



## **NOAA Fisheries Restoration Center Federal Consistency Determination**

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## I. BACKGROUND AND OVERVIEW OF REPORT

The purpose of this report is to provide the background and context for a finding of Federal Consistency with the California Coastal Act and California Coastal Management Program (CCMP) for the National Oceanic and Atmospheric Administration Fisheries Restoration Center's (NOAA RC) Community-based Restoration Program (CRP or "Program"). The following sections provide detail on the role of the NOAA RC, the CRP project selection process, types of projects qualifying for CRP funding or technical assistance, standard environmental protection requirements, regulatory processes, adaptive management, pre and post-construction monitoring and project follow-up. This analysis demonstrates the CRP's consistency with the CCMP and Chapter 3 of the California Coastal Act.

### **A) Purpose for this Federal Consistency Determination**

The NOAA RC's CRP has funded and provided technical assistance for habitat restoration projects in California since 1996. In 17 years, 390 CRP projects have been completed; of those, at least 13 occurred in the Coastal Zone. These projects were permitted under the Coastal Act through issuance of Coastal Development Permits by a certified Local Coastal Program (LCP) or the California Coastal Commission, or they received Commission concurrence with a Consistency Determination or Negative Determination made by the NOAA RC. Many more projects were never developed due to project proponent concerns with difficulties obtaining permits for work in the Coastal Zone. NOAA RC restoration partners in Del Norte, Humboldt, Sonoma, Santa Cruz and Monterey Counties have expressed a strong reluctance to initiate projects in the Coastal Zone for this reason.

With a projected CRP budget nationwide of approximately \$20 million per year for the next three years, and growing support in California for restoration efforts designed to improve riparian and aquatic habitat and water quality, the NOAA RC seeks to make the process of regulatory review and permitting of environmentally beneficial habitat restoration projects more efficient. The process of obtaining regulatory approval for these projects is, and is perceived by project applicants to be, a significant barrier to implementing conservation work with limited grant funding.

Programmatic permitting of CRP projects through this Consistency Determination is intended to reduce costs and time for project applicants and help ensure that important restoration projects are implemented as planned. These projects benefit a range of coastal resources, including streams, floodplains, wetlands and estuaries, giving populations of threatened and endangered salmon and steelhead better conditions for spawning, rearing and migration. NOAA RC is willing to take the lead role to insure that proposed restoration projects meet the environmental and coastal protection standards of the Commission – thereby allowing NOAA RC biologists to focus on design, construction and other aspects of the technical assistance they provide to applicants, furthering fisheries habitat restoration goals.

CRP projects can be funded, permitted and implemented throughout California's Coastal Zone (and elsewhere in the state), from the Oregon border to the Mexican

border. However, programmatic biological opinions (BOs) under Section 7 of the Endangered Species Act (ESA) have been completed for the program by NOAA's National Marine Fisheries Service (NMFS) only for the North and Central Coasts, including Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Francisco, San Mateo, Santa Cruz and Monterey Counties and a portion of San Luis Obispo County. Consequently, this Consistency Determination covers the CRP's work in the Coastal Zone of this region. CRP projects in Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties are not included in this Consistency Determination.

NOAA RC is proposing this alternative regulatory process to accelerate the implementation of environmentally beneficial projects that meet the standards of the Coastal Act as well as the federal Endangered Species Act and other state fish and wildlife and water quality laws and regulations. This alternative process gives the Coastal Commission the opportunity to programmatically review the NOAA Restoration Center's clear, well-defined goals, processes, and procedures for consistency with the Coastal Act and the CCMP. Projects that are consistent with the terms of this review will be implemented with NOAA RC oversight, avoiding the need for LCP or Coastal Commission project-by-project review and accelerating the restoration of California's coastal resources.

## **B) NOAA Restoration Center**

The NOAA RC is an office of NOAA Fisheries, which is part of NOAA within the U.S. Department of Commerce. The NOAA RC operates from headquarters in Silver Spring, Maryland, and from offices located throughout the nation, including in California.

NOAA Fisheries' mission is to conserve and manage coastal and marine ecosystems and resources. The NOAA RC carries out this mission by working with federal, state and local partners to implement habitat restoration and conservation projects that recover threatened and endangered species, rebuild and maintain managed fisheries stocks, and ensure that valuable natural resources are available to future generations of Americans. The need for NOAA's mission stems from a historical trend of habitat loss and degradation, and continued long-term threats to the sustainability of the nation's fishery resources. Coastal habitats are consistently stressed by natural forces such as storms, currents, and tides, as well as from man-made threats such as development, dredging, dams, coastal engineering and modification, and climate change. Approximately half of the original 11.7 million acres of coastal wetlands in the lower 48 states were lost between 1780 and 1978; in California, as much as 90% of tidal wetlands and salt marshes have been lost to development (Water Education Foundation 2000). Losses of riparian habitat in California are estimated to be from 85-98%, depending on the region (Katibah 1984, Dawdy 1989). Furthermore over 75% of commercial fisheries and 80-90% 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 riparian, coastal and estuarine habitats, as well as adequate water quality, are required to maintain healthy fish stocks and ensure protection of threatened and endangered species and their habitats.

Projects supported nationally by the NOAA RC vary in terms of their size, complexity, and geographic location, and often benefit a wide range of habitat types and a number of different species. Typical restoration activities currently supported by the NOAA RC include, but are not limited to:

- Fish passage (installing fish ladders, by-pass channels, nature-like fishways, small dam removals, and culvert removal and replacement with bottomless arch culverts or bridges);
- Hydrologic/tidal reconnection (berm breaching, culvert removal/replacement to allow tidal or natural flooding of wetlands, complete removal of levees and dikes or other impediments to historic/natural tidal flow or hydrology, floodplain reconnection, or creation/restoration of off-channel habitats);
- Shellfish restoration (creating, restoring, or rehabilitating shellfish and shellfish habitat);
- Coastal resiliency (salt marsh and barrier island restoration, and erosion prevention through living shorelines, or other methods leading to increased resiliency and protection of coastal communities while supporting ecological goals);
- Habitat adaptation (protecting or restoring habitat in transition zones to provide room for habitat migration with sea level rise);
- Diadromous fish habitat (supporting diadromous fish recovery by addressing land-based sources of pollution, recovery from disturbance, restoring natural systems, or controlling invasive species or other loss of habitat);
- Threatened and endangered species projects (restoring beaches and other coastal areas used by endangered/threatened species and marine mammals);
- Riparian restoration/invasive species removal (control/removal of localized populations, re-establishing native vegetation, cattle exclusion fencing, monitoring for newly established species).

Several programs within the NOAA RC carry out these types of projects.

*The focus of this Consistency Determination includes activities conducted by NOAA RC's Community-based Restoration Program (CRP).*

The following Program description contains the specific types and scope of projects included in the CRP, along with applicable resources protection and monitoring requirements.

## II. NOAA RESTORATION CENTER COMMUNITY-BASED RESTORATION – CALIFORNIA PROGRAM DESCRIPTION

The NOAA RC created the CRP in 1996 to encourage local efforts to restore fisheries habitat. The NOAA RC's Southwest Region office manages projects in California and Pacific Islands, with supervisorial staff located in Santa Rosa and field staff working from offices in Arcata, Santa Rosa, Long Beach and Hawaii. Similar to its other locations around the nation, the CRP's Southwest Region provides financial and technical assistance for habitat restoration projects that benefit natural resources under NMFS' jurisdiction in coastal or marine environments. 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. By promoting community involvement and stewardship of local projects, the CRP leverages between two and three times the federal investment through partner organization in-kind and matching contributions. The RC also provides restoration science and technical guidance to partners, including assistance with environmental compliance and monitoring activities.

### **A) Geographic Scope of the Program and Consistency Determination**

This Consistency Determination applies to the NOAA RC's Community-Based Restoration Program in California, from the Oregon Border through San Luis Obispo County, including tidally influenced coastal estuarine areas (see Attachment A, Program Area Map).

### **B) Funding**

The CRP receives two types of funds from the U.S. Congress—discretionary and nondiscretionary. Both types appear as line items in NOAA Fisheries' annual budget. Discretionary funds comprise the CRP's base funding levels, as well as a portion that supports activities under the Damage Assessment, Remediation and Restoration Program (DARRP) (which establishes natural resource damages under the Oil Pollution Act of 1990). The CRP uses 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 staff and operations related to these partnerships and projects. In FY2012, the CRP budget line item totaled approximately \$13 million, and the CRP used a portion of those funds to award grants to various organizations for habitat restoration projects.

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. Congressionally directed awards support individual cooperative agreements and grants, which in turn fund suites of individual restoration

projects as sub-awards. Given the limited amount of funding available on a national level, NOAA RC staff leverages other funding sources to help supplement the funds needed to implement critically important restoration projects.

### **C) Technical Assistance and Project Oversight**

NOAA RC staff is substantially involved with both funded and non-funded projects included in the CRP. Substantial involvement may include, but is not limited to, hands-on technical assistance; participation in feasibility studies, design plans, and construction oversight to ensure benefits are realized; support in development of appropriate monitoring protocols to ensure project performance can be evaluated; tracking the progression of restoration projects through site visits and progress report evaluation; and involvement in public meetings and events to discuss or highlight restoration activities.

### **D) Funding and Selection Process**

Proposals selected for funding are primarily funded through cooperative agreements with project partners (e.g., RCDs, non-profits, land conservancies, etc.), who conduct outreach to willing landowners to collaborate on voluntary restoration projects on their properties. Multi-year cooperative agreement awards are also considered, and additional releases of Congressional funds may be used to fund selected proposals without further competition. Awards are dependent upon the amount of funds Congress makes available to NOAA for this purpose in annual budgets. NOAA anticipates approximately \$20 million may be available over the next three years (2013-2016) to maintain selected awards, dependent upon the level of funding made available by Congress. NOAA anticipates typical awards will range from \$500,000 to \$5 million over three years. NOAA will not accept proposals with a budget of less than \$100,000 or more than \$10 million. Funds will be administered by the NOAA RC.

Both funded projects, as well as non-funded projects (those that receive only technical assistance from the NOAA RC staff), are evaluated by NOAA RC biologists and other technical staff in the CRP project selection process. An example of a formal evaluation process for funded projects is described in detail in Attachment B, *National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce - Announcement of Federal Funding Opportunity*. Non-funded projects eligible for technical and regulatory assistance (including coverage under existing NOAA Fisheries Biological Opinions) might receive help leveraging alternate funding sources and are prioritized separately by NOAA RC staff. Evaluation criteria are similar for both processes and include, but are not limited to, the following:

- Importance and Applicability to Program Priorities – Does the project support NOAA's goal to Protect, Restore, and Manage Use of Coastal and Ocean Resources through Ecosystem-Based management? Restoration includes, but is not limited to: 1) activities that contribute to the return of degraded or altered marine, estuarine, coastal, and freshwater, diadromous fish habitats to functioning habitats, or 2) techniques that return target species to their historical habitats.

- Project Benefits – Level of benefits to listed or candidate species, or other species under NOAA’s jurisdiction.
- Technical/Scientific Merit - Is the restoration activity or approach technically sound, and does it utilize appropriate restoration/conservation methods and include clear goals and objectives? Applications will be evaluated based on the extent to which the applicant has described a realistic and thorough implementation plan that demonstrates the project is feasible from a biological and engineering perspective, including whether the proposed approach is technically sound, safe for the public, and uses appropriate methods and personnel. The project should also account for adaptation to known or potential climate change impacts, measure progress towards broad goals and evaluate success with clearly identified, measurable objectives using adequate and meaningful pre- and post implementation monitoring, and be technically self sustaining (require a low or reasonable level of maintenance to continue functioning as designed).
- Qualifications of Applicant (or “Project Partner”) - Does the applicant possess the necessary education, experience, training, facilities, and administrative resources to support the proposed award and/or complete the project under the CRP? This includes restoration and conservation background with capacity/knowledge to conduct the scope and scale of the proposed work, as indicated by the qualifications and past experience of the project leaders and/or partners in designing, implementing and effectively managing and overseeing projects that restore marine and coastal habitats, especially those benefitting listed or managed species (as demonstrated by resumes, past project experience, and accomplishments of the key technical and financial staff).
- Cost Effectiveness - Is the budget realistic and commensurate with the project needs and time-frame for a comparable restoration project?
- Outreach, Education and Community Involvement - Does the proposed project(s) include community involvement and broad community support demonstrated by a diversity of partners and/or sponsorship from local entities, state and local governments, and/or members of Congress? Does the proposal include public outreach as it relates to the proposed restoration, including plans to disseminate information on: 1) restoration goals and results; 2) sources of funding and other support provided, such as the involvement of partners; and 3) the potential for the proposed restoration to encourage future restoration and protection of marine and coastal habitats or complement other local restoration or conservation activities?

All projects must be proposed in an application explaining the project design, construction details, benefits, applicable surveys, environmental protection measures, project partners, monitoring, and funding sources.

## **E) Regulatory Framework**

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All restoration projects receiving NOAA RC funding and/or technical assistance must be permitted by federal, state and local regulatory agencies before project implementation can occur. To improve project applicants' navigation through this complex process, NOAA RC staff provides applicants with assistance applying for and completing the required permits and authorizations. The following describes the primary regulatory processes that apply to projects covered by the CRP.

### *ESA Consultation and EFH Conservation Recommendations*

A key component of the regulatory process includes consultation with the U.S. Fish and Wildlife Service (FWS) and intra-agency consultation with NOAA Fisheries' National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA), for projects that may affect threatened and endangered species and designated critical habitat. (Consultation with NMFS also includes potential effects to Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act.)

Section 7 of the ESA directs all federal agencies to participate and actively cooperate in the conservation and recovery of listed threatened and endangered species. Federal agencies -- including those such as the NOAA RC conducting environmentally beneficial activities such as habitat restoration projects and the Army Corps of Engineers (Corps), which permits projects affecting aquatic habitat under section 404 of the Clean Water Act -- must ensure that any actions they authorize, fund or carry out are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitat for these species. The Section 7 consultation process is triggered by the issuance of a Corps permit, followed by funding and technical assistance to project applicants by the NOAA RC. Typically, project proponents provide the NOAA RC and Corps with a detailed project description that includes proposed designs and materials, location and habitat surveys, environmental protection measures, monitoring and reporting plans, and other information. The Corps requests consultation with NMFS and FWS (if needed) under Section 7 during their permitting process.

This process is expected to be a cooperative effort to analyze potential effects of a project or program of multiple projects, and to agree on project designs and implementation that avoid and minimize impacts to listed species and their habitat. Section 7 consultations can be conducted informally, concluding with a written agreement or letter specifying how project impacts will be avoided or minimized, or formally, with a biological opinion (BO) that includes mandatory terms and conditions and an incidental take statement issued by NMFS or FWS. The NOAA RC and Corps consult with FWS on a project-by-project basis.

### *NOAA RC Programmatic Biological Opinions*

Prior to 2006, the NOAA RC and Corps also consulted with NMFS for restoration work on a project-by-project basis. However, since that time, a programmatic BO has been available and used for most NOAA RC projects affecting salmonid habitat from Mendocino County south to San Luis Obispo County (the jurisdiction of the Santa Rosa

NMFS office). This programmatic consultation was written to facilitate the review and authorization of multiple projects of similar scope and purpose, and to encourage implementation of more restoration projects with a more efficient Section 7 consultation process. It authorizes up to 500 salmonid habitat restoration projects over a 10-year period in streams and adjacent riparian areas. (See Attachment C, *Santa Rosa Biological Opinion*.) The following types of projects are covered by the Santa Rosa BO:

- Instream habitat improvement
- Fish passage improvement (fish ladders/fishways/culverts and maintenance of existing facilities)
- Stream bank stabilization and riparian habitat restoration
- Riparian and upslope restoration
- Fish screen installation
- Summer dam removal

These restoration practices closely follow detailed technical descriptions found in the California Department of Fish and Wildlife (DFW, formerly Department of Fish and Game) *Salmonid Stream Habitat Restoration Manual* (<http://www.dfw.ca.gov/fish/resources/habitatmanual.asp>), NMFS' *Guidelines for Salmonid Passage at Stream Crossings* (<http://swr.nmfs.noaa.gov/hcd/NMFSSCG.PDF>), and NMFS *Fish Screening Criteria for Anadromous Salmonids* (<http://swr.nmfs.noaa.gov/hcd/fishscrn.pdf>) – documents which guide many riparian habitat restoration projects in California. All projects proposed for coverage under the programmatic BO must comply with detailed environmental protection measures, including project type prohibitions (no gabion baskets or concrete-lined channels, use of treated lumber within stream channels, or water diversions except to facilitate project installation, etc.; limitations on project size, number of projects per watershed and extent of invasive vegetation removal; seasonal work timing; a required buffer distance between projects; fish relocation and stream dewatering requirements; and measures to minimize disturbance of sensitive habitat and degradation of water quality from construction activities). Construction monitoring and post-project monitoring and reporting requirements follow standard procedures established by DFW as part of its Fisheries Restoration Grant Program, and are also detailed in the BO covering the project.

The 2006 restoration BO has been utilized successfully for six years, with a total of 52 restoration projects covered by the BO in that time. Recognizing the value of this BO's programmatic approach for ESA Section 7 consultations in the Central and North-Central Coast counties, the NOAA RC and Corps in 2012 completed a second programmatic BO with NMFS for projects affecting salmonid habitat in coastal counties from the Oregon border to Mendocino County (covering the jurisdiction of the NMFS Arcata office). (See Attachment D, *Arcata Biological Opinion*.) The 2012 Arcata office BO is similar to the 2006 Santa Rosa office BO, with some changes. Notably, specific criteria for revegetation success have been added, and the following additional project types are included (with specific requirements for water infrastructure improvements to ensure instream flow benefits):

- Off-channel floodplain habitat creation
- Alternative stockwater supply development (with riparian fencing, to remove cattle from stream)
- Irrigation tailwater pond construction (to reduce stream diversion through reuse of irrigation water)
- Water storage tank construction (to reduce summer stream diversion)
- Piping ditches (to reduce evaporation and improve instream flows)
- Headgates and water measuring devices (to improve water-use efficiency)
- Small dam removal

Together, these two programmatic consultations now provide standardized, efficient Section 7 review processes to facilitate habitat restoration projects in 10 coastal counties on the state's North and Central Coasts. Projects that do not meet the standards for these programmatic BOs – due to their size, proposed methods or materials, or any other reason – can be reviewed through NMFS' individual project Section 7 consultation process, or through other existing programmatic BOs such as those completed for Partners in Restoration programs in Mendocino, Marin, Santa Cruz and San Luis Obispo Counties. These Section 7 processes include very similar environmental protection measures as the Santa Rosa and Arcata BOs to ensure protection of listed species and their habitats, water quality and other natural resources.

It is expected that the Santa Rosa BO will be updated in the near future to mirror the content of the more recent Arcata BO, as well as any other necessary changes that may be needed to bring it up-to-date.

### *Species Recovery Plans*

There are now 28 distinct populations of listed Pacific Salmon (salmon and steelhead), and all are experiencing significant declines or are nearly extinct. NMFS is required by the ESA to develop recovery plans for the conservation and survival of these listed species. The recovery planning process is guided by section 4 of the ESA, as well as NMFS policies and regulations.

Recovery plans are planning and guidance documents, not regulatory or prescriptive measures. They provide roadmaps for the many governmental and non-governmental entities that must work together to take small and large actions to improve habitat conditions so the species' populations can rebound. The ESA specifies that recovery plans must include: (1) a description of management actions necessary for the conservation and survival of the species; (2) objective, measurable criteria which would result in the species being recovered to the point it could be removed from the threatened and endangered list; and (3) estimates of time and costs required to achieve this goal and the intermediate steps necessary to reach that goal. Key to the recovery plans is a robust "threats assessment" that determines the major threats to each species of salmon and steelhead and its habitat, and provides the basis for determining site-specific actions necessary for population recovery by each species.

Beginning in 2000, technical recovery teams composed of experts from state and federal agencies and academic institutions were formed by NMFS, commencing formal processes to develop recovery plans for each listed species of salmon and steelhead. Quantitative and qualitative information has been gathered and evaluated by the technical recovery teams and additional stakeholders. Conditions and threats have been evaluated for each life history stage of each species, and specific recovery actions specified by watershed. The plans are required by the ESA to include estimates of the time and cost it will take to implement the recovery actions and recover the listed species, but they provide no funding.

NMFS has completed and published the following recovery plans for salmonids occurring within the geographic area of this Consistency Determination:

- Central California Coast (CCC) Steelhead Final Recovery Outline (May 2007)
- Southern Oregon-Northern California Coast (SONCC) Coho Salmon Draft Recovery Plan (January 2012)
- Southern California Steelhead (SCS) Final Recovery Plan (January 2012)
- Central California Coast (CCC) Coho Salmon Final Recovery Plan (September 2012)
- South Central California Coast (SCCC) Steelhead Draft Recovery Plan (October 2012)

Projects moving forward under the CRP will focus on implementation of these recovery plans. See Attachment E for a map of the Priority Species Recovery Areas.

### [NEPA](#)

The National Environmental Policy Act (NEPA) requires documented, formal consideration of the environmental impacts 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. NEPA applies to all federal agency actions that have the potential to affect the quality of the human environment.

The NOAA RC is currently in the process of analyzing the potential environmental impacts of the habitat restoration activities that it conducts and supports, through a Programmatic Environmental Impact Statement (PEIS). The PEIS will serve the purpose of streamlining the NOAA RC's NEPA compliance process (eliminating duplicative NEPA documentation for many projects), and is expected to support program-level decision making within the NOAA RC.

The NOAA RC previously completed a Program Environmental Assessment (PEA) and associated Finding of No Significant Impact (FONSI) for the Community-Based Restoration Program in 2002 (see Attachment F). From 2002 onward, the NOAA RC has analyzed the potential impacts of individual projects by tiering from the PEA and FONSI to streamline NEPA compliance for the projects it conducts. With steady growth of the NOAA RC and the number and scope of its projects, in 2006 the NOAA RC developed a Supplemental PEA (SPEA) to ensure continued compliance with NEPA

and other applicable laws and regulations (Attachment G). As the NOAA RC's restoration program has continued to evolve, the NOAA RC more recently determined that the PEA, FONSI and SPEA should be replaced with the PEIS currently being developed. This document is expected to be completed and released in draft form in mid- to late-2013.

### *Coordination with Regulatory Agencies/Permitting Requirements*

#### US Army Corps of Engineers

Section 404 of the Clean Water Act requires approval for any discharge of dredged or fill material into Waters of the U.S., extending to the ordinary high water mark, or when adjacent wetlands are present, to the limit of the adjacent wetlands. A Section 404 permit issued by the U.S. Army Corps of Engineers (Corps) is required for all restoration projects involving any kind of material placed into the stream channel. Section 10 of the Rivers and Harbors Act of 1899 requires approval for any work in, over, or under navigable waters of the U.S. A Section 10 permit issued by the Corps is required for all restoration projects that involve any modification of navigable waters.

Applicants for all projects which are funded by the NOAA RC, or which receive NOAA RC technical assistance, must complete the Section 404/Section 10 permit process with the Corps' Regulatory Division, through one of the two Corps Districts (San Francisco and Los Angeles) with jurisdiction along the California coast.

#### National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS)

The Endangered Species Act (ESA) provides for the conservation of species that are endangered or threatened with extinction throughout all or a significant portion of their range, and the conservation of the ecosystems upon which they depend. NMFS and FWS share responsibility for implementing the ESA, with FWS managing terrestrial and freshwater species and NMFS managing marine species, including anadromous salmonids (ocean species that return to rivers to spawn). Federal action agencies are required to consult with NMFS and/or FWS under Section 7 of the ESA on any action authorized, funded or undertaken that may affect endangered or threatened species. In addition, under the Magnuson-Stevens Fishery Conservation and Management Act, federal action agencies are required to consult with NMFS on any action authorized, funded or undertaken that may adversely affect Essential Fish Habitat (EFH – the waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity).

For restoration projects it funds or for which it provides technical assistance, the NOAA RC is a federal action agency (along with the Corps, due to its issuance of a Section 404/Section 10 permit). Consequently, the NOAA RC and Corps must consult with NMFS and FWS for all NOAA RC restoration projects. Consultation with NMFS has been completed on a programmatic basis, through Biological Opinions (BOs) and incidental take statements issued by the Santa Rosa and Arcata Area Offices. Other programmatic BOs and incidental take statements issued by NMFS for Partners in Restoration permit coordination programs led by Resource Conservation Districts

(RCDs) in Mendocino, Marin, Santa Cruz and San Luis Obispo Counties may also be utilized for restoration projects in these locations. Individual Section 7 consultation, either formal (concluding with a BO and incidental take statement) or informal (concluding with a Letter of Concurrence) is an alternative route for projects occurring outside the geographic areas of the two BOs, or for projects the NOAA RC determines should be reviewed individually.

Consultation with FWS is completed almost exclusively on an individual basis for all NOAA RC restoration projects, resulting in a BO and incidental take statement, or an informal letter of concurrence. Exceptions to this would occur only in limited circumstances: A project could be reviewed for potential effects to California red-legged frogs under an existing programmatic BO and incidental take statement for this species; and/or a project occurring in a county where a Partners in Restoration permit coordination program has a completed programmatic BO and incidental take statement could be reviewed under that program's programmatic BO; or through an established program for FWS habitat restoration projects, which could be developed in the future.

#### California Department of Fish and Wildlife (formerly Department of Fish and Game)

Under Section 2080 of the California Fish and Game Code, the California Endangered Species Act (CESA) prohibits take of any species listed by the California Fish and Wildlife Commission as endangered or threatened. CESA allows for take incidental to otherwise lawful projects, and emphasizes early consultation to avoid potential impacts to rare, endangered and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats.

Applicants for NOAA RC restoration projects must receive either a Section 2080 Consistency Determination (documenting consistency with a federal incidental take statement) or a Section 2081 incidental take permit from the California Department of Fish and Wildlife (DFW) for compliance with CESA.

Section 1602 of the California Fish and Wildlife Code requires a project applicant to notify DFW of any proposed activity that may substantially modify a river, stream or lake. Notification is required for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel, including ephemeral streams and watercourses with subsurface flow. It may also apply to work within the floodplain of a body of water.

NOAA RC project applicants must notify their regional DFW office with a completed notification form and corresponding fee. If DFW determines that the proposed activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) must be prepared. The LSAA includes reasonable conditions necessary to protect those resources and must comply with the California Environmental Quality Act (CEQA).

#### State Water Resource Control Board and Regional Water Quality Control Boards

Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act regulate discharge of fill and dredged material into Waters of the State, including wetlands, headwaters and riparian areas. California's Water Quality Certification Program, under the jurisdiction of the State Water Resource Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Boards) was initiated in 1990 (the Section 401 portion of the program was under the jurisdiction of the Corps prior to its delegation that year by the federal government to the State).

NOAA RC project applicants must receive a Section 401 Water Quality Certification, and in some cases additional Waste Discharge Requirements, to comply with Section 401 and Porter-Cologne. These permits are issued by the appropriate Regional Board.

Applicants with projects that qualify may choose to utilize the State Water Board's 2012 Order for Clean Water Act Section 401 General Water Quality Certification for Small Habitat Restoration Projects (an interim reissuance of the expired 2007 Small Habitat Restoration Order). This order authorizes projects that qualify for CEQA Categorical Exemption 15333 (projects under 5 acres in size), with an additional limitation that the project area cannot exceed a cumulative total of 500 linear feet of stream bank or coastline. An updated Order for Small Habitat Restoration Projects, including prescribed Waste Discharge Requirements (WDRs) and new program provisions, is in the process of being developed by the State Water Board.

#### California Coastal Commission

Under the authority of the California Coastal Act of 1976, the California Coastal Commission (Commission), in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone (the coastal zone established by the Coastal Act does not include San Francisco Bay, where development is regulated by the Bay Conservation and Development Commission or BCDC). Development activities, which are broadly defined by the Coastal Act to include (among others) activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Commission or the local government. Along with BCDC and the California Coastal Conservancy, the Commission is one of three coastal management agencies designated to administer the federal Coastal Zone Management Act (CZMA) in California. NOAA RC project applicants must submit a Coastal Development Permit (CDP) application to the Commission's appropriate District office, or where there is a certified Local Coastal Program (LCP), to the appropriate city or county, and must receive a CDP for Coastal Act compliance.

#### California Environmental Quality Act (CEQA)

CEQA applies to all discretionary projects proposed or approved by a California public agency, including private projects requiring discretionary government approval. CEQA helps to guide DFW, State and Regional Water Boards, CCC, RCDs, and local agencies during issuance of permits and approval of projects. Any public agency (state or local) may be a CEQA lead agency or have CEQA obligations. NOAA RC project applicants must ensure that CEQA is complied with for their projects, through an exemption (Categorical Exemption 15333 for Small Habitat Restoration Projects), a

Negative Declaration (ND) or Mitigated Negative Declaration (MND), Environmental Impact Report (EIR), or through an existing programmatic ND, MND, or EIR for a Partners in Restoration permit coordination program or other restoration program.

#### Local Plans and Policies

NOAA RC project applicants must comply with all applicable city and county regulations and codes, including those issued by local planning, public works and other departments. All required city and county permits must be obtained by the applicant before a NOAA RC project can be implemented.

#### **F) Project Partners**

The NOAA RC recognizes that with multiple threats facing the coastal environment, no one organization can succeed at habitat restoration alone. In addition, restoration is often not a success without the partnership of coastal communities and community organizations. The NOAA RC funds projects directly and through partnerships with national and regional organizations. The NOAA RC also works with a number of restoration project partners who implement projects on the ground. The following provides a list of key partners who fund and/or implement NOAA RC habitat restoration projects:

- American Rivers
- Association of National Estuary Programs
- California Conservation Corps
- Ducks Unlimited
- Elkhorn Slough Foundation
- Fish America Foundation
- Five Counties Salmon Conservation Program
- Humboldt Fish Action Council
- National Association of Counties
- Resource Conservation Districts (RCDs)
- Restore America's Estuaries
- State Coastal Conservancy
- The Nature Conservancy
- Trout Unlimited
- Yurok Tribe

#### **G) NOAA RC Project Summary and Examples, 2007- 2011**

NOAA RC has been providing technical assistance and funding restoration projects for the past 16 years. The following describes a recent subset of projects in California to serve as an example of some of the many successful projects and partnerships that NOAA has participated in.

<b>Project Type</b>	<b>Number of Completed Projects</b>
Instream/Riparian Habitat Restoration	56
Tidal Wetlands Habitat Restoration	12
Uplands/Pond/Freshwater Wetlands Restoration	5
Oyster Reef/Submerged Aquatic Vegetation Restoration	3
<b>TOTAL</b>	<b>76</b>

### *Example Projects*

#### Smith River Estuary Restoration

This CRP project in Del Norte County, completed by the Del Norte Resource Conservation District (RCD) in 2006, utilized \$23,000 in NOAA RC funding and \$38,000 from other sources for a total of \$61,000 in project funds. The project was designed to restore 3 acres of salmonid rearing habitat in the Smith River Estuary through tidal slough enhancement, placement of large woody debris (LWD), and planting of native riparian vegetation. Project partners included Del Norte RCD, CDFW, Smith River Advisory Council and Reservation Ranch.

#### North Fork Garcia River Large Woody Debris Placement and Road Decommissioning

This CRP project in Mendocino County, completed by The Nature Conservancy of California (TNC) in 2011, utilized \$64,000 in funding from the NOAA RC and a 1:1 match, for a total of \$128,000 in project funds. The project was designed to improve juvenile rearing habitat for salmonids and other cold-water aquatic species by decreasing fine sediment delivery and increasing pool complexity in a priority sub-basin within the Garcia River watershed. To achieve these habitat improvement goals, 3.6 miles of eroding dirt roads were decommissioned and treated (decompacted and planted with native vegetation), with 44 stream crossings removed, and approximately 75 pieces of large woody debris were placed in a one-mile length of the stream. A total of 11 acres of upland habitat and 5.5 acres of instream habitat were restored. Project partners included TNC, CDFW, Pacific Watershed Associates, Pulte Homes, Felton Family Foundation and the Conservation Fund.

#### Mattole Estuary Habitat Enhancement Project

This CRP project in Humboldt County, completed by the Mattole Salmon Group and funded through the Fish America Foundation in 2011, utilized \$45,000 in NOAA RC funding to install a 0.1-acre complex log-jam at the slough mouth of the Mattole River estuary. The structure was designed to create habitat in the mainstem of the estuary and to direct water during high flows into an existing side channel. By reintroducing scour to the mouth of the slough, the project provided winter backwater habitat and summertime cover for three federally listed salmonid species. Project partners included the Mattole Salmon Group and US Bureau of Land Management.

#### Lower Santa Rosa Creek Bank Restoration

This CRP project in San Luis Obispo County, completed by the California Conservation Corps in 2007, utilized \$31,000 in NOAA RC funding and \$25,000 from other sources, for a total of \$56,000 in project funds. The project was designed to improve 1 acre of riparian habitat for threatened South-Central California Steelhead Trout in Santa Rosa Creek, a coastal tributary. Severe erosion issues along a 500-foot section of creek bank were addressed by re-aligning the creek, re-grading the bank, and planting over 1,000 native plants along the bank to stabilize the soil and improve the riparian corridor's habitat function. In addition, Conservation Corps crews installed six rock groins and several rootwads to create scour pools and provide important habitat complexity and cover for steelhead.

#### Point Molate Eelgrass Restoration in San Francisco Bay

This CRP project in Contra Costa County (within BCDC jurisdiction, but representative of potential eelgrass restoration projects in Humboldt Bay and elsewhere in Coastal Commission jurisdiction), was completed by San Francisco State University and funded through The Nature Conservancy of California in 2011. The project utilized \$66,000 in NOAA RC funding and \$99,000 from other sources, for a total of \$165,000 in project funds. The goal of this 2.1-acre project was to re-establish native eelgrass in a location in San Francisco Bay (Point Molate, near Richmond) where plants had become extirpated. A nursery facility for propagation of eelgrass from nursery stock and nearby source populations was established and restoration at the site was undertaken; the project also included monitoring of plant establishment and active maintenance of genetic diversity.

#### Freshwater Creek Estuary Design Project

This CRP project in Humboldt County was completed by the Northcoast Regional Land Trust in 2007, utilizing \$121,000 in NOAA RC funding and \$814,000 from other sources for a total of \$935,000 in project funds. The goal of the project was to restore tidal hydrology and fish access to 54 acres of former tidelands, increasing estuarine rearing habitat for fish and other aquatic species and providing winter high-flow refugia for salmonids. Project partners included the State Coastal Conservancy, CDFW and Pacific Gas and Electric (PG&E).

#### Tomales Bay Native Oyster Restoration

This CRP project in Marin County was completed by the University of California, Davis in 2002, utilizing \$59,000 in NOAA RC funds and \$63,000 from other funding sources, for a total of \$122,000 in project funds. This 2-acre project was designed to restore the native Pacific oyster fishery on a pilot scale in Tomales Bay. Constructed shell mounds were placed on the bay's substrate to determine their effectiveness as native oyster recruitment substrata. Rates of recruitment and survival of the oysters were monitored at various sites around Tomales Bay. Project partners included the Tomales Bay Watershed Council and Pt. Reyes National Seashore.

### **H) General Exclusions from this Determination**

All projects included under the Program must involve voluntary, on-the-ground habitat restoration resulting in physical habitat modifications and beneficial ecological impacts

for federal trust species. The following projects will be excluded from this action due to their scope, complexity, or potentially controversial nature and individual project review from the Coastal Commission or the approved Local Coastal Program will be sought:

- Non-voluntary projects that constitute: a) legally required mitigation for the adverse effects of an activity regulated or otherwise governed by local, state or federal law; b) projects that constitute restoration for natural resource damages compelled by federal, state or local law; and/or c) projects that are required by a separate consent decree, court order, statute or regulation.
- Projects the NOAA RC determines to be inconsistent with NOAA RC goals or standards, the CDFW Manual, or other applicable restoration practices and guidelines.
- Projects determined to be inconsistent with Section 7 of the Endangered Species Act.

### **I) Qualifying Project Types**

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NOAA RC project types fall into three general categories and include Salmonid Habitat Restoration Projects, Estuarine Restoration (Marsh, Submerged Aquatic Vegetation and Shellfish (oysters) Restoration), and Coastal Kelp and Shellfish (abalone) Restoration.

The vast majority of NOAA RC projects included in the program are salmonid habitat restoration projects such as biotechnical streambank stabilization, riparian revegetation, large woody debris placement, fish passage barrier removal, invasive species removal, and off channel habitat creation. The NOAA RC also conducts a variety of estuarine habitat restoration projects designed to restore and enhance seagrass beds, mudflats, salt marsh, brackish marsh and other tidally influenced habitats. Off shore coastal habitats like kelp forests are also restored.

For all projects the NOAA RC funds or for which it provides technical assistance, the NOAA RC requires that all regulatory conditions must be met and all stated environmental protection measures implemented to reduce the potential for ancillary environmental impacts; proposed monitoring and reporting procedures must also be followed to help ensure project success. A summary of general conditions, NOAA RC review procedures, and environmental protection measures and monitoring/reporting are described in *Table 1, NOAA RC Summary of General Project Requirements and Protection Measures for Coastal Resources*.

#### ***Salmonid Habitat and Related Upland Restoration Projects***

Within the geographic scope of this Federal Consistency Determination, it is anticipated that the majority of the projects implemented as part of the CRP will be salmonid habitat restoration projects and related upland restoration projects that benefit aquatic habitat. They are intended to restore degraded salmonid habitat through improving stream cover, pool habitat and spawning gravel; removing or modifying barriers to fish passage;

ensuring adequate flows; and reducing or eliminating ongoing erosion or sedimentation impacts.

As referenced earlier, salmonid habitat restoration projects authorized through the Program must be designed and implemented consistent with the techniques and minimization measures presented in CDFW's *California Salmonid Stream Habitat Restoration Manual*, NMFS's *Guidelines for Salmonid Passage at Stream Crossings*, and NMFS *Fish Screening Criteria for Anadromous Salmonids*, all of which contain specific guidance on effective implementation of habitat restoration practices and pre- and post-construction protection measures.

These projects are reviewed and authorized by NOAA's National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act (as discussed earlier under the Regulatory Framework section).

Additional engineering and fish passage specialist review will be required for projects including, but not limited to: culvert retrofit and replacement, new and retrofitted fish ladders/fishways, removal of flashboard dam abutments and sills, installation of fish screens, and placement of weirs in concrete lined channels. Project or program specific BOs will include applicable requirements.

In addition to following applicable protection measures specified in Table 1, general measures for instream work will be implemented and flows will be diverted around the project worksite as described in the NMFS Santa Rosa and Arcata office Biological Opinions (Attachments C and D). Applicable protection measures will be followed as specified in the BO sections, *Requirements for Fish Relocation and Dewatering Activities and Measures to Minimize Loss or Disturbance of Riparian Vegetation*. Additional measures, or modified measures, may be imposed by the NOAA RC as needed to protect natural resources.

Salmonid habitat restoration activities included in the CRP for this Federal Consistency Determination are listed below, as well as additional activity-specific resource protection measures, above and beyond those described in *Table 1 -Summary of Environmental Compliance Requirements and NOAA Project Review*.

### 1. Instream Habitat Structures and Improvements

Instream habitat structures and improvements are intended to provide predator escape and resting cover, increase spawning habitat, improve migration corridors, improve pool to riffle ratios, and add habitat complexity and diversity. Specific techniques for instream habitat improvement include placement of: 1) cover structures (divide logs, engineered log jams, digger logs, spider logs; and log, root wad, and boulder combinations), 2) boulder structures (boulder weirs, vortex boulder weirs, boulder clusters, and single and opposing boulder-wing-deflectors), 3) log structures (log weirs, upsurge weirs, single and opposing log-wing-deflectors, engineered log jams, and Hewitt ramps), and 4) imported spawning gravel. Implementation of these types of projects may require the

use of heavy equipment (e.g., self-propelled logging yarders, excavators, backhoes, helicopters), however, hand labor will be used when possible.

Large woody debris (LWD) may also be placed in the stream channel to enhance pool formation and increase stream channel complexity. Projects will include both anchored and unanchored logs, depending on site conditions and wood availability.

## 2. Barrier Modification for Fish Passage Improvement

Barrier modification projects are intended to improve salmonid fish passage by providing access to historically available upstream habitat that is currently blocked or obstructed. Projects may include those that improve fish passage through existing culverts, bridges, and paved and unpaved fords through replacement, removal, or retrofitting structures. These practices may include the use of gradient control weirs upstream or downstream of barriers to control water velocity, water surface elevation, or provide sufficient pool habitat to facilitate jumps, or interior baffles or weirs to mediate velocity and provide increased water depth. Weirs may also be used to improve passage in flood control channels (particularly concrete lined channels). The Program also includes log jam modifications to facilitate juvenile and adult fish passage. Implementing these types of projects may require the use of heavy equipment (e.g., self-propelled logging yarders, mechanical excavators, backhoes), however, hand labor will be used when possible.

## 3. Riparian Habitat Restoration and Bioengineering

Riparian habitat restoration projects are intended to improve salmonid habitat through increasing stream shading to lower water temperatures, recruitment of LWD, bank stability, the number of plants and plant groupings, and invertebrate production. Riparian habitat restoration projects may include natural regeneration, livestock exclusionary fencing, bioengineering, and revegetation.

Bioengineering and revegetation to reduce instream sediment will improve fish habitat and fish survival by increasing fish embryo and alevin survival in spawning gravels, decreasing injury to juvenile salmonids from high concentrations of suspended sediment, and minimizing the loss of, or reduction in size of, pools from excess sediment deposition. The proposed activities will reduce stream sedimentation from bank erosion by stabilizing stream banks with appropriate site-specific techniques including: boulder-streambank stabilization structures, log-streambank stabilization structures, tree revetment, native plant material revetment, willow wall revetment, willow siltation baffles, brush mattresses, checkdams, brush checkdams and water bars.

## 4. Upslope Watershed Restoration

Upslope watershed restoration projects are intended to reduce delivery of sediment to anadromous salmonid streams. Road-related upslope watershed restoration projects include decommissioning, upgrading, and storm proofing. Implementation of these types of projects may require the use of heavy equipment (e.g., self-propelled logging yarders, mechanical excavators, backhoes), however, hand labor will be used when possible.

## 5. Fish Barrier Removal - Removal of Small Dams (permanent and flashboard)

Removal of dams is done to restore fisheries access to historic habitat for spawning and rearing and to improve long-term habitat quality and proper stream geomorphology downstream. Types of small dams are permanent, flash board, and seasonal dams with the characteristics listed below.

Small dams included in the CRP are defined by the California Division of Dam Safety (California Water Code, 2010) as any artificial barrier which is either: a) less than 25 feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier to the maximum possible water storage elevation, or b) designed to have an impounding capacity of less than 50 acre-feet.

In addition, this Federal Consistency Determination will only include dam removal that will form a channel at natural grade and shape upstream of the dam, naturally or with excavation, in order to minimize negative effects on downstream habitat. Dam removal projects will: 1) have a relatively small volume of sediment available for release, that when released by storm flows, will have minimal effects on downstream habitat, or 2) be designed to remove sediment trapped by the dam down to the elevation of the target thalweg including design channel and floodplain dimensions. This can be accomplished by estimating the natural thalweg using an adequate longitudinal profile (see CDFW Manual Part XII *Fish Passage Design and Implementation*) and designing a natural shaped channel that provides the same hydraulic conditions and habitat for listed fish as the natural channel and that has the capacity to accommodate flows up to a 2-year flood.

Implementing these types of projects may require the use of heavy equipment (e.g., self-propelled logging yarders, mechanical excavators, backhoes).

### *Supplemental Protection Measures for Fish Barrier/Small Dam Removal*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*,” the following measures apply to fish barrier and small dam removal:

All construction will take place out of the wetted channel either by implementing the project from the bank and out of the channel or by constructing coffer dams, relocating aquatic species found within the project reach, and dewatering the channel. No more than 250 linear feet (125 feet on each side of the channel) of riparian vegetation will be disturbed for project access. All disturbed areas will be re-vegetated with native grasses, trees, or shrubs.

### *Data and Analysis Requirements*

- A longitudinal profile of the stream channel thalweg for at least a distance equal to 20 channel widths upstream and downstream of the structure and long enough to establish the natural channel grade, whichever is farther, shall be used to

determine the potential for channel degradation (as described in the CDFW Manual).

- A minimum of five stream cross-sections shall be measured: one downstream of the structure, three roughly evenly spaced through the reservoir area upstream of the structure, and one upstream of the reservoir area outside of the influence of the structure to characterize the channel morphology and quantify the amount of sediment stored behind the dam.
- Sediment characterization shall be analyzed within the reservoir and within a reference reach of a similar channel to determine the proportion of coarse sediment (>2mm) in the reservoir area and target sediment composition.
- A habitat typing survey (CDFW Manual Part III, Habitat Inventory Methods) must be conducted that maps and quantifies all downstream spawning areas that may be affected by sediment released by removal of the water control structure.

#### *Project Restrictions*

Projects will be deemed ineligible for the Program if: 1) sediments stored behind dam have a reasonable potential to contain environmental contaminants [dioxins, chlorinated pesticides, polychlorinated biphenyls (PCB's), or mercury] beyond the freshwater probable effect levels (PELs) summarized in the NOAA Screening Quick Reference Table guidelines, or 2) the risk of significant loss or degradation of downstream spawning or rearing areas by sediment deposition is considered to be such that the project requires more detailed analysis. Sites shall be considered to have a reasonable potential to contain contaminants of concern if they are downstream of historical contamination sources such as lumber or paper mills, industrial sites, or intensive agricultural production going back several decades (since chlorinated pesticides were legal to purchase and use). In these cases, preliminary sediment sampling is advisable.

#### 6. Creation of Off-channel/Side Channel Habitat

Types of side channel or off-channel restoration activities eligible for the CRP include:

- Connection of abandoned side channel or pond habitats to restore fish access;
- Connection of adjacent ponds, remnants from aggregate excavation;
- Connection of oxbow lakes on floodplains that have been isolated from the meandering channel by river management schemes, or channel incision;
- Creation of side channel or off-channel habitat with self-sustaining channels; and
- Improvement of hydrologic connection between floodplains and main channels.

Restoration projects in this category may include removal or breaching of levees and dikes, channel and pond excavation, constructing wood or rock tailwater control structures, and construction of LWD habitat features. Implementation of these types of projects may require the use of heavy equipment (e.g., self-propelled logging yarders, mechanical excavators, backhoes), and creation of temporary access roads.

### *Supplemental Protection Measures for Off Channel and Side Channel Habitat*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*”, the following measures apply to off channel and side channel habitat:

Technical information on water supply (channel flow/overland flow/groundwater), water quality, and water reliability; risk of channel change; and channel and hydraulic grade is required in the project proposal for review by the NOAA RC.

To reduce potential impacts from turbidity, the same measures described in the CDFW Manual for *Instream Habitat Improvement Projects* must be included in the project design.

### *Project Restrictions*

Projects that involve the installation of a flashboard dam, head gate or other mechanical structure are not eligible for the Program. Off channel ponds constructed under this Program will not be used as a point of water diversion. Use of logs or boulders as stationary water level control structures will be allowed.

### 7. Developing Alternative Stockwater Supply or Off Channel Storage

This category covers ponds up to 10-acre feet in size that meet conditions of the supplemental protection measures listed below. They can be for stockwater supply or off channel water storage for other water conservation opportunities.

Many riparian fencing projects, designed to keep livestock from damaging riparian areas, necessitate the development of off channel watering areas for livestock. These include ponds that have been excavated and are filled either by rainwater, overland flow, surface diversions, or groundwater (either through water table interception or pumping). The CRP also covers water lines, watering troughs, and piping used to provide groundwater to livestock, so as to achieve the overarching goal of protecting aquatic habitat.

Off-channel storage may be created for landowners with appropriate water rights in order to manage the time of year water is taken off of a river/stream, so as to optimally protect habitat.

### *Supplemental Protection Measures for Alternative Stockwater Supply and Off-Channel Storage*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*,” the following measures apply to alternative stockwater supply and off-channel storage projects.

Projects that involve surface diversions will only be considered for existing diversions that are compliant with State and federal water law. Storage reservoirs will not be greater than 10 acre feet in size. Flow measuring device installation and maintenance

may be required for purposes of accurately measuring and managing pumping rate or bypass conditions set forth in this document or in the water right or special use permit.

All pump intakes will be screened in accordance with NMFS Southwest Region's *Fish Screening Criteria for Salmonids*. Stockwater ponds and wells will be located at least 100 feet from the edge of the active channel and should be designed to avoid stranding of juvenile salmonids during flood events.

#### 8. Tailwater Collection Ponds

Tailwater is created in some agricultural irrigation operations (flood, sprinkler) as unabsorbed irrigation water flows off the field back into the stream. Restoration projects to address tailwater input involve constructing tailwater capture systems to intercept tailwater before it enters streams. Water held in capture systems, such as a pond, can be reused for future irrigation purposes, therefore reducing the need for additional stream diversions and helping to provide for adequate freshwater habitat.

##### *Supplemental Protection Measures for Tailwater Collection Ponds*

In addition to applicable environmental protection measures described under the section "*Summary of Environmental Compliance Requirements and NOAA Project Review*," the following measures apply to tailwater collection ponds.

Tailwater collection ponds that do not incorporate return channels to the creek will be located at least 100 feet from the edge of the active channel and are should be designed to avoid stranding of juvenile salmonids during flood events.

#### 9. Water Storage Tanks

Water storage tanks are used to provide storage to reduce the impact on fish from water taken from streams or groundwater during low water periods. Water storage tanks can be filled through rainwater catchment or by surface or groundwater flow.

##### *Supplemental Protection Measures for Water Storage Tanks*

In addition to applicable environmental protection measures described under the section "*Summary of Environmental Compliance Requirements and NOAA Project Review*," the following measures apply to water storage tank projects.

All pump intakes will be properly screened in accordance with NMFS fish screen criteria. Water conservation projects that include water storage tanks and a Forbearance Agreement for the purpose of storing winter and early spring water for summer and fall use, require registration of water use pursuant to California Water Code § 1228.3 and consultation with CDFW. Diversions to fill storage facilities during the winter and spring months shall be made pursuant to a Small Domestic Use Appropriation (SDU) filed with the State Water Resources Control Board (SWRCB), as applicable.

#### *Project Restrictions*

All water storage tank projects will be required to enter into a Forbearance Agreement for at least 10 years, which will provide temporal and quantitative assurances for pumping activities that result in less water withdrawal during summer low flow period. The low flow threshold, measured in cubic feet per second (cfs) and based on the season of diversion and season of storage, will be determined in collaboration with CDFW and NOAA RC on a site by site basis. Water storage capacity for the water diversion forbearance period must be of sufficient capacity to provide for all water needs during that time period. For example, if the no-pump period is 105 days (August to November), the diverters must have enough storage to cover any domestic, irrigation, or livestock needs during that time.

#### 10. Piping Ditches

Piping projects consist of constructing a pipe to transport irrigation water instead of using a ditch, thereby reducing evaporation and absorption of water. Water saved by these projects will remain in the stream for salmonid and other habitat benefits.

##### *Supplemental Protection Measures for Piping Ditches*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*,” the following measures apply to piping ditches.

Only water conservation piping projects that result in a decrease in the stream flow diversion rate with a permitted instream dedication of the water saved are included in the Program. Landowners will enter an agreement with NOAA RC or the Corps stating that they will maintain the pipe for at least 10 years.

Applicants must demonstrate that they intend to dedicate water for instream beneficial use by filing a *Petition for Instream Flow Dedication* (California Water Code § 1707, 1991) and make progress towards instream dedication.

#### 11. Fish Screens

This category includes the installation, operation, and maintenance of the types of fish screens described below, provided they meet the NMFS *Fish Screening Criteria for Anadromous Salmonids*. Installing a fish screen usually involves site excavation, forming and pouring a concrete foundation and walls, installation of a fish bypass pipe or channel, and installation of the fish screen structure. Heavy equipment is typically used for excavation of the screen site and bypass.

If the fish screen is placed within or near flood prone areas, typically rock or other armoring is installed to protect the screen. The average area of the bed, channel, and bank disturbed by the installation of a bypass pipe or channel ranges from 40 to 100 square feet, based on past Scott and Shasta River screening projects.

#### 12. Headgates and Water Measuring Devices

Measuring devices are typically installed with the head gate to allow water users to determine the volume of water diverted. Headgate installation projects must clearly

demonstrate habitat restoration benefits. While no headgates are allowed for off-channel pond creation, headgates are necessary for measuring water conservation efforts.

#### *Supplemental Protection Measures for Headgates and Water Measuring Devices*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*,” the following measures apply to headgates and water measuring devices.

The application must include instream and ditch/pump hydraulic calculations showing there is sufficient head to divert maximum diversion flow and bypass flow at minimum stream flow, taking into consideration head losses at flow measurement devices, fish screens, pipes, open ditches, and headgates.

Measuring devices must be approved by DWR for watersheds with DWR water master service. Otherwise, measuring devices must conform to the *2001 Bureau of Reclamation Water Measurement Manual* (BOR 2001).

Design drawings must show structural dimensions in plan, elevation, longitudinal profile, and cross-sectional views, as well as important component details.

### 13. Invasive Species Control Projects

Invasive aquatic and wetland plant species can negatively reduce biodiversity of native plants, reduce habitat and food sources for native species, and alter entire ecosystem processes. Today, invasive species pose one of the dominant environmental threats to biological diversity, second only to habitat destruction (Lawler et. al. 2006), and are cited as a cause of endangerment for 49 percent of the species listed under the U.S. Endangered Species Act (Wilcove et. al 1998).

Control methods for invasive species are often multifaceted and may include a combination of physical, mechanical, biological, cultural, and chemical techniques. Individual populations within a treatment area may receive several different types of treatments or a single treatment depending upon highly localized factors and the treatment plan that is designed. This integrated approach also includes assessments of risk, identification of thresholds for action, and planning to reach the most desired outcome.

#### *Supplemental Protection Measures for Invasive Species Removal*

In addition to applicable environmental protection measures described under the section “*Summary of Environmental Compliance Requirements and NOAA Project Review*,” the following measures apply to invasive species removal projects.

Along with hand and mechanical removal, targeted herbicide use is a common method for invasive vegetation removal projects. Herbicide use is restricted in accordance with approved application methods and best management practices (designed to prevent exposure to non-target areas and organisms). Any herbicide considered for control of

invasive plants must adhere to all regulations and obtain necessary permits. Herbicides will be registered for use in California and applied by a licensed applicator under all applicable state and local permits. Application methods shall reduce the risk of herbicide drift, such as through the use of backpack spraying, cut-and-stump, and hack-and-squirt, however other methods may be used as the site or target species dictates. Methods that do not require surfactants will be used when possible. Surfactants will be limited to products determined to be the least toxic to aquatic and marine/estuarine organisms. A project area may be treated several times per year, often for multiple years, to control regrowth of the invasive plant.

#### 14. Sediment Removal

Sediment accumulation from either natural or anthropogenic processes (e.g., erosions, forest roads, upland development) can alter normal flow patterns, bury or suffocate aquatic species eggs, 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.

NOAA RC funds fish passage barrier removal projects (small dams, fords, culverts, etc.) that may require sediment excavation behind the structure to avoid downstream sediment impacts. Other projects may be necessary to remove sediment from other sources, such as major land erosion or forest roads. The sediment is usually excavated down to the design channel grade and sediment is either trucked off site or if a suitable site exists, stored onsite, outside of the floodplain, with implementation of appropriate erosion control measures.

### *Estuarine and Coastal Restoration: Wetland, Submerged Aquatic Vegetation, Oysters, Living Shorelines, Kelp*

#### 1. Wetland Restoration

The NOAA RC funds many kinds of wetland restoration activities. These activities include the removal or addition of substrate to create the desired elevation for wetland vegetation and fish habitat. Techniques include removing sediment and possibly vegetation to achieve intertidal elevations, introducing sediments such as dredged material to achieve the required elevation, and planting native vegetation. Other techniques include berm or levee breaching or modification for tidal flow. Most often, the goal is to achieve an intertidal wetland, but frequently the project is designed to result in a mosaic of habitats including shallow subtidal, intertidal, and upland habitats.

##### a. Sediment Removal and Material Placement

Historically, existing marsh was often converted to upland through the placement of sediment onto the marsh. Sometimes this activity was for the purpose of creating buildable upland areas, but frequently, dredge spoil from waterways was

piled on a marsh for disposal purposes. A characteristic project including removal of substrate would involve using heavy machinery to remove the unwanted sediment. The first task to remove unwanted sediment is often to remove upland vegetation that has grown into the area. This can be done with hand tools, but is frequently accomplished more quickly with the same heavy machinery that will be used to remove the sediment. The area is excavated to an elevation determined by project designers based on the overall goals of the project. The area may be gently sloped to create a gradient from subtidal to high marsh elevations, or additional excavation may be needed to create tidal creeks.

In cases where the wetland has subsided and drowned out native marsh vegetation, frequently due to water impounded by dikes or culverts, various techniques may be used to raise the level of the marsh. In areas fully converted to open water, local subtidal sediments may be used to raise the elevation, either across a large area behind a retaining dike, or in a pattern of mounds designed to provide a variety of elevations and slow water velocities, further trapping sediment to build elevation naturally. In both cases, the typical equipment used is a dredge with heavy construction equipment used to distribute dewatered sediment to the appropriate elevation. A final technique involves spraying a thin layer of dredge spoil over an existing vegetated marsh. This technique is used when the marsh is failing to keep up with sea level rise and/or subsidence, but still has critical rooted vegetation that would be smothered by deploying sediment in a traditional manner.

In any of the techniques above, native vegetation may be planted, either because a local native vegetation source is not available, or because project managers wish to jump start vegetation growth and involve citizens in planting efforts. Native plants may be sourced from local nurseries, or from healthy donor marshes.

In general these wetland restoration projects vary in size from a few acres to hundreds. Based on the environmental impacts some projects may fit under the NOAA RC programmatic EA or EIS. At times the NOAA RC must adopt another agencies' EIS to move forward with funding and implementation.

The length of time between initiating sediment placement/removal and when active restoration efforts are complete will vary due to the size of the restoration site and the season in which the work was begun. Frequently, only a few weeks or months are required to remove the upland vegetation and soil, but planting cannot be completed until the growing season begins. For this reason, active restoration activities may last over a year, even at smaller sites.

b. Levee Modification and Removal

In California, NOAA RC implements culvert or levee (berms, dikes, etc.) removal, breaching or modifications to return surface water flows, either riverine or tidal, to

a more natural regime, thereby increasing available habitat to fish and other coastal resources. Most of the levee removals or breaching is associated with wetland restoration projects throughout the state. Funded projects primarily benefit salt marsh, freshwater tidal marsh and may enhance connections between estuaries and their watersheds. Examples of these include portions of the South Bay Salt Pond and North Bay (Napa Plant site) restoration projects.

The NOAA RC funds levee and berm modification or removal projects to help restore the natural flow and hydrology to affected areas and reconnect additional fish habitat that has been blocked. These projects typically involve several components, including but not limited to the following:

- Physical removal of the levee, berm, or plug materials themselves, which are typically earthen or concrete, using heavy equipment;
- Use of heavy equipment to breach the levee;
- Filling of ditches and canals behind levees; and/or
- Channel reconstruction.

In order to minimize the impacts from this activity, unless it is being used to fill man made features such as ditches or canals, nonnative fill material, originating from outside the floodplain will be removed to an upland site. The berm or levee shall always be breached at the downstream end of the project and/or at the lowest elevation of the floodplain to ensure the flows will naturally recede back into the main channel thus minimizing fish entrapment.

In many cases, non-native species are removed from the area where tidal flows would enter post breaching. Native plants are planted along the perimeter of the restoration site where there is the expectation of re-establishment.

Most of the projects funded by the NOAA RC have been levee breaches. The size of the levee can range from two to ten feet and can allow up to 600 acres of tidal water to enter. All levee breaches funded by the NOAA RC do not border housing or commercial developments. As with the wetland restoration projects levee breaching may fit under the NOAA RC programmatic EA or EIS. At times the NOAA RC must adopt another agencies' EIS to move forward with funding and implementation.

#### *Standard Protection Measures for Wetland Projects*

Wetlands projects follow standard protection measures listed in *Table 1, NOAA RC Summary of General Project Requirements and Protection Measures For Coastal Resources* including, but not limited to, flagging sensitive areas, on-site erosion controls, on-site pollution prevention controls, methods to reduce soil compaction, seasonal work periods, adequate training of volunteers, and planting and installing vegetation standards.

## 2. Submerged Aquatic Habitat Restoration

Submerged Aquatic Vegetation (SAV) restoration involves transplanting or seeding subtidal habitats in bays and estuaries with seagrasses. SAV is usually planted to provide nursery and feeding habitat for a variety of aquatic fish and other organisms. In addition, SAV provides fish and other marine species hiding places from predation and competition. SAV beds help stabilize bay sediments, making it easier for additional SAV or other stable substrate dependent organisms, such as oysters, to establish. Most of the restoration in California has been to eelgrass (*Zostera marina*) which can live in fully marine to brackish waters. Other SAV restoration with species such as surf grass (*Phyllospadix sp.*), which lives in the outer coast and widdgeon grass (*Ruppia maritima*), which is found in more brackish waters, have not been implemented yet by the RC in California.

In general, SAV projects funded by the NOAA RC convert open water and unvegetated open bottom to seagrass beds. While all habitats are valuable, the loss of seagrass habitat is significant; SAV has experienced a 40% decline worldwide. In some areas, SAV beds are still fairly intact, while other areas have declined up to 90%. (Fonseca et al 1998). In most locations the natural rate of seagrass colonization is too prone to being disrupted by the disturbances mentioned above to count on natural recolonization (Fonseca et al 1998). Therefore, the NOAA Restoration Center often provides technical and financial support to restoration projects for the purpose of creating or reestablishing SAV where it does not currently exist.

SAV habitat is also frequently impacted by boaters, whose propellers dig into the bottom, tearing up sea grass meadows, creating readily identifiable bare spots called "prop scars." Larger vessels that run a-ground on shallow flats also cause damage to SAV beds. A small injury to an SAV bed may be enlarged by a storm event that takes advantage of the instability caused by the original damage. Also, SAV beds die off due to poor water quality and high turbidity.

Restoration is accomplished by direct planting of live plants in bare root, plug or mat form, either by hand or with mechanical methods. In some cases, seeds are distributed via seed buoys. At times the planting area is enhanced with sediment (i.e. prop scars filled to allow SAV growth) to provide nutrients and proper elevations for the transplants.

NOAA RC has been conducting eelgrass planting and seeding restoration in California for ten years with a variety of organizations in San Francisco Bay and in Southern California. Currently restoration projects average less than an acre up to four acres at any given site. Eelgrass restorations sites include various locations within San Francisco Bay and off the Channel Islands National Park.

#### *Standard Protection Measures for Submerged Aquatic Vegetation*

All measures to protect both the donor beds and the newly restored beds are implemented. SAV plants or seeds are usually collected from existing SAV beds, which can cause minor disturbances to the beds and their substrate, and temporarily reduce the number of individuals or seeds in the existing population. For all geographic areas, no more than five percent of the below ground biomass of an existing donor bed will be

harvested for transplanting purposes. Plants harvested will be taken in a manner to thin an existing bed without leaving any noticeable bare areas. Harvesting of flowering shoots for seed buoy techniques will occur only from widely separated plants and only a certain percent of the donor stock can be used per year. This percent is site dependent and prior to restoration requires intimate knowledge of the genetics and population dynamics of the donor site.

All efforts to reduce any potential turbidity while at the site are implemented. In most cases restoration takes place during low tide and turbidity is avoided. If divers and boats are used the boat propellers are lifted and divers enter the SAV area outside the bed.

### 3. Shellfish Restoration and Creation

The NOAA Restoration Center funds many kinds of shellfish restoration projects. In California, funded projects primarily focus on native oysters (e.g. *Ostrea lurida*) but may also restore other shellfish species such as hard clams, scallops and abalone. Techniques can be grouped into two types: placement of shellfish substrate and introduction of shellfish. These types are implemented separately, or at the same restoration site, depending on the needs of the locality.

Shellfish substrate is placed to encourage oyster larval recruitment. Restoration sites are subtidal or intertidal on un-vegetated, soft bottom estuarine areas. Rarely, substrate may be placed on hard substrate that represents former reef habitat, but only if the hard substrate is not currently producing oysters at a sustainable level. Natural substrate (oyster or clam shells) is preferred due to the oysters' affinity for it, but is not always available. Shells are most often deployed loose or in plastic mesh bags. Artificial substrate is used when there is not enough shell substrate available to create larger reef areas or when the bottom substrate is unstable and substantial sinking of the reef is likely to occur. Common artificial substrates include limestone rock, concrete or baycrete (e.g. Reef Balls, Oyster Castles, etc.). Regardless of type, most substrate is deployed from a boat or barge, but in some shallow water situations, restoration practitioners and community volunteers may carry the substrate to the reef location.

Restoration efforts also include releasing live shellfish in the restoration area if the local population is not large enough to produce viable larvae or has been fully extirpated from the area. Oysters may be released as single oysters, or already attached to substrate as spat on shell. Non-reef-forming organisms such as clams and abalone are released as individuals, but may be caged to reduce predation and facilitate research efforts. Rearing shellfish prior to release occurs in land-based or near-shore aquaculture facilities. Some shellfish are purchased from commercial facilities, but some funding recipient organizations run their own facilities as well.

The preliminary step to either of these restoration techniques may include the use of a shellfish rearing facility. These facilities consist of land-based tanks or floating cages. Rearing facilities are used to spawn additional shellfish and make sure stocks are disease free before being placed in their new environment.

Native oyster restoration funded by the RC has taken place in Humboldt, San Francisco and Newport bays. Restoration areas can be anywhere under an acre up to three acres. Abalone restoration, by growing and out plating the endangered white abalone, has been implemented for recovery efforts at locations off shore in Southern California.

#### *Standard Protection Measures for Oyster Restoration*

Disturbance at a shellfish restoration site typically only lasts as long as is needed to deploy the substrate or shellfish. Most native oyster restoration projects are performed with small boats and divers and consist of 20 to 60 bags of shell material that are placed by hand. Larger amounts of substrate can usually be deployed in a day; loose shells are sprayed off barges with high pressure hoses or are placed with specialized hopper-conveyer belt systems built into the deployment vessel; other substrate (reef balls) is typically placed using heavy equipment loaded on the barge. Reefs are typically built prior to times of high spat set (larval settling). All shell material is placed in un-vegetated areas (i.e. not directly on seagrasses). Any shell material or structures that are not providing ecological services are removed.

*Shell sources* - Shell or other substance used for substrate enhancement will be procured from clean sources that do not deplete the existing supply of shell bottom. Shells will be left on dry land for a minimum of one month before placement in the aquatic environment. Shells from the local area will be used whenever possible.

*Native species and disease* - Shellfish will be species native to the project area. Any shellfish transported across state lines or grown through an aquaculture facility will be certified disease free.

#### 4. Living Shorelines

Living Shoreline projects use a suite of bank stabilization and habitat restoration techniques to reinforce the shoreline, minimize coastal erosion, and maintain coastal processes while protecting, restoring, enhancing, and creating natural habitat for fish and aquatic plants and wildlife. The term "Living Shorelines" was coined because the approach provides living space for estuarine and coastal organisms. Strategic placement of native vegetation, natural materials, and reinforcing rock or shell for native shellfish settlement enhance habitat values by creating new living space. The techniques also increase connectivity of wetlands and deeper intertidal and subtidal lands while providing a measure of shoreline protection.

At this time the only projects in California with NOAA support and technical assistance is within San Francisco Bay at two locations. Each site will encompass an area of 1,280 meters of living shoreline at 250 meters from the shoreline.

#### *Standard Resource Protection Measures for Living Shorelines*

Protection measures for living shorelines include those mentioned above for wetlands, seagrasses and oyster restoration since many of the techniques are used simultaneously.

## 5. Kelp Forest Restoration

Kelp forests are important structural components of the near shore marine environment that provide nursery and feeding grounds for thousands of marine species. They are also instrumental in the carbon sequestration process, which is important to maintaining healthy CO<sub>2</sub> levels in the environment.

Kelp forest restoration can occur throughout the Coastal United State and is most often used in Southern California, where kelp forests have been reduced by 80% over the past century. Pollution and sedimentation runoff from nearby land-based human activities have harmed kelp forests. Overfishing and extinction or reduction of natural sea urchin predators has eliminated large areas of kelp forest that once existed.

Kelp forest restoration involves transplanting of lab grown kelp or drifting kelp into the marine environment. In some projects, sea urchins are removed from planted or already established areas to increase survival and growth of the kelp forest. Kelp forest restoration aims to restore structural and functional attributes of kelp forests. Techniques of planting and predator removal tend to be similar in all areas where kelp restoration is done. Species of kelp planted can vary between different geographic regions and may have different starting conditions and depth requirements.

Kelp forest restoration occurs in subtidal environments with hard substrate for kelp holdfast attachment. The NOAA RC has worked with the California Coastkeeper Alliance and the Orange County Coastkeeper to help restore beds off the Channel Islands in Southern California. Most kelp restoration projects are very labor intensive and therefore the overall footprint of restoration is small, typically one to three acres.

### *Standard Protection Measures for Kelp Restoration*

In all cases, kelp restoration is performed by registered, certified divers. There is very little sedimentation that occurs with this type of restoration, but all restoration practitioners minimize turbidity and sedimentation based on considerations such as access to the project, size of restoration effort, duration, or sediment characteristics.

All vessel operators must be licensed and establish vessel corridor routes to avoid kelp beds and establish anchor lines to avoid hard bottom areas or kelp beds.

## **I) Summary of Environmental Compliance Requirements and NOAA Project Review**

The NOAA RC and Corps have established general requirements and environmental protection measures that must be implemented for projects to be included in the Program. For example, a key component of the CRP Programmatic Biological Opinions involves the use of “sideboards” that establish a minimum distance between instream projects and limit the number of instream projects annually within a watershed, relative to the size of the watershed. NOAA Biological Opinions also contain specific

requirements for dewatering, riparian restoration, species protection, and more, as well as general project review procedures conducted by NOAA RC Staff.

As part of NOAA RC's general review process, NOAA RC staff will evaluate individual projects and assess whether they can be covered under existing NOAA RC programmatic BOs, applicable BOs for existing restoration programs that fall within the scope of activities covered by the CRP (e.g., existing Partners in Restoration permit coordination programs with pre-existing BOs), or whether a project should be reviewed through an individual Section 7 consultation because the project is outside the program or geographic scope of an existing BO and warrants separate analysis. NOAA RC staff will also screen applications for applicability to this Federal Consistency Determination, applying criteria from the "General Exclusions" and "Qualifying Projects" sections of this report. All projects will be subject to applicable general project requirements, as well as project specific conditions that NOAA RC and NMFS deem necessary in order to protect coastal resources. Table 1 below summarizes NOAA RC general project requirements, natural resource protection measures, and the NOAA RC project review process to ensure the protection of coastal resources.

Additional details on the protection measures listed below can be found in the NOAA RC Programmatic Biological Opinions for the Santa Rosa and Arcata field offices, in the NOAA Programmatic NEPA Documents (Attachments C, D, F, G, respectively), and the earlier referenced DFW (formerly DFG) *Salmonid Restoration Manual*, and NMFS *Screening and Fish Passage Criteria*.

**TABLE 1 - NOAA RC SUMMARY OF GENERAL PROJECT REQUIREMENTS AND PROTECTION MEASURES FOR COASTAL RESOURCES**

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
<b>General Requirements/ Project Limits</b>	Application reviewed by NOAA biologists to determine whether project qualifies for NOAA RC program, overall restoration benefit, ESA mandates met, avoidance of impacts to other coastal and marine resources. Must obtain all other agency permits to proceed.	<ul style="list-style-type: none"> <li>- In addition to general conditions, site specific conditions are required as needed for each project</li> <li>- Voluntary restoration projects only; projects must clearly demonstrate habitat restoration benefits</li> <li>- Engineering review required for complex projects</li> <li>- All other permits must be obtained before the project may commence</li> <li>- Contractors must be briefed in advance by qualified biologist on all protection measures</li> <li>- Impact evaluation criteria must be followed: first avoidance, then minimization, and mitigation</li> <li>- Detailed success criteria required for revegetation projects</li> <li>- NOAA maintains tracking database to provide info on project monitoring and ensure compliance with all requirements</li> <li>- Prohibited activities include, but are not limited to gabions, treated wood, migration obstruction, projects with toxic sediments</li> <li>- NOAA retains right of reasonable access to property to monitor effectiveness of project through life of signed landowner agreement</li> <li>- Monitoring and reporting required (see section below)</li> <li><i>BOs also Specify:</i></li> <li>- Specific protection measures for species, water quality, and several other resources areas (see below)</li> <li>- Limitations on project types and number of projects implemented annually and per watershed to avoid cumulative impacts</li> <li>- Maximum stream dewatering length: 1000'</li> <li>- Maximum staging area size: 0.25 ac.</li> <li>- Consistency w/ DFW Salmonid Stream Habitat Restoration Manual, DFW Culvert Criteria for Fish Passage, DFW/NOAA Fish Screening Criteria for Salmonids, Handbook for Forest and Ranch Roads (Weaver and Hagans)</li> <li>- Construction work windows, typically limited to June 15-November 1 with planting allowed beyond November 1</li> </ul>
<b>Water Quality</b>	NOAA requires both project-specific and general measures for WQ protection.  401 WQ Cert from RWQCB, 1600	<ul style="list-style-type: none"> <li>- Detailed water quality protection and erosion control requirements during and following construction</li> <li>- Dewatering for in-channel work, with specific rules for how dewatering shall occur</li> <li>- Limits on vegetation removal in temperature-impaired streams</li> </ul>

<sup>1</sup> Note: All projects are subject to site- and project-specific conditions, as specified in either the NOAA RC Programmatic BOs, (Arcata and Santa Rosa offices), other Program BOs applicable for CRP projects, individual Section 7 consultations for CRP projects that require separate consultation, and addendums to these documents containing further conditions. NOAA RC and NMFS staff will determine which BO shall be applied or whether individual Section 7 consultation must be completed. This table contains general requirements from the following sources: NOAA RC NEPA EAs (2002, 2006), Arcata and Santa Rosa Programmatic Biological Opinions (BOs), and NOAA RC Staff.

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
	<p>Agreement from DFW, Corps Permit, and compliance w/local ordinances also required.</p>	<ul style="list-style-type: none"> <li>- Specific avoidance of impacts from poured concrete</li> <li>- Specific requirements for access road maintenance and road decommissioning</li> <li>- Temporary erosion controls will be in place before any significant alteration of the action site and will be monitored during construction to ensure proper function. Turbidity curtains, hay bales, and erosion mats shall be used where appropriate.</li> <li>- Confine vegetation and soil disturbance to the minimum area, and minimum length of time, as necessary to complete the action, and otherwise prevent or minimize erosion associated with the action.</li> <li>- Cease work under high flows or seasonal conditions that threaten to disturb turbidity reduction measures, except for efforts to avoid or minimize resource damage.</li> </ul> <p><i>General On-site Pollution Controls -</i></p> <ul style="list-style-type: none"> <li>- Properly confine, remove, and dispose of construction waste, including every type of debris, discharge water, concrete, cement, grout, washout facility, welding slag, petroleum product, or other hazardous materials generated, used, or stored on-site.</li> <li>- All vehicles and other heavy equipment will (a) be stored, fueled, and maintained in a vehicle staging area set back from any natural waterbody or wetland; (b) inspected daily for fluid leaks before leaving the vehicle staging area.</li> <li>- Generators, cranes, and any other stationary equipment operated within 150 feet of any natural water body or wetland will be maintained as necessary to prevent leaks and spills from entering the water.</li> <li>- Use procedures to contain and control a spill of any hazardous material generated, used or stored on-site, including notification of proper authorities.</li> <li>- When local conditions indicate the presence of contaminated sediments is likely, soil samples will be tested for contaminant levels and precautions will be taken to avoid disturbance of or provide for proper disposal of contaminated sediments.</li> </ul>
<p><b>Listed Species</b></p>	<p>NOAA mission to protect species</p> <p>ESA sec. 7 consultations required with FWS and NOAA; DFW CESA compliance also required</p>	<p><i>Project and species specific avoidance measures required by NOAA, including measures in BOs:</i></p> <ul style="list-style-type: none"> <li>- Work windows for all listed species</li> <li>- Buffer distance from species required</li> <li>- Detailed fish capture and relocation and dewatering requirements; qualified biologist required; reporting all encounters with listed species.</li> <li>- Water quality, water quantity, sensitive habitat protection, and other general measures also serve to protect species.</li> </ul>
<p><b>Sensitive Habitat Protection</b></p>	<p>Review projects for benefits to habitat and conditions required for avoidance of temporary and long-term impacts.</p>	<p><i>In addition to site specific measures; typical BO requirements:</i></p> <ul style="list-style-type: none"> <li>- Flagging required around sensitive areas and buffers</li> <li>- Specific habitat data and surveys required as part of application</li> <li>- Specific measures to minimize impacts to riparian vegetation</li> <li>- Tree size removal limits</li> <li>- Construction access point must minimize vegetation and soil disturbance and compaction</li> </ul>

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
		<p><i>General Measures for Reduction of Soil Compaction</i></p> <ul style="list-style-type: none"> <li>- Existing access ways will be used whenever possible. Temporary access roads will not be built on slopes greater than 50%, where grade, soil, or other features suggest a likelihood of excessive erosion or failure. Soil disturbance and compaction will be minimized within 150 feet of a natural waterbody or wetland. All temporary access roads will be removed when the action is completed, the soil will be stabilized, and the site will be revegetated. Temporary roads in wet or flooded areas will be restored shortly after the work period is complete.</li> <li>- Heavy equipment will be selected and operated in a manner that minimizes adverse effects to the environment (e.g., minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).</li> <li>- To the extent feasible, heavy equipment will work from the top of the bank, unless work from another location would result in less habitat disturbance.</li> </ul> <p><i>Site Restoration</i> - Any large wood, mature native vegetation, topsoil, and native channel material displaced by construction will be stockpiled for use during site restoration. When construction is finished, all streambanks, soils, and vegetation will be cleaned up and restored as necessary to renew ecosystem processes that form and maintain productive fish habitats. Measures to ensure native vegetation or revegetation success will be identified and implemented.</p> <p><i>Planting or installing vegetation</i> - NOAA RC will ensure the use of an appropriate assemblage of species native to the action area or region, including trees, shrubs, and herbaceous species.</p> <p><i>Adequate Training of Volunteers</i> - Training should be provided to ensure minimal impact to the restoration site by volunteers. Volunteers shall be trained in the use of low-impact techniques for planting, equipment handling, and moving around the restoration site to avoid unnecessary impacts to native flora and fauna.</p> <p><b>Invasive Species Removal</b></p> <ul style="list-style-type: none"> <li>- <i>Herbicide Application Controls</i> - Use of herbicides in project areas will be conducted according to established protocols for the locality, as determined by a state-licensed herbicide applicator. Such protocols will include information and guidelines for appropriate use, timing, amounts, application methods, and safety procedures relevant to the herbicide application. Chemicals used should be appropriate for the location.</li> <li>- <i>Additional Information and Guidelines</i> - For high-risk projects, additional measures shall be taken to ensure invasive species are controlled and removed. Additional information for inspection and cleaning methods can be found in the NOAA Restoration Center Best Management Practices for Invasive Species at: <a href="http://www.habitat.noaa.gov/restoration/programs/invasivespecies.html">http://www.habitat.noaa.gov/restoration/programs/invasivespecies.html</a></li> </ul> <p><b>Wetlands</b> - Wetlands projects follow standard protection measures listed through this table including, but not limited to, flagging sensitive areas, on-site erosion controls, on-site pollution prevention controls, methods to reduce soil compaction, seasonal work periods, adequate training of volunteers, and planting and installing vegetation standards.</p>

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
<b>Water Quantity</b>	Any projects approved for NOAA RC program that affect flows will conserve water for habitat.	<ul style="list-style-type: none"> <li>- Existing diversions only; must be in compliance with SWRCB water rights requirements; only allowed if water conservation benefit for species.</li> <li>- Additional hydrological data/water flow data information required for water conservation projects.</li> <li>- Pipe developments must decrease stream diversion and include permitted instream flow dedication (10 yrs).</li> </ul>
<b>Visual Resources</b>	<p>Not directly reviewed by NOAA; typically beneficial impacts.</p> <p>Addressed through CEQA and local ordinances.</p>	<ul style="list-style-type: none"> <li>- All other permits/approvals must be acquired before project commences.</li> <li>- Not likely to be visual impacts because most projects are on private lands, and result in a net benefit to visual impacts by restoring degraded habitat and vegetation.</li> <li>- Project applications are also evaluated and ranked based on their level of public and landowner support.</li> </ul>
<b>Public Access</b>	<p>Evaluated during application review process.</p> <p>Addressed through CEQA process and local ordinances.</p>	<ul style="list-style-type: none"> <li>- All other permits/approvals must be acquired before project commences. NOAA's mission supports public access and recreation as long as it does not negatively impact listed species.</li> <li>- Public access not likely impacted because many projects are on private lands. Projects on public lands often include partners with shared mission of maintaining public access for educational and/or recreation purposes (USFWS, ).</li> <li>- Project applications are also evaluated and ranked based on their level of public and landowner support.</li> </ul>
<b>Estuarine and Marine Resources</b>	Review projects for habitat/species benefits, and require avoidance of potential negative effects to estuarine habitat.	<ul style="list-style-type: none"> <li>- Project/site specific protection measures required by NOAA RC; all measures for water quality/sensitive habitat/species listed above also apply in estuarine areas.</li> <li>- Existing BOs are utilized where applicable and project specific BOs (with project specific protection measures) are developed as needed for marine species.</li> <li>- Project- and species-specific conditions imposed by NOAA.</li> </ul> <p>- <i>Assessment, Research, and Monitoring Techniques</i> - Destructive sampling techniques (such as biomass sampling, benthic cores, fish capture, etc.) will only be used as part of an experimental design, tailored to require the fewest number of samples to achieve the desired purpose. All researchers will obtain biological sampling permits as required for their locality.</p> <p><b>Living Shorelines</b> - Protection measures for living shorelines include those mentioned for wetlands, sea grasses, and oyster restoration since many of the techniques are used simultaneously.</p> <p><b>Kelp Restoration</b> - In all cases, kelp restoration is performed by registered, certified divers. All restoration practitioners must minimize turbidity and sedimentation based on considerations such as access to the project, size of restoration effort, duration, or sediment characteristics. All vessel operators are licensed and establish vessel corridor routes to avoid kelp beds and establish anchor lines to avoid hard bottom areas or kelp beds.</p> <p><b>Submerged Aquatic Vegetation</b> - All measures to protect both the donor beds and the newly restored beds are implemented. For all geographic areas, no more than five percent of the below ground biomass of an existing donor bed will be harvested for transplanting purposes. Plants</p>

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
		<p>harvested will be taken in a manner to thin an existing bed without leaving any noticeable bare areas. Harvesting of flowering shoots for seed buoy techniques will occur only from widely separated plants and only a certain percent of the donor stock can be used per year. This percent is site dependent and prior to restoration requires intimate knowledge of the genetics and population dynamics of the donor site.</p> <p>All efforts to reduce any turbidity while at the site are implemented. In most cases restoration takes place during low tide and turbidity is avoided. If divers and boats are used the boat propellers are lifted and divers enter the SAV area outside the bed.</p> <p><b>Shellfish Restoration</b>  <i>General</i> - Disturbance is typically short duration. Reefs are typically built prior to times of high spat set (larval settling). All shell material is placed in un-vegetated areas (i.e. not directly on seagrasses). Any shell material or structures that are not providing ecological services are removed.</p> <p><i>Shell sources</i> - Shell or other substance used for substrate enhancement will be procured from clean sources that do not deplete the existing supply of shell bottom. Shells will be left on dry land for a minimum of one month before placement in the aquatic environment. Shells from the local area will be used whenever possible.</p> <p><i>Native species and disease</i> - Shellfish will be species native to the project area. Any shellfish transported across state lines or grown through an aquaculture facility will be certified disease free.</p> <p><b>Rock Breakwaters</b> (<i>developed for habitat protection purposes</i>) - All rock or shell breakwaters will be designed with appropriate ingress and egress for fish in consultation with local regulatory agencies.</p>
<b>Coastal Agriculture</b>	<p>NOAA ranks projects based on public/landowner support, as well as watershed studies and prioritized actions from Integrated Regional Water Management Programs.</p> <p>Ag impacts included in CEQA analysis.</p>	<p>All other permits/approvals must be acquired before project commences.</p> <p>Projects evaluated in part by level of public support and coordination with local agencies, landowners, and other stakeholders.</p>
<b>Cultural Resources</b>	<p>Considered during NOAA RC project review.</p> <p>Also included in CEQA analysis.</p>	<p>- NOAA RC complies with Section 106 NHPA on a case-by-case basis. NOAA RC or designee will consult with SHPO and tribal officers for projects that may impact cultural or historic resources. NOAA has staff Cultural Resource Specialist.</p>
<b>Cumulative Impacts</b>	<p>NOAA reviews for avoidance of cumulative impacts; BOs specify limits on number of projects in each watershed</p>	<p>BOs have restrictions built in to avoid cumulative impacts:</p> <ul style="list-style-type: none"> <li>- Buffers required between projects in one watershed per year</li> <li>- Numerical limits on projects per watershed per year, based on size of watershed (Arcata), 3 total</li> </ul>

Resource Area	NOAA Review Process	NOAA Restoration Center Southwest Region - General Requirements and Protection Measures <sup>1</sup>
	<p>and minimum distance between projects.</p> <p>Also addressed in CEQA compliance by SWRCB/DFW/local agencies.</p>	<p>for Santa Rosa</p> <ul style="list-style-type: none"> <li>- Max 50 projects/year Santa Rosa region, 60/year Arcata region</li> </ul>
<p><b>Monitoring, Success Criteria, and Reporting</b></p>	<p>Pre- and post-construction and success monitoring, and annual reports required.</p>	<ul style="list-style-type: none"> <li>- Pre- and post-construction monitoring plan required of all projects; monitoring protocol typically follows DFW FRGP</li> <li>- Development of success criteria</li> <li>- BOs require photo-monitoring</li> <li>- Annual report required and prepared by NOAA RC</li> <li>- Pre-construction reporting for qualifying projects in the Coastal Zone provided to Coastal Commission by May 15; qualifying projects in the Coastal Zone funded later in the year will be reported to Coastal Commission on a project-by-project basis</li> </ul>
<p><b>General Application and Review Process *</b></p> <p>*(some variations exist between funded and non-funded projects)</p>	<p>NOAA RC directly involved in project review, funding (where available), technical assistance, design, protection measures, monitoring and reporting.</p> <p>NOAA also coordinates with other agencies on project permitting.</p>	<p><i>General Process:</i> NOAA RC reviews project, assesses project qualifications and BO coverage; after approval for program inclusion, sends to DFW biologist and RWQCB staff for review.</p> <ul style="list-style-type: none"> <li>- NOAA RC is alerted to projects through project partnerships, funding opportunities, and through their involvement in technical assistance and project development.</li> <li>- Team of NOAA RC, NMFS, DFW, Corps assists NOAA RC with project oversight</li> <li>- Projects submitted to other agencies and NOAA Section 7 biologists throughout the year, as applications come in.</li> <li>- All specific information requirements must be met before project is eligible to proceed under program</li> <li>- Pre-project reporting for qualifying projects required</li> <li>- Monitoring and reporting required; evaluation of success criteria</li> </ul>

## **J) Application Submittal and Pre-Project Monitoring Requirements**

Restoration project applications will be submitted by project proponents to the NOAA RC, or to the Corps at the time of application for a CWA section 404 permit, a Rivers and Harbors Act section 10 permit, or both. Projects will be reviewed and processed by NOAA RC as they are submitted by applicants.

Projects that are submitted for NOAA RC funding or technical assistance, or a Corps permit (which creates a “federal nexus” for NMFS Section 7 consultation), will be provided to the Program using a standard application form available through the NOAA RC. The NOAA RC will evaluate which projects are consistent with the Program requirements and determine which NMFS consultation applies (the NOAA RC CRP Programmatic BOs, another existing restoration BO that is applicable for the CRP, or a new, individual Section 7 consultation). The NOAA RC team will use a pre-established checklist to help determine if a proposed project is consistent with the parameters of the Program. Once projects have received initial project screening by NOAA RC, projects that do not fit Program requirements must be modified or further clarified and developed by the project proponent before they can be resubmitted for further consideration. For projects within the Coastal Zone, NOAA RC will also evaluate the project’s eligibility for coverage under this Federal Consistency Determination.

The following list includes typical information that must be provided by Program applicants (with assistance from qualified biologists and other technical specialists) in order to fulfill CRP application requirements:

- Pre-project photo monitoring data (per CDFW’s guidelines)
- Project problem statement, goals, objectives
- Watershed context
- Description of the type of project proposed and restoration techniques to be utilized (culvert replacement, instream habitat improvements, etc.)
- Project dimensions and engineering plans
- Description of construction activities (types of equipment, timing, staging areas or access roads required)
- If dewatering of the work site will be necessary, a description of temporary dewatering plan and methods, an aquatic species relocation plan, and identification of a qualified individual (verified by resumes or description of qualifications) who will be onsite to transport protected salmonids and be responsible for reporting on this information.
- Construction start- and end-dates
- Estimated number of creek crossings and type of vehicle
- Materials to be used
- If vegetation will be affected as a result of the project (including worksite access), provide a visual assessment of dominant native shrubs and trees, approximate species diversity, and approximate acreage of the vegetation to be removed and replaced.
- Description of existing site conditions and explanation of how proposed activities would improve or maintain these conditions for steelhead or coho salmon

- Description of key habitat elements (i.e., temperature; type: pool, riffle, flatwater; estimate of instream shelter and shelter components; water depth; dominant substrate type, etc.) for salmonids in the project area.
- Description of applicable minimization and avoidance measures incorporated into the project.
- A monitoring plan describing proposed compliance with all applicable monitoring and reporting requirements, including the source of funding for implementation of the monitoring plan
- For projects which may result in incidental take of listed salmonids (or other listed species), specify the funding for implementation of all proposed and required environmental protection measures
- A signed “checklist” of project conditions, verifying agreement by the project applicant

## **K) Post Construction Monitoring and Reporting Requirements**

### *General Requirements*

Implementation monitoring will be conducted for all projects implemented under the Program. Project applicants are also required to conduct post-construction monitoring and to comply with all reporting requirements. Monitoring and reporting will include photo-documentation (consistent with the pre-construction monitoring requirements), as-built drawings (post-construction plans for engineered projects); documentation of the required avoidance, minimization, and other environmental protection measures that were implemented; number (by species) of fish and wildlife relocated; and any incidental injury or mortality that resulted from the project. The applicant(s) shall submit this information to NOAA RC within 6 months post-construction for inclusion in annual reports, as described below.

A description of whether the project is meeting success criteria for revegetation and other parameters must also be submitted, starting at 6 months post-construction. Depending upon the type of project, a minimum of 1 year of monitoring is required. However, based upon funding availability, project goals, and federal, state and local agency monitoring requirements, more years of monitoring may be added. Fulfillment and completion of monitoring requirements is the responsibility of the project applicant. Regardless of the project’s post-construction monitoring period, NOAA RC engages and works collaboratively with partner agencies and project proponents if issues arise that could negatively affect project outcome and success.

### *Additional Monitoring Requirements for Certain Project Types*

#### Off-channel/Side Channel Habitat Features

All off-channel/side channel habitat projects included in the Program will require an additional level of physical and biological monitoring to improve scientific understanding of these types of restoration projects. In addition to the information collected during the

pre-project monitoring and submittal requirements (above), the following information will also be provided to the NOAA RC by Program applicants:

- Description of the type of off-channel feature and restoration techniques utilized;
- Description of outlet control feature (if present);
- Pre-project and post-project information, following a full season of storm events and high flows, on the elevation of the inlet and outlet structures relative to the stream's 2-year flood level;
- If the off-channel feature becomes disconnected from the main channel at any time, a description of the flow level (cfs) at which this occurred. This will require checking the project site daily when the off-channel feature is in the process of becoming disconnected from the main channel; and
- A description of any stranded fish observed. If there are salmonids stranded, the applicant will contact NMFS Protected Resources Division immediately to determine if a fish rescue action is necessary.

### Wetlands

Monitoring metrics for wetland restoration projects include:

- Amount of tidal exchange
- Elevation of the mudflat
- Accretion and subsidence
- Extent of channel formation and invasive species monitoring
- For adjacent water areas or areas exposed to tidal flow, fish monitoring is included. Fish can be monitored by using telemetry or by seining and trapping.

### Submerged Aquatic Habitat

Planting or seeding SAV aims to re-establish habitat complexity and critical nursery areas for estuarine fish. SAV monitoring metrics include % cover, number of plants per square meter, number of new recruits, and apical meristem growth. Water quality measurements include turbidity, temperature and dissolved oxygen. Additional ecosystem monitoring includes fish use (telemetry, minnow traps), and invertebrate collections. For most grants established by the NOAA RC, one to two years of monitoring is required.

### Living Shorelines

Before the project begins, bathymetric surveys are planned to establish baseline conditions. Other pre-project monitoring could include collecting sediment cores to assess benthic invertebrate species richness and density and observing bird, fish, and epibenthic invertebrate use of the site before construction activities occur. Post restoration, biological monitoring of eelgrass and oysters will track growth rates, densities, and recruitment in the different treatments. Traps, suction sampling, and coring will be used to assess fish and invertebrate responses.

The physical processes monitoring focus on changes to waves, currents, and sedimentation/erosion rates at the larger scale experiment treatments only. Water

properties will also be measured, including temperature, salinity, pH, dissolved oxygen, and turbidity.

### Kelp Forest Restoration

Kelp is typically measured in biomass per square meter, or density of holdfasts per square meter. If urchins are removed, before and after counts are taken. Other metrics can include fish and invertebrate numbers within newly restored areas.

### *NOAA RC Annual Report*

The NOAA RC will prepare an annual report summarizing results of projects implemented under the Program during the most recent construction season and results of post-construction implementation and effectiveness monitoring for that year and previous years. The annual report shall include a summary of the specific type and location of each project and the amount of habitat restored. NOAA will provide a copy of the annual report to the Coastal Commission for projects within the Coastal Zone.

### **L) Assurance of Project Performance**

The NOAA RC has a long track record of effective restoration planning, as well as project coordination and implementation. The success of the NOAA RC's program stems from early coordination and staff involvement in design, funding, permitting, construction and post-project monitoring and compliance – for all projects the NOAA RC funds, as well as those for which only technical assistance and oversight are provided. When the NOAA RC is involved in a project at any level, staff biologists and other specialists communicate frequently with the project proponents during planning and design stages, coordinate closely during project implementation, and then remain involved to ensure that post-project compliance and effectiveness monitoring is carried out. In the NOAA RC's Community-based Restoration Program (CRP) 16-year history and Damage Assessment, Remediation and Restoration Program (DARRP) 21-year history, the NOAA RC has never experienced a project implementation issue that was not resolved.

The NOAA RC funds projects through individual grants signed with project applicants or through sub-awards under three-year partnership grants. Through competitive solicitations, the CRP will partner with key restoration advocates that include the State Coastal Conservancy, California Conservation Corps, The Nature Conservancy, Trout Unlimited, Ducks Unlimited, Restore America's Estuaries and others. These partnerships are generally funded to implement restoration projects for three years at a time. All grants allow project proponents to implement habitat restoration projects under their own oversight with close NOAA involvement and reporting to the NOAA RC via the Grants Online website ([www.grants.gov](http://www.grants.gov)). Regardless of the funding structure, NOAA RC staff is in regular contact with the grantee on all aspects of planning, permitting, construction and monitoring throughout the life of the restoration project and the grant. Should an unanticipated construction or other technical problem arise, the grantee and NOAA RC staff work together to seek a remedy whether it is a project modification or need for additional funding.

### *Post-Project Performance*

For NOAA RC projects, the project landowner and/or grantee are directly responsible for project implementation and performance, while NOAA RC staff closely monitor this work and the project outcome. Many grantees regularly monitor beyond the required the minimum monitoring period for a project to better understand the restored habitat's biological response and evaluate the overall resource conditions in the area following restoration. In addition, the NOAA RC is currently in the process of developing an expanded monitoring program to evaluate selected projects that would provide key information to the body of restoration science knowledge (Tier 2).

It is expected that over time, a handful of habitat restoration projects may not function as designed or expected. This is not necessarily a negative outcome -- in some instances, restoration projects adjust to the environmental conditions encountered at the site and nothing is required to "put them back." A good example of this is where a project adapts to a natural high flow event, and the resulting shift in large wood placement or stream meander, though no longer the exact design planned for the project, is a successful outcome.

Where a project experiences a more significant failure (for example, a blocked culvert that results in significant erosion, or a failed or blocked fish passage weir or structure) the NOAA RC is contacted, as well as any other permitting resource agency involved in the project (FWS, CDFW, Regional Water Quality Control Board) in order to rectify the problem. As stated above, there has not been an instance where an unanticipated problem was not satisfactorily resolved on a NOAA RC project. This is due to the considerable staff involvement in every aspect of project planning, implementation and monitoring, and due to the nature of the restoration partnerships NOAA RC projects rely on for their success. From the participating landowners, to their contract grantee partners at the local and state level, and through to the NOAA RC staff working with these individuals, habitat restoration partnerships are a cooperative, team effort with strong motivation from all parties involved to ensure a successful outcome.

### *Ensuring Success for Non NOAA RC-Funded Projects*

As NOAA's lead habitat restoration program, it is common for the NOAA RC to be sought out to advise and assist the public and private sectors on restoration plans and projects for which we are not providing funding. On a selective basis, the NOAA RC provides permit assistance and substantive technical advice on projects in the coastal zone that we determine will facilitate the conservation and recovery of ESA-listed species and their habitats. The NOAA RC only works with project applicants who clearly have the financial and administrative capacity to implement successful restoration projects.

In order for a project to receive this kind of assistance, and to be included in the coverage provided by the NMFS programmatic BOs for restoration projects, NOAA RC staff screen each project using a checklist that helps us determine whether the project meets the intent and requirements of the applicable programmatic BO. The screening is intended to eliminate projects that an applicant may believe qualify as habitat

restoration, but that do not meet our criteria. An example of a common non-qualifying project would be a stream bank stabilization project that utilizes rip-rap and has little or no biological function associated with the work and techniques proposed. In contrast, a qualifying bank stabilization project would be one where stabilization of eroding banks is achieved from a bio-engineered design that provides clear habitat functions.

For projects on which the NOAA RC is not the funder but has provided technical and permitting assistance, the NOAA RC will track the project, along with the funding entity, to determine if the project is responding as designed and built. Similarly to NOAA RC funded projects, if a restoration project done in partnership with NOAA is failing to perform, NOAA will provide additional technical assistance to ensure the success of the project. This level of involvement ensures that NOAA's trust resources are properly managed and restored.

#### Attachments:

- A. Program Area Map (California)
- B. *National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce - Announcement of Federal Funding Opportunity.*
- C. Santa Rosa Office Biological Opinion
- D. Arcata Office Biological Opinion
- E. Fisheries Species Recovery Maps
- F. NOAA CRP Program Environmental Assessment (PEA), 2002
- G. NOAA CRP Supplemental Program Environmental Assessment (SPEA), 2006

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