

Ecosystem – A conceptual unit comprising organisms interacting with each other and their environment having the major attributes of structure, function, complexity, interaction and interdependency, temporal change, and no inherent definition of spatial dimension.

EIS – See *environmental impact statement*.

Emergent Plants – Aquatic plants with roots and part of the stem below water level, but with the rest of the plant above water (examples: cattails and bulrushes).

Endangered Species – Any species that is in danger of extinction throughout all or a significant part of its range. Endangered species must be designated in the *Federal Register* (see *threatened species*).

Environmental Assessment (EA) – A concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or to return a finding of no significant impact, aids an agency's compliance with NEPA when no Environmental Impact Statement is necessary, or facilitates preparation of a statement when one is necessary (see *environmental impact statement*).

Environmental Consequences (Effects or Impacts) – The physical, biological, social, and economic results (positive or negative) of implementing a given alternative.

Environmental Impact Statement (EIS) – A formal document to be filed with the Environmental Protection Agency that considers significant environmental impacts expected from implementation of a major federal action (see *environmental assessment*).

Erosion – The wearing away of the land surface by running water, wind, ice, and other geological agents. The detachment and removal of soil from the land surface by wind, water, or gravity.

Estuary – A part of a river, stream, or other body of water that has at least a seasonal connection with the open sea or Great Lakes and where the seawater or Great Lakes mixes with the surface or subsurface water flow, regardless of the presence of manmade structures or obstructions.

Eulittoral – Refers to that part of the shoreline situated between the highest and lowest seasonal water levels.

Exotic Species – Plants or animals not native to the area.

Fauna – The animal community in a given region or period.

Federal Register – A daily federal publication that publishes regulations and legal notices that have been issued by federal agencies.

Fetch – The distance along open water or land over which the wind blows.

Flora – The plant community in a given region or period.

Fluvial – Of, relating to, or living in a stream or river.

Fronds – Leaf-like structures of kelp plants.

Function – Refers to how wetlands and riparian areas work—the physical, chemical, and biological processes that occur in these settings, which are a result of their physical and biological structure regardless of any human benefit.

Gastropods – Any of a large class (Gastropoda) of mollusks (e.g., snails and slugs) usually with a single shell or no shell and a distinct head bearing sensory organs.

Habitat – The natural environment of a plant or animal. An animal's habitat includes the total environmental conditions for food, cover, and water within its home range.

Habitat Capability – The ability of the vegetative community to provide food, cover, and water for wildlife.

Heritage Resources – See *cultural resources*.

Hydric Soils – A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of hydric soils can include a thick layer of decomposing plant material on the surface; the odor of rotten eggs (sulfur); and colors of bluish-gray, gray, or black, with occasional contrasting brighter spots of color.

Indicator Species – A species whose presence in a certain location or situation at a given population level indicates a particular environmental condition or management endpoint. Populations of indicator species are typically monitored to indicate effects of management activities on a number of other species or water quality.

Infauna – Plants that live in the sediment.

Infiltration – The process by which water passes through the soil surface.

Interdisciplinary (ID) Team – A group of two or more individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to solve the problem. The members of the team proceed to solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions.

Intermittent Stream – A stream that flows seasonally (10 to 90 percent of the time) in response to a fluctuating water table, with a scoured channel that is at least 3 feet wide.

Interpretive Site – A developed recreation site where natural and/or cultural history is described for the enjoyment and education of the public.

Intertidal – An area that is alternately flooded and exposed by tides.

Intralittoral – A sub-area of the sublittoral zone where upward-facing rocks are dominated by algae (mainly kelp).

Invasive Species – A species that does not naturally occur in a specific area and whose introduction is likely to cause economic or environmental harm.

Issue – A subject or question of widespread interest identified through public participation and that relates to the management of natural resources. A matter of controversy or dispute over resource management activities or land use that is well-defined or topically discrete. Usually the causal relationship between the activity or use and the undesirable results are well-defined or able to be documented. Statement of the planning issues orients the management planning process.

Lacustrine – Pertaining to, produced by, or formed in a lake.

Lagoons – A shallow stretch of seawater (or lake water) near or open to the sea (or lake) and partly or completely separated from it by a low, narrow, elongate strip of land.

Land Condition – The state of a given area in terms of the quality of its physical and biological character and use. Land conditions can be existing, future, or desired.

Land Management – An intentional process of planning, organizing, programming, coordinating, directing, and controlling land use action.

Land Use – The occupation or reservation of land or water area for any human activity or any defined purpose.

Landscape – A viewed area of land generally of large size and commonly a mosaic of landforms and plant communities irrespective of ownership or other artificial boundaries.

Littoral – Refers to the shallow water zone (less than 2 meters deep) at the end of a water body, commonly seen in lakes or ponds.

Macroalgae – Relatively shallow (less than 50 meters deep) subtidal algal communities dominated by very large brown algae. Kelp and other macroalgae grow on hard or consolidated substrates forming extensive three-dimensional structures that support a diversity of other plants and animals.

Management Direction – A statement of multiple-use and other goals and objectives, the management prescriptions, associated standards and guidelines, and action plans for attaining them.

Management Indicator Species – See *indicator species*.

Management Practice – A specific action or treatment.

Mangroves – Swamps dominated by shrubs that live between the sea and the land in areas inundated by tides. Mangroves thrive along protected shores with fine-grained sediments where the mean temperature during the coldest month is greater than 20 degrees Celsius, limiting their northern distributions.

Marine Polyps – The small living units of a coral, responsible for secreting calcium carbonate maintaining coral reef shape.

Marshes (Marine and Freshwater) – Transitional habitats between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water tidally or seasonally. Freshwater species are adapted to the short- and long-term water level fluctuations typical of freshwater ecosystems.

Mitigate – To make less severe through specific actions; to moderate in force or intensity.

Mitigation Measure – An action taken to lessen adverse impacts or enhance beneficial effects.

Mottling – Contrasting spots of bright colors in a soil; an indication of some oxidation or groundwater level fluctuation.

Mudflat – Bare, flat bottoms of lakes, rivers and ponds, or coastal waters, largely filled with organic deposits, freshly exposed by a lowering of the water level; a broad expanse of muddy substrate commonly occurring in estuaries and bays.

National Environmental Policy Act (NEPA) – Establishes a national policy to encourage productive and enjoyable harmony between humankind and the environment, to promote efforts that would prevent or eliminate damage to the environment and stimulate the health and welfare of humans, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality.

Native Species – Any species of flora or fauna that naturally occurs in the United States and that was not introduced by humans.

Nearshore – Nearshore waters beginning at the shoreline or the lakeward edge of the coastal wetlands and extending offshore to the deepest lakebed contour where the thermocline typically intersects with the lakebed in late summer or early fall.

NEPA Process – All measures necessary for compliance with the requirements of Section 2 and Title I of NEPA (40 CFR 1508.21).

Oligotrophic – A water body that is poor in nutrients; refers mainly to lakes, ponds, and some wetlands.

Oyster Beds – Dense, highly structured communities of individual oysters growing on the shells of dead oysters.

Palustrine – Non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent.

Pelagic – Pertaining to, or living in open water column.

Perennial Stream – A stream that flows year-round (more than 90 percent of the time) with a scoured channel that is always below the water line.

pH – A scale for measuring the amount of free hydrogen ions in a substance to determine acidity and alkalinity.

Phytoplankton – Microscopic floating plants, mainly algae that are suspended in the water column and are transported by wave currents.

Plankton – Plants and animals, generally microscopic, that float or drift in freshwater or saltwater.

Program Record – The Program Record contains the selection package for a funding solicitation, as well as any memos to the file created when selecting projects, or running the CRP program. This is located in the CRP headquarters office.

Project – An organized effort to achieve an objective identified by location, activities, outputs, effects, and time period and responsibilities for execution.

Project Record – The Project Record contains project-specific information such as proposals, progress reports, regulatory compliance information, etc. This is located with the CRP staff person who is primarily responsible for the project.

Rare Species – Any plant or animal that, although not presently threatened with extinction, is in such small numbers through its range that it may be endangered if its environment worsens; the "rare" category is a state, not federal, category.

Receiving Water Bodies – Lakes, estuaries, or other surface waters that have flowing water delivered to them.

Record of Decision (ROD) – The decision documentation for an EIS, including the date and a statement of reasons for the decision.

Resource – Anything that is useful for something, be it animal, vegetable, or mineral; a location; a labor force; or other commodity. Resources, in the context of land use planning, vary from commodities such as timber and minerals to amenities such as scenery or scenic viewing points.

Restoration – The process of reestablishing a self-sustaining habitat that in time may come to closely resemble a natural condition in terms of structure and function.

Restoration Monitoring – The systematic collection and analysis of data that provides information useful for measuring restoration project performance at a variety of scales (locally, regionally, and nationally).

Riparian – A form of wetland transition composed of multiple habitats and located between permanently saturated wetland and upland habitats. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence.

Riparian Areas – Geographically delineated areas with distinctive resource values and characteristics that are composed of the aquatic and riparian ecosystems, flood plains, and wetlands. They include all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies.

Riparian Ecosystem – A transition between the aquatic ecosystem and the adjacent terrestrial ecosystem, which is identified by soil characteristics and distinctive vegetation communities that require free or unbound water.

Riverine – Associated with rivers.

Riverine Forests – Forests found along sluggish streams, drainage depressions, and in large alluvial floodplains.

Rock Bottom – All wetlands and deepwater habitats with substrates having a cover of stones, boulders, or bedrock 75 percent or greater, and vegetative cover of less than 30 percent.

Rocky Shoreline – Extensive littoral habitats on wave-exposed coasts; the substrate is composed of boulders, rocks, or cobble.

Runoff – That part of precipitation, as well as any other flow contributions, that appears in surface streams, either perennially or intermittently.

Salinity – The concentration of dissolved salts in a body of water, commonly expressed as parts per thousand.

Salt Pan – An undrained natural depression in which water gathers and leaves a deposit of salt upon evaporation.

Scoping – The process by which significant issues relating to a proposal are identified for environmental analysis. Scoping is an integral part of environmental analysis. Scoping includes eliciting public comments on the proposal, evaluating concerns, and developing alternatives for consideration. Depending on the complexity and nature of the action, scoping varies from a brief consideration of a few pertinent factors in a proposed action that may be categorically excluded to full compliance with the Council of Environmental Quality direction for a proposed action that must be documented in an environmental impact statement.

Sediment – Organic matter or soil that settles to the bottom of a liquid.

Sensitive Species – Those plant and animal species for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Soft Bottom – Loose, unconsolidated substrate characterized by fine- to coarse-grained sediment.

Soft Shoreline – Sand beaches and muddy shores; stretches of land covered by loose material, exposed to and shaped by waves or wind.

Species – A fundamental category of plant or animal classification.

Standard – A principle requiring a specific level of attainment; a rule to measure against.

Strand – A diffuse freshwater stream flowing through a shallow vegetated depression on a gentle slope.

Stream – A channel with defined bed and a bank that carries enough water flow at some time during the year to flush out leaves.

Submerged Aquatic Vegetation (SAV; Marine, Brackish, and Freshwater) – Flowering plants that grow on soft sediments in sheltered shallow waters of estuaries, bays, lagoons, and lakes. Freshwater species are adapted to the short- and long-term water level fluctuations typical of freshwater ecosystems.

Subtidal – Continuously submerged areas affected by ocean tides.

Supralittoral Region – An area above the high tide mark receiving splashing from waves.

Surface Water – Rivers, lakes, ponds, streams, and so forth that are located above ground.

Thermocline – A horizontal region in a thermally stratified body of water that separates warmer oxygen-rich surface water from cold oxygen-poor deep water.

Threatened Species – Any species which is likely to become endangered within the foreseeable future and which has been designated in the *Federal Register* as threatened species (see *endangered species*).

Tide – The rhythmic, alternate rise and fall of the surface (or water level) of the ocean, and connected bodies of water, occurring twice a day over most of the Earth, resulting from the gravitational attraction of the moon, and to a lesser degree, the sun.

Tiering – The coverage of general matters in a broader environmental impact statement (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statements or, ultimately, site-specific statements), incorporating by reference the general discussions and concentrating solely on the issues specific to the subsequent statements or analyses as follows: (1) from a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis; or (2) from an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues that are ripe for decision and exclude from consideration issues already decided on or not yet ripe (40 CFR 1508.28).

Unconsolidated – Loosely arranged.

Water Column – A conceptual volume of water extending from the water surface down to, but not including, the substrate; found in marine, estuarine, river, and lacustrine systems.

Water Table – The upper limit of the part of the soil or underlying rock material that is wholly saturated with water.

Watershed – An area of land with a single drainage network.

Wetlands – Those areas that are inundated by surface water or groundwater often enough to support plants and other aquatic life that requires saturated or seasonally saturated soils for growth and reproduction. Wetlands generally include swamps, marshes, and bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Wildlife Habitat – The sum total of environmental conditions of a specific place occupied by a wildlife species or a population of such species.

Wildlife Structure – A site-specific improvement of a wildlife or fish habitat (e.g., spring development or a dugout to provide water, log placement in a stream for fish cover and pool creation, or nest box installation for birds).

APPENDIX A
NOAA COMMUNITY-BASED RESTORATION PROGRAM NEPA GUIDANCE AND CHECKLIST

This Appendix presents the National Oceanic and Atmospheric Administration (NOAA) Community-based Restoration Program guidance for complying with the National Environmental Policy Act (NEPA) using a checklist designed to screen projects under consideration for funding. The guidance and checklist are presented below.

Guidance for Using the CRP NEPA Checklist and Attachment

When to use the Checklist and Attachment

This Checklist is designed for use on every project selected for potential funding by the RC, for which a NEPA document does not already exist[6]. This checklist does NOT replace an official NEPA decision document (CE memo, EA and FONSI, EIS and ROD); instead, it will serve as a guide in choosing the appropriate NEPA compliance tools/ decision document, and clarify the thought process behind the decision. In the case of a competitively selected project, several proposal reviewers may want to address the Checklist questions together, before a final funding recommendation is made. There is no need for more than one complete Checklist in each project file. In addition to the Checklist, careful notes should be taken on the Checklist Attachment so that thought processes are documented and clear.

The Checklist Attachment is not needed for Feasibility Studies, Modeling, Surveying and Mapping, Outreach or Public Education projects. Because projects of this type have no impacts on the natural environment and are fully analyzed in the PEA and SPEA, Recommendation 1 should be chosen.

Where to get help answering the Checklist Attachment questions

Your regional environmental compliance team member is available to answer questions; however, your best source of information is probably an RC employee who has experience with the type of project you're analyzing, or your regional NOAA Fisheries NEPA coordinator. The environmental compliance team is always keeping their eyes open for additional resources, located below and on the RC intranet site at: http://home.nmfs.noaa.gov/hc/rc/nepa.htm.

What to do with a new/unaccounted for project type

New project types, or those not described in the PEA and S-PEA, may still qualify for a CE, provided their impacts are not potentially significant, and they do not involve a geographic area with unique characteristics, are not a subject of public controversy based on potential environmental consequences, have no uncertain environmental impacts or unique or unknown risks, do not establish a precedent or decision in principle about future proposals, will not result in cumulatively significant impacts, and will not have any adverse effects upon endangered or threatened species or their habitats. Otherwise, an individual EA or EIS, or adoption of another agency's document is required.

How to go from the significance criteria to a NEPA recommendation

By completing the Attachment, you will determine when the potential for a number of known or unknown significant impacts exist. There is no pre-determined number of "Maybe" or "Yes" Checklist answers that lead to automatic preparation of an individual EA or EIS. For instance, many of your "Maybe" or "Yes" answers will be explained as potentially significant but mitigated or as BENEFICIAL IMPACTS in the Attachment and in the NEPA document you prepare. (Note: If you have *any* significant impacts your checklist answer will be maybe/yes, regardless of whether they are beneficial.) In consultation with your team lead, environmental compliance team member, and Responsible Program Manager a decision will be made whether to proceed with an individual EA or EIS (including adopting another agency's document), to defer funding until more information about the project is known, to fund the project in stages, or to fund the project while restricting the use of funds through Special Award Conditions (SAC's). When in doubt about which method of analysis and documentation should be used, it is prudent to choose the more rigorous analysis. The preparation of an EA is always required, at a minimum, if (a) the project type is not described in the PEA or SPEA, (b) it is described but its impacts are not adequately analyzed in the PEA or SPEA, or (c) the project does not qualify for a listed Categorical Exclusion.

[6] If the project is already covered by a NEPA document, that document should be included in the Project Record, along with a copy of any documents adopting the decision, if necessary.

In addition, the impacts of the project in question should be thoroughly analyzed in the PEA and SPEA. When this is not the case, the answer to question 11 should be YES, and an individual NEPA document should be prepared (Recommendation 4 or 5). For non-significant impacts, this can be a targeted Supplemental EA. The targeted Supplemental EA will address only resources for which the impacts are not described. The FONSI for this document will also only address the relevant intensity criteria. For instance, if the project impacted a species listed under the ESA, and that species was not addressed in the PEA or S-PEA, you would prepare an EA based on the Sec. 7 consultation, and a FONSI that addressed only the intensity criteria relating to biodiversity and endangered and threatened species.

What to do if you can't answer a Checklist question

As mentioned above, discuss your answers to both the Attachment and Checklist questions with other RC staff. If the proposal does not provide enough information to make an informed decision, you may choose to call the project applicant and gather more information, or the RC may choose to fund the project partly, or not at all. Before writing a formal NEPA document for a funded project, review, and update if necessary, the Checklist and Checklist Attachment for completeness.

Please report any difficulty answering checklist questions to your environmental compliance team member. If we notice similar problems in many regions, the compliance team will work towards providing training or guidance on that issue.

Where to distribute the Checklist

Once complete, a copy of the Checklist and Attachment should be sent to CRP HQ along with a draft of the official NEPA decision document. Keep the original Checklist and Attachment in your files as part of the Project Record[7] for that project. Original NEPA decision documents and memos will remain in HQ as part of the CRP Program Record.

What does HQ do with the Checklist, Attachment, and draft NEPA documents?

Program Officers (PO's) use the CRP NEPA Checklist, Attachment, and draft document submitted by field staff to create a formal NEPA decision document, and circulate it for approval. POs compare the checklist and attachment to the draft text submitted by field staff and make sure any "Maybe" or "Yes" answers on the checklist are addressed in the draft text and the attachment.

There are five recommendations on the CRP NEPA Checklist. Recommendations 1 and 2 suggest the project falls completely or partially under the CRP PEA. In this case, PO's will compile the "EA Inclusion Memo" including project specific information (the "NEPA paragraph" submitted by the field) for one or more projects selected under a funding solicitation. The "EA Inclusion Memo" is then signed by the RPM and filed in the Program Record.

If recommendation 2 was chosen, the PO will also confirm with field staff that appropriate SAC's are being applied to the project, and communicate these conditions to the recipient. Further follow-up will be required, and another EA Inclusion memo, or a targeted supplemental EA will be required, based on the impacts of the remaining portions of the project. The "EA Inclusion Memo" or targeted supplemental EA is then signed by the RPM and filed in the Program Record.

If recommendation 3, Categorical Exclusion, is selected, PO's will provide the draft document to the NOAA Fisheries HQ NEPA Coordinator (John Hansel) for review, and ask field staff to resolve any questions. They will then provide the final document to the RPM to sign, and file it in the Program Record.

If recommendation 4 or 5 is chosen, PO's will circulate the draft EA, targeted supplemental EA, or EIS documents to receive comments from the NOAA Fisheries HQ NEPA Coordinator, NOAA NEPA

[7] The Project Record contains project specific information such as proposals, progress reports, regulatory compliance information, etc. This is located with the CRP staff person who is primarily responsible for the project. The Program Record contains the selection package for a funding solicitation, as well as any memos to the file created when selecting projects, or running the CRP program. This is located in HQ.

Coordination Office, and General Council, and coordinate public announcements in the Federal Register. Once the body of the document is finalized, PO's will draft the needed cover memos, and circulate them for final signature and concurrence by the Assistant Administrator for NOAA Fisheries (or Habitat Conservation Office Director per the current delegation authorities) and the NOAA NEPA Coordination Office, respectively. The final document will be filed with the Program Record. In all cases, a copy of the final decision document will be sent to the region for the Project Record.

Information on additional authorities under NEPA

Archaeological and Historic Preservation Act: 469 - deals a lot with dams
http://www2.cr.nps.gov/laws/archpreserv.htm

National Historic Preservation Act:
www.achp.gov/work106.html

Clean Water Act: deals with point and non-point source pollutants
http://www.epa.gov/region5/water/cwa.htm

Coastal Zone Management: provides for federal consistency with state coastal regulations
http://www.fema.gov/ehp/czma.shtm.; http://coastalmanagement.noaa.gov/pcd/federal_consistency.html
Find out more info by state: http://coastalmanagement.noaa.gov/czm/national.html

Endangered Species Act: Special Attention to Section 7
http://endangered.fws.gov/ESA/ESA.html

Marine Mammal Protection Act: prohibits, with certain exceptions, the take of marine mammals in U.S. waters
http://www.nmfs.noaa.gov/pr/permits/types.htm#mmpa

Farmland Protection Policy Act: requests, but doesn't require, agencies consider project alternatives that keep prime farmland in production
http://www.nrcs.usda.gov/programs/fppa/
- the act, rulemaking, and impact rating form are on the RC intranet

Magnuson-Stevens:
http://www.nmfs.noaa.gov/sfa/magact/
EFH background and consultations:
http://www.nmfs.noaa.gov/habitat/habitatprotection/essentialfishhabitat4.htm
EFH identification by Council: http://www.nmfs.noaa.gov/habitat/habitatprotection/efh_designations.htm

EO 11988 - Flood plain Management: Agencies will avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplain development wherever there is a practicable alternative. When there is no practicable alternative, the procedural requirements of the executive order must be implemented to include its public notice procedures.
http://www.fema.gov/library/eo11988.shtm

EO 11990 - Wetland Protection
Agencies will avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. When there is no practicable alternative, the

procedural requirements of the executive order must be implemented to include its public notice procedures.
http://www.gsa.gov/Portal/gsa/ep/contentView.do?P=XAE&contentId=12141&contentType=GSA_BASIC

EO 12072 – Development in Central Business Areas: Requires all federal agencies to give first consideration to locate federal facilities in central business areas, and/or adjacent areas of similar character.
http://www.gsa.gov/Portal/gsa/ep/contentView.do?P=PRCOE&contentId=10225&contentType=GSA_BASIC

EO 12898 - Environmental Justice: Each Federal agency shall 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.
http://www.epa.gov/fedsite/eo12898.htm

EO 13006 – Priority Use of Historic Properties: The Federal Government shall utilize and maintain, wherever operationally appropriate and economically prudent, historic properties and districts, especially those located in our central business areas.
http://www.cr.nps.gov/local-law/eo13006.htm

EO 13158 - Marine Protected Areas
Goals: (a) strengthen the management, protection, and conservation of existing marine protected areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved, or funded activities.
http://ceq.eh.doe.gov/nepa/regs/eos/eo13158.html

EO 13175 - Tribal Government: Agencies will establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.
http://www.epa.gov/fedrgstr/eo/eo13175.htm

NEPA Checklist for Projects Funded Under the NOAA Community-based Restoration Program

Project Name:
Project Proponent:
Who will be the lead Federal agency for this project? _____

Has another Federal agency completed a NEPA document? ____CE ____ EA ____EIS

Is the project type described under the CRP PEA or SPEA? ____ No ____ Yes

Is this a project type (such as Feasibility Studies, Modeling, Surveying and Mapping, or Outreach and Public Education) that does not require further review under the SPEA. If "Yes", complete only the NEPA Recommendations, without the Summary of Significance and Impacts or Attachment.

____ No ____ Yes

Summary of Significance and Impacts
Answer *each* item below. For guidance, see the corresponding CRP NEPA Considerations in the Attachment. Questions 1-10 evaluate the proposal's significance under NEPA. Question 11 addresses whether the impacts of the proposal are analyzed under the CRP PEA and SPEA.
Determine whether the proposed action will:

No	Maybe*****	Yes	
___	___	___	1. Have impacts on public health or safety?
___	___	___	2. Affect the unique characteristics of the geographic area?
___	___	___	3. Have impacts on the human environment that are likely to be highly controversial?
___	___	___	4. Have highly uncertain or unique or unknown risks?
___	___	___	5. Establish a precedent for future actions with significant impacts or represent a decision in principle about a future consideration?
___	___	___	6. Have individually insignificant but cumulatively significant impacts?
___	___	___	7. Adversely affect entities listed in or eligible for listing in the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural, or historic resources?
___	___	___	8. Adversely affect endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?
___	___	___	9. Violate a Federal, state, or local law for environmental protection?
___	___	___	10. Result in the introduction or spread of a nonindigenous species?
___	___	___	11. Is there any category above for which impacts are not adequately described in PEA or SPEA?

***** *Further review is needed to determine the answer, see recommendation numbers 2 and 4 below*

NEPA Recommendation (check one):

1. ___ The action will have no significant impacts as identified above, and is completely covered by the impact analysis within the Programmatic EA for the CRP (PEA) or the Supplemental PEA for the CRP. The project and its potential impacts may be limited using DOC's Financial Assistance Standard Terms and Conditions, NOAA's Administrative Standard Award Conditions, and the NOAA RC's Programmatic Special Award Conditions. It requires no further environmental review and an EA Inclusion Memo will be prepared, that will include the NEPA significance criteria considerations the RC used for supporting documentation.

2. ___ The action analyzed here has unknown, potentially significant impacts. At this time, funding will be limited to those portions of the action and impacts analyzed in the PEA or S-PEA. These limitations will be described in DOC's Financial Assistance Standard Terms and Conditions, NOAA's Administrative Standard Award Conditions, and the NOAA RC's Programmatic Special Award Conditions. If all remaining impacts are later determined to be non-significant and described in the PEA and S-PEA, a supplemental EA Inclusion Memo will be prepared including the updated NEPA significance criteria considerations and the applicant may then proceed with the project.

3. ___ The action will have no significant impacts as identified above, but is not covered by the analysis in the PEA or SPEA, and will be covered by a Categorical Exclusion as there are no relevant exceptions (see NAO 216-6 section 5.05c). It requires no further environmental review, and a CE memo will be prepared to describe how it meets the criteria (see NAO 216-6, sections 5.05c and 6.03a-f). Identify the applicable CE type from the abbreviated list below:

   ____ NAO 216-6 6.03a.3(b)(1 to 2) *Management Plan Amendments*
   ____ NAO 216-6 6.03b.2(a-d), and 6.03b.3(a-c) *Restoration Actions*
   ____ NAO 216-6 6.03c.3(a-i) *Projects*
   ____ NAO 216-6 6.03d.4(a-b) *Fisheries Management Actions (per MSA)*
   ____ NAO 216-6 6.03e.3(a-d) *ESA Actions*
   ____ NAO 216-6 6.03f.2(a-c) *MMPA Actions*

4. ___ The action may have non-significant impacts as stated above, but is not Categorically Excluded or covered by the analysis within the PEA or SPEA. It will require preparation of an individual EA, targeted Supplemental EA, or adoption of another agency's EA.

5. ___ The action would have significant impacts and will require preparation of an EIS, cooperation with the lead federal agency in the preparation of an EIS, or adoption of another agency's EIS.

Where will the Project Record be kept?

_____ _____
Signature of CRP Review Staff Date

CRP NEPA Considerations **Attachment**

1. *Is the degree to which the proposed action affects public health or safety significant?* Consider the following:

Water Use and Quality

Will there be a change to the water supply and/or water table? Please address any changes to groundwater, surface water, or any interbasin transfers

Will there be any impacts on wastewater disposal?

Will there be a change to stormwater flow in the area?

Will there be a change to the location of the floodplain or the depth of flood waters?

Geological Resources

Is construction on or near any other natural feature that could affect the safety of the public part of this project? (Examples include known active geological faults.)

Will implementation result directly or indirectly in construction on slopes greater than 15%?

Will blasting be necessary?

Air and Noise Impacts

Will air quality be affected?

Will there be an increase in noise in the area?

Energy Resources

Will the capacity of any generating facility be changed?

Will the length or capacity of fuel or transmission lines be changed?

Traffic

Will implementation change traffic patterns or increase traffic volumes?

Contaminants

Will implementation result in the use, storage, release and/or disposal of toxic, hazardous, or radioactive materials, or in exposure of people to such materials? (Historical data such as chains of title and tax records can reveal whether activities have taken place there that could have released hazardous, toxic, or radioactive materials into the site, and whether underground storage tanks are likely to be present. Field inspection may reveal evidence of USTs such as vent pipes or fill caps, and evidence of site contamination such as stressed vegetation, soil surface stains, suspicious other possible waste containers, or ponds, pits, sumps or ditches with suspicious odors or smells. Check for evidence of or past history of PCBs, local Superfund sites, asbestos, etc.) Will sampling for contaminants be necessary based on the results of your investigation as detailed above? Is the project likely to have adverse economic or environmental impacts on minority or low income groups, or Native American tribes that are out of proportion with its impacts on other groups?

CRP NEPA Considerations **Attachment**

Environmental Justice

Is the project likely to have adverse economic or environmental impacts on minority or low income groups, or Native American tribes that are out of proportion with its impacts on other groups?

Is the project likely to alter the sociocultural character of such a group's community, or religious practices or use of land and other resources?

If the answer to any of the above questions is *yes*, is there a significant effect expected? Are these impacts described in the PEA or SPEA? Include if the effect is negative or beneficial.

2. *Is the degree to which the proposed action affects unique characteristics of the geographic area significant?*
Consider the following:

Will implementation result in changing the use of park lands, prime farmlands, and/or a floodplain?

Will implementation alter a wetland?

(The project may be altering a wetland if it results in construction on or near hydric soils, wetland vegetation, or other evidence of a wetland)

Will the project be located on or near ecologically critical areas, such as a wildlife refuge, a designated wilderness, a wild and scenic river, a National Natural Landmark, designated open space, or a designated conservation area; or located on or near an area under study for any such designation?

Will the proposed action have substantial impacts on biodiversity and/or ecosystem function within the affected area (e.g. bethic productivity, predator-prey relationships, etc.).

If the answer to any of the above questions is *yes*, is there a significant effect expected? Are these impacts described in the PEA or SPEA? Will the project change the use for which the ecologically critical areas above were designated? Why or why not? Include if the effect is negative or beneficial.

3. *What is the degree to which this project and its impacts on the quality of the human environment are likely to be highly controversial?*
Are there currently any members of the public objecting to this project?

CRP NEPA Considerations **Attachment**

Is there any sector of the public that has not been fully educated about the benefits and possible adverse impacts of the project?

Do any of the following have the potential to be highly controversial?
Ecological impacts-

Aesthetic impacts-

Affects on historic sites-

Cultural resource impacts-

Economic impacts-

Social impacts-

Affects on public health-

If the answer to any of the above questions is *yes*, please explain 1) how project proponents plan to educate the public and reduce or relieve the actual or potential controversy or 2) if an individual EA, at a minimum, is needed to address the controversial impacts (required of highly controversial projects).

4. *What is the degree to which the possible impacts on the human environment are highly uncertain or involve unique or unknown risks?*

Does this project involve new techniques in the field of habitat restoration?

Does the proposed site have characteristics that make it unique when compared to projects frequently implemented in the field of habitat restoration?

Are their historic uses of the site that make it likely that contaminants will be uncovered? (Conduct a search of previous deed holders/site uses.)

If the answer to any of the above questions is *yes*, please explain what has been done reduce the uncertainty involved in the project. Are these impacts described in the PEA or SPEA?

5. *What is the degree to which the proposed project may establish a precedent for future actions with significant impacts or represents a decision in principle about a future consideration?*

CRP NEPA Considerations **Attachment**

Does funding this project predisposes you toward funding another project in the future?

Will a change in local zoning or a local ordinance be needed?

If the answer to either of the above questions is *yes,* will significant impacts result from future activities? Are these impacts described in the PEA or SPEA?

6. *Consider whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

   Is the project one of a series of projects that together may change the pattern of pollutant discharge, traffic generation, economic change, flood plain, or land-use change in the area? Consider other past, present, or reasonably foreseeable future impacts, including those not caused by CRP-funded projects.

If the answer to the above question is *yes,* is there a significant effect expected? Are these impacts described in the PEA or SPEA? Include if the expected effect is negative or beneficial.

7. *Consider the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. Loss or destruction may occur through physical alteration or by altering its visual, social, or other characteristics.*

   Is there a building or other structure that is over 45 years old? Will loss or destruction occur?

   Is there a neighborhood or commercial area that may be important in the history or culture of the community? Will loss or destruction occur?

   Is there a known or probable cemetery on site? Will loss or destruction occur?

   Is the project on a rural landscape that may have cultural or esthetic value? Will loss or destruction occur?

   Is the site a place of traditional cultural or spiritual value in the eyes of a Native American group or other community? Will loss or destruction occur? Will the proposed project impede access to such a place?

   Is the site a known archeological site? Will loss or destruction occur?

CRP NEPA Considerations **Attachment**

If the answer to any of the above questions is *yes*, please explain what has been done to mitigate such losses. (In addition, if proximity to any of the locations/sites listed are likely to generate controversy, please address this under question 3, above.) Has the State Historic Preservation Office been contacted? Where is the record of consultation with the SHPO filed? Are these impacts described in the PEA or SPEA?

8. *Consider the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*
Consider the following:

a)Will the project alter a natural ecosystem?

b) If yes to question "a", are endangered or threatened species, their critical habitat, or a species under consideration for listing present in the area? How have you determined their presence or absence? List the species present.

c) If yes to question "b", have Section 7 consultations under the ESA been received from USFWS or NMFS? Where are these documents on file?

d) If a determination of "likely to adversely affect" was concluded, have sufficient steps been taken to mitigate the potential loss? Explain.

Do the answers to the above questions lead you to believe that the degree to which the action may adversely affect listed species is minimal, and will be beneficial in the long term? Are these significant impacts? Are these impacts described in the PEA or SPEA?

9. *Consider whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. Consider whether the action is likely to have impacts that would be inconsistent with such authorities as:*

- Archaeological and Historic Preservation Act (16 U.S.C. 469 and 36 CFR Part 800);
- National Historic Preservation Act (16 U.S.C. 470 and 36 CFR Parts 61, 63, 65, 68, 79, and 800);
- Clean Water Act (33 U.S.C. 1251-1387) Permits are required if the project includes a regulated liquid discharge (Section 402 NPDES), or discharge of fill in wetlands or intertidal areas (Section 404);
- Coastal Zone Management Act (15 CFR 930 Subpart D and 15 CFR 923) Federal fishery management actions are required to be in compliance with states coastal zone management plans. Requires a Consistency determination;
- Endangered Species Act (See question 8, above);
- Marine Mammal Protection Act (16 U.S.C. 1631-1421) Prohibits, with certain exceptions, the take of marine mammals in U.S. waters;

CRP NEPA Considerations **Attachment**

- **Farmland Protection Policy Act** (7 CFR 658) requires Federal agencies to minimize the extent to which Federal programs including technical assistance or financial assistance contribute to the unnecessary and irreversible conversion of important farmland to nonagricultural uses
- **Magnuson-Stevens Fisheries Conservation and Management Act** Applies to fishery management plans, amendments to fishery management plans, and federal fisheries management notices, rules and regulations. The Act stipulates ten National Standards to which fishery conservation and management actions must conform. Section 303 requires essential fish habitat (EFH) descriptions. The agency has guidance for EFH consultations which should be followed. A Fisheries Impact Statement is needed;
- **E.O. 11988** (Floodplain management);
- **E.O. 11990** (Wetlands protection);
- **E.O. 12072** (Development in central business areas);
- **E.O. 12898**: (Environmental Justice in Minority Populations and Low-Income Populations);
- **E.O. 13006** (Priority use of historic properties);
- **E.O. 13158** (Marine Protected Areas);
- **E.O. 13175** (Consultation and Coordination With Indian Tribal Governments);
- EPA's solid waste management guidelines;
- Occupational Health and Safety Administration (OSHA) noise standards;
- A State Implementation Plan (SIP) under the Clean Air Act;
- Other applicable state, Indian tribal, or local environmental protection, historic preservation, noise control, visual impact, or social impact control ordinances.

List all documentation showing compliance with the above laws and requirements and where documents are located. Are these impacts described in the PEA or SPEA?

10. *Will the Federal action result in the introduction or spread of a nonindigenous species?*

Are these impacts described in the PEA or SPEA?

APPENDIX B
REPRESENTATIVE SAMPLE OF PREVIOUSLY APPROVED NOAA COMMUNITY-BASED RESTORATION PROJECTS

This appendix presents representative examples of community-based restoration projects for which the National Oceanic and Atmospheric Administration (NOAA) Community-based Restoration Program (CRP) received a proposal to fund, and for which the CRP previously completed impact assessment analyses under the National Environmental Policy Act (NEPA). The analyses determined that the potential impacts from proposed projects were described in the existing Programmatic Environmental Assessment (PEA) and found that the proposed restoration activities were not anticipated to have any significant environmental effect, individually or cumulatively, on the human environment. The following projects and partnerships are provided as representative examples:

- Lower Columbia River Estuary Program
- NOAA Gulf of Mexico Community-based Restoration Program Partnership
- Partners for Restoring Coastal Louisiana
- NOAA/Trout Unlimited Partnership to Restore Coastal Watersheds and Fisheries Habitat
- Coastal California Salmonid Restoration Project Partnership
- Restoration of Migratory Fish Habitat through Dam Removal and Fish Passage in the Northeast, Mid-Atlantic, and California
- Regional Partnerships for Habitat Restoration in the Gulf of Maine
- Proposed three-year renewal of the National Partnership between the NOAA Restoration Center and The Nature Conservancy
- Multi-project Cooperative Partnership between NOAA Fisheries and the FishAmerica Foundation to Restore Marine and Anadromous Fisheries Habitat
- Southern California Regional Kelp Restoration Project
- Ocean Trust National Fisheries Institute National Habitat Partnership
- Bridge Creek Salt Marsh Restoration
- Tarboo Creek at Center Road Culvert Replacement
- Hard Clam Spawner Sanctuary Shellfish Restoration
- Evaluating Success of Intertidal Oyster Restoration in South Carolina
- Tryon Creek Habitat Complexity and Enhancement Project
- Matanuska-Susitna Borough Fish Passage Project – Phase II
- Control of *Spartina patens* in the Siuslaw Estuary
- Middle Fork John Day River Community-based Restoration Project
- Community-based Restoration Projects (Save San Francisco Bay Association)
- Lapwai Creek Nature Preserve: Linking Education with Restoration
- Odd Fellows Road Community-based Habitat Restoration Project
- Chaney Creek Watershed Habitat Restoration Project
- Raging River Preston Reach Levee Removal
- Stump Sound Oyster Habitat Restoration
- Nick's Lagoon Restoration and Education Project
- Swamp Creek Restoration/Wallowa Resources
- Rouge Valley Council of Government – Bear Creek Riparian Tree Planting Project
- Pointe Platte Wetland Restoration
- Clear Creek Bulrush Project
- Bear Valley Creek Riparian Restoration
- Sebasticook River Channel Restoration Project
- Riparian Restoration and Science Based Education in the Russian River Watershed

- Janes Creek Restoration Project
- Middle School Students Restoring Nathanson Creek
- Upper Sacramento River Riparian Restoration and Education Program
- Community-based Eelgrass Restoration at Anacapa Island
- School-based Eelgrass Transplant (SET) Program
- Central Rappahannock Spawning Habitat Restoration Project
- Adjacent Habitats in Aransas Bay
- Islamorada Seagrass Habitat Restoration Project
- Student Wetland Restoration Project
- Eastern Shore (MD) Coastal Wetland Restoration
- Turner Station (MD) Restoration
- Barren Island (MD) Restoration – II
- Chester River (MD) Wetlands Restoration
- Foxwells (VA) Wetland Restoration Project
- Submerged Aquatic Vegetation Community-based Restoration Project
- Mesohaline SAV Restoration
- Iron Stone Mill Dam Removal
- Spawning Habitat Restoration
- Oyster, Scallop, and SAV Restoration (VA) – II
- Oyster Restoration in Maryland Coastal Bays – II
- Potomac River (MD) Oyster Restoration
- Paradise Creek (VA) Restoration – II
- Suislaw Watershed Education Programs
- East Fork Williams Creek Salmonid Habitat Restoration Project
- North Fork Mad River Cover Enhancement
- Solider Creek Migration Barrier Removal Project
- Kids in Creeks Watershed Education Program
- Willow Creek Integrated Watershed Management Plan
- Tillamook Bay Floodplain Salmon Stewardship Project
- Parks Creek Fish Passage Project
- Harry Pursel Dam Removal
- Zemco Dam Removal Study
- Horse Creek Dam Removal Project
- Iron Stone Mine Dam Removal
- Goodrich Dam Removal
- Ft. Covington Dam Removal
- Bull Creek Riparian Revegetation and Salmonid Habitat Restoration Project
- Moon Creek Barrier Modification and Habitat Enhancement Project
- Panther Creek Barrier Modification and Habitat Enhancement Project
- Andrews Property Riparian Habitat Improvement Project
- Hidden Pond Fish Habitat Restoration Project
- East Harbor Estuarine Restoration Project
- Quivett Creek Salt Marsh Restoration Project
- Coquille Indian Tribe Riparian Vegetation Restoration Project
- Ingham Hill Pond Dam Fishway
- Ship Creek Fishing Access and Streambank Stabilization Project
- Cottonwood Creek Youth Education and Stream Habitat Restoration Project
- Snyder Creek Restoration Project

- Terrell Creek Habitat Restoration Project
- San Francisquito Creek Steelhead Habitat Restoration Project
- Salvador Creek Restoration and Education Project
- Clear Creek Habitat Enhancement Project
- Coos Watershed Projects 2004
- North Fork Coquille Fish Passage Project
- Sharnelle Fee Restoration Project
- Sacramento River Floodplain (Ohm 3 Unit) Restoration
- Great South Bay (Bluepoints) Spawner Sanctuary

APPENDIX C
THREATENED, ENDANGERED, AND SPECIES OF CONCERN UNDER THE JURISDICTION OF THE NOAA NATIONAL MARINE FISHERIES SERVICE AND U.S. FISH AND WILDLIFE SERVICE

The tables below present the current federally listed endangered, threatened, proposed, and candidate species, as well as species of concern under the jurisdiction of the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Office of Protected Resources (OPR) (http://www.nmfs.noaa.gov/pr/species/).

Endangered and Threatened Species under NOAA jurisdiction

(key: E = endangered; T = threatened)

Marine Turtles

loggerhead turtle 1978 T
green turtle
breeding colonies in Florida
and on Pacific coast of Mexico 1978 E
all other areas 1978 T
leatherback turtle 1970 E
hawksbill turtle 1970 E
Kemp's ridley turtle 1970 E
olive ridley turtle
breeding colonies on
Pacific coast of Mexico 1978 E
all other areas 1978 T

Marine Mammals

Cetaceans:
blue whale 1970 E
bowhead whale 1970 E
Chinese river dolphin 1989 E
fin whale 1970 E
gray whale
Eastern North Pacific 1994 D
Western North Pacific 1970 E
humpback whale 1970 E
Indus River dolphin 1991 E
killer whale
Southern Resident DPS 2005 E
Northern right whale E
Sei whale 1970 E
Southern right whale E
sperm whale 1970 E
vaquita (Gulf of California harbor porpoise) 1985 E

Pinnipeds:
Caribbean monk seal 1967 E
Guadalupe fur seal 1985 T
Hawaiian monk seal 1976 E
Mediterranean monk seal 1970 E
Saimaa seal (Finland) 1993 E
Steller sea lion
western 1997 E
eastern 1990 T

Marine/Anadromous Fish

shortnose sturgeon 1967 E
Gulf sturgeon 1991 T
totoaba 1979 E
Atlantic salmon 2000
smalltooth sawfish 2003 E
chum salmon
Columbia River 1999 T
Hood Canal summer-run 1999 T
coho salmon
Lower Columbia River 2005 T
south OR/north CA coast 1997 T
central CA coast 1996 T
sockeye salmon
Snake River 1991 E
Ozette Lake 1999 T
steelhead trout
central CA coast 1997 T
Snake River 1997 T
upper Columbia River 1997 E
southern CA 1997 E
middle Columbia River 1999 T
lower Columbia River 1998 T
upper Willamette River 1999 T
northern CA 2000 T
south central CA coast 1997 T
CA central valley 1998 T
Chinook salmon
Sacramento River winter run 1994 E
Snake River fall run 1992 T
Snake River spring/summ run 1992 T
Puget Sound 1999 T
lower Columbia River 1999 T
upper Willamette River 1999 T
upper Columbia River spring Run 1999 E
Central Valley spring run 1999 T
California coastal 1999 T

Marine Plants

Johnson´s sea grass 1999 T

Marine Invertebrates

white abalone 2001 E

Other Species under NOAA jurisdiction

Proposed
green sturgeon, Northern DPS 2005
elkhorn coral 2005
staghorn coral 2005

Candidate
steelhead trout, Puget Sound 2005

Species of Concern

Marine Mammals
beluga whale 1988

Brachiopods
inarticulate brachiopod 2004

Mollusks
pink abalone 2004
black abalone 1999
green abalone 2004
pinto abalone 2004

Anthozoans (corals)
Hawaiian reef coral 2004
ivory bush coral 1991

Fish
dusky shark 1997
sand tiger shark 1997
night shark 1997
largetooth sawfish 1988
barndoor skate 1999
thorny skate 2004
Atlantic sturgeon 1988
Alabama shad 1997
coho salmon 1997
steelhead trout 1997
Chinook salmon 1997
Atlantic salmon 1997
rainbow smelt 2004
cusk 2004
Pacific hake 1999
mangrove rivulus 1997
saltmarsh topminnow 1991
key silverside 1991
opossum pipefish 1991
striped croaker 1991
humphead wrasse 2004
bumphead parrotfish 2004
Atlantic wolfish 2004
white marlin 2002
cowcod 2004
bocaccio 1999
Atlantic halibut 2004
speckled hind 1997
warsaw grouper 1997
Nassau grouper 1991

In addition to the species above, federally listed species under the jurisdiction of the USFWS may be beneficially or adversely affected by these restoration activities. Presented here is a partial list of species that may be found in project areas. For a full list of USFWS managed endangered, threatened, and candidate species, see the USFWS threatened and endangered species website (http://www.fws.gov/endangered/wildlife.html#Species).

Selection of Endangered and Threatened Species under USFWS Jurisdiction

(key: E = endangered; T = threatened)

Fish
bull trout T
pallid sturgeon E
tidewater goby E

Mammals
Canada lynx T
Columbian white-tailed deer E
gray wolf E, T, EXPN
grizzly bear T, EXPN
Louisiana black bear T
red wolf E, EXPN
West Indian manatee E

Birds
bald eagle T
brown pelican E
Hawaiian coot E
Hawaiian duck E
Hawaiian common moorhen E
Hawaiian stilt E
Laysan duck E
marbled murrelet T
northern spotted owl T
piping plover E, T
roseate tern E, T
red-cockaded woodpecker E
short-tailed albatross E
western snowy plover T

Amphibians
California red-legged frog T
California tiger salamander T, E

Reptiles
Alabama red-belly turtle E
American crocodile E
giant garter snake T

Invertebrates
dwarf wedgemussel E
valley elderberry longhorn beetle T

Plants
ute ladies'-tresses T