

2007 Federal Recovery Outline for the Distinct Population Segment of Central California Coast Steelhead

Prepared by
**National Marine Fisheries Service
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Disclaimer

This outline is meant to serve as an interim guidance document to outline recovery efforts, including recovery planning for the Central California Coast steelhead Distinct Population Segment, until a full recovery plan is developed and approved. A recovery outline is not subject to formal review and is not a regulatory document. This outline is intended primarily for internal use by NMFS as a pre-planning document and the recommendations and statements found herein are non-binding and intended to guide, rather than require, actions. Nothing in this outline should be considered as a commitment or requirement for any governmental agency or member of the public. Formal public participation will be invited upon the release of the draft recovery plan for this Distinct Population Segment. However, any new information or comments that members of the public may wish to offer as a result of this recovery outline will be taken into consideration during the recovery planning process. Recovery planning has been initiated and recovery plans are targeted for completion by December 2007. NMFS invites public participation in the planning process. Interested parties may contact Charlotte Ambrose, North Central California Coast Recovery Coordinator, 777 Sonoma Avenue, Room 325, Santa Rosa, California 95404.

Rodney R. McInnis, Regional Administrator

Date

Introduction

Recovery Plan Purpose and Overview

The Federal Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*) mandates the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) to develop and implement plans for the conservation and survival of NMFS listed species, i.e., recovery plans. According to the NMFS Interim Recovery Planning Guidance (2006):

Recovery is the process by which listed species and their ecosystems are restored and their future safeguarded to the point that protections under the ESA are no longer needed. A variety of actions may be necessary to achieve the goal of recovery, such as the ecological restoration of habitat or implementation of conservation measures with stakeholders. However, without a plan to organize, coordinate and prioritize the many possible recovery actions, the effort may be inefficient or even ineffective. The recovery plan serves as a road map for species recovery – it lays out where we need to go and how best to get there.

According to section 4(f) of the ESA, recovery plans must contain: “(1) a description of such site-specific management actions as may be necessary to achieve the plan’s goal for the conservation and survival of the species; (2) objective, measurable criteria which, when met, would result in the determination that the species be removed from the list; and (3) estimates of time and the cost to carry out those measures needed to achieve the plan’s goal and the intermediate steps toward that goal.” Case law has re-affirmed these mandates with further clarification that management actions must be site-specific wherever feasible and recovery actions or criteria must link to threats, including changes in threats since listing. Recovery plans must explicitly identify all threats to a species and track (through objective measurable criteria) how each threat (through site-specific management actions) will be reduced or eliminated. This standard has been further emphasized by the United States Government Accounting Office in a 2006 report analyzing ESA recovery plans for Congress (GAO 2006).

Primarily, a recovery plan should do the following:

- Delineate those aspects of the species’ biology, life history, and threats that are pertinent to its endangerment and recovery;
- Outline and justify a strategy to achieve recovery;
- Identify the actions necessary to achieve recovery of the species;
- Identify goals and criteria by which to measure the species’ achievement of recovery; and
- Estimate the costs and time needed to reach recovery goals.

Recovery plans can also serve the following secondary functions:

- Serve as outreach tools regarding a species’ endangerment and suite of recovery actions most effective and efficient for achieving recovery for the species;
- Help potential cooperators and partners understand the rationale behind identified recovery actions, and aid them in figuring how they can facilitate the species’ recovery;

- Serve as a tool for monitoring recovery activities; and,
- Be used to obtain funding for NMFS and its partners by identifying necessary recovery actions and their relative priority in the recovery process.

Recovery plans are guidance documents, not regulatory documents. The ESA clearly envisions recovery plans as the central organizing tool for guiding each species' recovery process. They should also guide Federal agencies in fulfilling their obligations under section 7(a)(1) of the ESA, which calls on all Federal agencies to "utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species...". In addition to outlining strictly proactive measures to achieve the species' recovery, the plans provide context and a framework for implementation of other provisions of the ESA with respect to a particular species, such as section 7(a)(2) consultations on Federal agency activities or the development of section 10(a)(1)(B) Habitat Conservation Plans.

As part of the pre-planning phase of recovery planning, policy guidance (NMFS 2006) requires the development of a recovery outline. A recovery outline is intended primarily for internal use by NMFS as a pre-planning document that: (1) presents a preliminary conservation strategy to guide recovery actions in a systematic, cohesive manner until a recovery plan is available; and (2) provides a pre-planning framework for recovery plan development and decision-making.

The NMFS Southwest Region Protected Resources Division in Santa Rosa, California (SWR Santa Rosa), is responsible for facilitating the development of recovery plans for the following listed salmon Evolutionarily Significant Units (ESUs) and steelhead Distinct Population Segments (DPSs): Central California Coast steelhead (*Oncorhynchus mykiss*), Northern California steelhead (*Oncorhynchus mykiss*), California Coastal Chinook salmon (*Oncorhynchus tshawytscha*) and Central California Coast coho salmon (*Oncorhynchus kisutch*). The NMFS Strategic Plan for 2005 established a high priority focus on recovery plan development over the next five years. SWR Santa Rosa will proceed with recovery planning by developing draft ESU or DPS specific recovery plans in the following sequence: Central California Coast coho salmon ESU, Central California Coast steelhead DPS (CCC steelhead DPS), California Coastal Chinook salmon ESU, and Northern California steelhead DPS. Each plan will contribute to a final multi-species recovery plan.

This recovery outline has been developed to guide the recovery planning process for the CCC steelhead DPS and provide public notice of NMFS' intent to prepare a draft recovery plan.

General information

Species Name: Central California Coast steelhead (*Oncorhynchus mykiss*)

Listing Status: Threatened

Date Listed: August 18, 1997, (62 FR 43937), listing reconfirmed in a Final Rule published January 5, 2006 (71 FR 834).

Lead Field Office/Contact Biologist: North Central California Coast Recovery Domain (NCCC Domain), Charlotte Ambrose, Recovery Coordinator, NMFS, 777 Sonoma Avenue, Room 325, Santa Rosa, California 95404.

Recovery Status

In order to establish a recovery plan for a species, the current status of that species must be understood. The recovery status indicates how the species is doing at present and steps that must be taken for improvement. Three primary components are considered when determining status: (1) the biological requirements of the species, (2) the threats that negatively impact the species, and (3) the conservation efforts that positively impact the species. By assessing these three components, the recovery needs of the species become apparent. Thus, a recovery strategy with specific actions can be developed to address the identified needs.

Biological Assessment

The biological assessment provides information about the species' biology and ecology that may affect its recovery potential and needs. The species' life history, range (including critical habitat), population trends, and historical population structure are considered in this process.

Life History: The life history of steelhead is similar to most Pacific salmon in that they hatch in freshwater, migrate to the ocean, and return to freshwater to spawn. Within this cycle, however, steelhead exhibit greater variation than most anadromous fish in the time spent at each stage. Additionally, unlike salmonids, steelhead are iteroparous, meaning that not all adults die after spawning, and thus some may spawn more than once. Steelhead are classified into two groups, known as "summer-run" and "winter-run" fish, based on the timing of return to freshwater and state of sexual maturity at that time. Summer-run steelhead are immature when they enter freshwater during spring and early summer. They spend several months maturing in freshwater (stream-maturing) prior to spawning. Winter-run steelhead are at or near sexual maturity when they enter freshwater (ocean-maturing) during late fall and winter. They spawn shortly after arrival in freshwater. The CCC steelhead DPS is comprised of winter-run fish only.

Range: The CCC steelhead DPS includes all naturally spawned populations of steelhead in coastal streams from the Russian River to Aptos Creek, and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley (Figure 1). Two artificial propagation programs are considered to be part of the DPS: the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/Scott Creek (Monterey Bay Salmon and Trout Project). The artificially propagated stocks have been found to be genetically no more divergent relative to the local natural populations than what would be expected between closely related natural populations within the DPS. Designated critical habitat for CCC steelhead includes approximately 1,465 miles of stream habitat in central coastal California and an additional 386 square miles of estuarine habitat in San Pablo and San Francisco Bays (September 2, 2005, 70 FR 52488).



Figure 1. The Central California Coast steelhead DPS.

Critical Habitat: The NMFS is responsible for designating critical habitat for species listed under its jurisdiction. In designating critical habitat, NMFS considers the following requirements of the species: (1) Space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, or rearing offspring; and, generally, (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (see 50 CFR 424.12(b)). In addition to these factors, NMFS focuses on the known physical and biological features (primary constituent elements) within the designated area that are essential to the conservation of the species and that may require special management considerations or protection. Section 4 of the ESA requires that economic, national security and other relevant impacts are taken into consideration when designating critical habitat. Additionally, section 7 of the ESA requires that Federal agencies (via consultation with NMFS) ensure any action they authorize, fund, or carry out will not result in the destruction or adverse modification of critical habitat.

The final critical habitat designation for the CCC steelhead DPS was issued on September 2, 2005 (70 FR 52488). The specific primary constituent elements considered in the designation were freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, nearshore marine areas, and offshore marine areas. No unoccupied areas or offshore marine areas were designated as critical habitat. Approximately 1,832 miles of stream habitat and 442 square miles of estuarine habitat (primarily in the San Pablo and San Francisco Bays) were considered for designation. Of those, the following were excluded: 367 stream miles and 56 square miles of estuarine habitat due to economic impact and 0.6 stream miles due to overlap with Indian lands. Thus, approximately 1,465 miles of stream habitat and 386 square miles of estuarine habitat were ultimately designated as critical habitat for the CCC steelhead DPS (70 FR 52488). The lateral extent of critical habitat in streams is the width of the stream defined by the ordinary high water line. For estuarine areas, it is the area inundated by extreme high tide.

Status: Information on abundance and productivity trends for the naturally spawning component of the CCC steelhead DPS is extremely limited. There are no time series of population abundance for the naturally spawned adult component of the DPS; however, estimates of steelhead statewide show a reduction in numbers from 603,000 in the early 1960s to 240-275,000 in the 1980s (McEwan & Jackson 1996), indicating a potential decline of at least 54%. Within the CCC steelhead DPS, estimates of run sizes in the largest river system, the Russian River, have gone from 65,000 in the 1960s to 1,750-7,000 in the 1990s (Busby et al. 1996; Good et al. 2005), indicating a potential decline of at least 89%. Abundance in smaller streams within the DPS has been assessed as stable but at low levels (Busby et al. 1996).

Spawner surveys for CCC coho salmon ESU have been conducted annually on Lagunitas Creek since 1994. These surveys provide some incidental information regarding steelhead. Partial steelhead counts are conducted at the Noyo Egg Collecting Station and the Felton Diversion Dam but both provide little information on abundance or population estimates.

Short time series of juvenile abundance exist for a number of sites within the CCC steelhead DPS. An analysis of these data indicated a downward trend in fish populations at five locations where adequate information was available: the San Lorenzo River, Scott Creek, and Waddell Creek in Santa Cruz County; Gazos Creek in San Mateo County; and Redwood Creek in Marin

County (Good et al. 2005). Although an overall reduction in juvenile abundance is implied by this analysis, it is unclear how such a reduction ultimately affects numbers of returning adults.

In lieu of abundance data, information on available habitat can provide insight about population status. Small populations of steelhead occur in watersheds throughout the DPS, however, impassible dams have cut off substantial portions of habitat in some basins, generating concern about the spatial structure of the naturally spawning component of the DPS. In the San Francisco Estuary, for example, approximately 58% of historically occupied streams no longer support anadromy (Leidy et al. 2005). For the DPS as a whole, 22% of historical habitat is estimated to be behind recent (usually man-made) barriers (Good et al. 2005).

Changes to regulations concerning sport fishing are likely to reduce the extinction risk for the CCC steelhead DPS. The two artificial propagation programs that are part of the DPS are also thought to, “decrease risk to some degree by contributing to increased abundance, but have neutral or uncertain effects on productivity, spatial structure or diversity of the DPS” (71 FR 834 at 852). However, there is considerable uncertainty around this statement. In order to know that an artificial propagation program is decreasing extinction risk, information about the number of offspring produced by hatchery fish compared to fish spawning in the wild is required. Additionally, the effects of broodstock mining and genetic deviations would need to be considered. At present, data to address these issues do not exist. In accordance, the most recent status review for the species concluded that steelhead in the CCC steelhead DPS remain likely to become endangered in the foreseeable future (Good et al. 2005).

Historical Population Structure and Viability: The ESA requires that recovery plans for listed species include objective, measurable criteria that are used to determine when species can be removed from the list. These criteria require both an explicit analysis of threats under the five listing factors described in the “Threats ~ Listing Factors Assessment” section below, and an evaluation of population or demographic parameters. The NCCC Domain Technical Recovery Team (TRT) is responsible for developing biological viability criteria to satisfy the latter portion of the recovery criteria requirement. As a first step in this process, the TRT has estimated the historical population structure of the CCC steelhead DPS (Bjorkstedt et al. 2005). Biological viability criteria are expected from the TRT in 2007.

Three types of information were used to characterize the historical population structure of the CCC steelhead DPS: geographic, genetic, and environmental. Analysis of these factors informed the identification of individual subpopulations within the DPS and their potential role in the structure and persistence of the DPS. Thus, each individual population was assigned to a population type:

- “Functionally Independent Populations” were those that historically had a high likelihood of persisting over 100-year time scales due to their population size and relatively independent dynamics (i.e., negligible influence of migrants from neighboring populations on extinction risk).
- “Potentially Independent Populations” were those that had a high likelihood of persisting in isolation over 100-year time scales due to large population size, but were likely too

strongly influenced by immigration from other populations to exhibit independent dynamics.

- “Dependent Populations” were those that had a substantial likelihood of going extinct within a 100-year time period in isolation due to smaller population size, but receive sufficient immigration to alter their dynamics and reduce extinction risk.

The TRT identified 10 “functionally independent”, 25 “potentially independent”, and at least 27 “dependent” populations¹ in the CCC steelhead DPS (Bjorkstedt et al. 2005; with modifications described in Spence et al. In preparation). Analysis of genetic data provided support for, and aided in interpretation of population type assignment.

Beyond delineating individual populations, the TRT also identified diversity strata for the DPS by grouping together watersheds that share similar environmental characteristics. Thus, each diversity stratum identified represents a group of populations that evolved under similar conditions. The development of viability criteria at the diversity strata scale should, therefore, account for the environmental, phenotypic, and genetic diversity that historically existed. The TRT defined five diversity strata in the CCC steelhead DPS (Bjorkstedt et al. 2005).

Understanding the historical population structure allows insight into the conditions under which the DPS persisted in the long term. If the populations within the DPS diverge from the historical structure, the viability of the DPS as a whole may decrease. Thus, the historical structure provides a benchmark at which we have high confidence that the DPS persisted over long periods of time; the farther the DPS departs from this historical structure, the greater our uncertainty about whether the DPS is likely to persist. This provides a biologically relevant context for recovery planning (Bjorkstedt et al. 2005) by guiding restoration and monitoring toward those populations most essential for successful recovery of the DPS.

Threats Assessment

A thorough understanding of the threats that impact a species is vital for recovery. Four components are considered in assessing threats. First, threats that existed at the time the species was listed must be addressed to allow a logical link between the listing package and the recovery plan. Second, changes that have occurred to those threats must be documented. Third, any new threats that have arisen since the time of listing need to be described to be sure all threats to the species are considered. Fourth, an analysis of threats must be conducted to formally determine the threats that are limiting recovery of the species.

Threats under the Five Listing Factors at Time of Listing: Section 4(a)(1) of the ESA and NMFS implementing regulations (50 CFR part 424) direct NMFS to determine if a species is threatened or endangered through one or a combination of the following factors: (A) the present or threatened destruction, modification or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or man-made factors affecting its continued existence. Through the regulatory process, the Secretary of Commerce has determined that the CCC steelhead DPS is a threatened species based on the combination of the five factors as outlined in the final rule January 5, 2006 (71 FR 834) and summarized below.

¹ Dependent streams with less than 1.6 Intrinsic Potential-km are not listed by the TRT in the historical population structure of the CCC steelhead DPS.

Of the five factors, the destruction and modification of habitat, and natural and man-made factors were identified as the primary causes for the decline of CCC steelhead DPS.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range:

Destruction, modification and curtailment of the CCC steelhead DPS habitat and range is the result of forestry, agriculture, mining and, most importantly, urbanization. Water storage, withdrawal, conveyance, and diversions for agriculture, flood control, domestic, and hydropower purposes have greatly reduced or eliminated historically accessible habitat. Two habitat blockages are Coyote and Warm Springs Dams located in the Russian River Basin (NMFS 1996a). Many other minor blockages likely exist throughout the range of this DPS. Blockages have been reported in 12 of 46 tributaries within the CCC steelhead DPS (Titus et al. 2002). Modification of natural flow regimes has had significant negative impacts on CCC steelhead directly and indirectly (e.g., mortality of adults/juveniles, alterations of fish communities and impacts to migration, spawning, rearing, and refuge).

Land use activities associated with logging, road construction, urban development, mining, agriculture, ranching, and recreation have resulted in the loss, degradation, simplification, and fragmentation of CCC steelhead habitat. These changes result in significant alteration in streambank and channel morphology, stream temperature, water quality, access, sediment/large wood recruitment and depletion which significantly affect all life stages of CCC steelhead.

In most Western States, 80 to 90 percent of historical riparian habitat has been eliminated and in California riparian wetland habitat has been reduced by over 90 (Dahl 1990; Jensen et al. 1990; Barbour et al. 1991; as cited in NMFS 1996a). Historical damage to habitats remains to be addressed and restoration activities will require decades of work, as certain land use practices continue to pose risks to the survival of steelhead.

Summation: The loss and degradation of natural habitat and flow conditions are primary driving factors in the decline of CCC steelhead DPS. Urban development, mining, agriculture, logging, habitat blockages, and water diversion/extraction are identified as factors affecting this DPS.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes: There are no commercial fisheries for steelhead in the ocean, and they are only rarely taken there in fisheries targeting other species. High seas driftnet fishing has been implicated as a past cause for decline of west coast steelhead, but cannot solely account for the large reductions that have occurred over the past several decades (NMFS 1996a).

Steelhead fishing has been, and continues to be, an important recreational freshwater fishery. Recreational fishing for hatchery-origin steelhead is extremely popular. These fisheries are highly selective, and only visibly marked surplus hatchery-origin fish may be harvested. Mortality rates for naturally spawned fish that are caught and released in these fisheries are presumed to be low, though actual rates are unknown. During periods of decreased habitat availability (drought or low flow conditions), recreational fisheries may have a greater impact on wild steelhead. Poaching is considered a serious problem on several coastal rivers south of San Francisco Bay (NMFS 1996a).

Collection for scientific research and education programs has had little or no impact on CCC steelhead populations (NMFS 1996a). Take of this nature is controlled by the issuance and conditioning of scientific collection permits by the California Department of Fish and Game and NMFS. Most of the permits are issued to environmental consultants, Federal resource agencies, and universities.

Summation: Although overutilization is not considered to be a major limiting factor for the CCC steelhead DPS, harvest and poaching are identified as factors affecting the DPS.

C. Disease or Predation: Infectious disease can influence adult and juvenile steelhead survival. Fish are exposed to numerous bacterial, protozoan, viral, and parasitic organisms in spawning and rearing areas, hatcheries, migratory routes, and the marine environment. Specific diseases that are present and known to affect steelhead include bacterial kidney disease, ceratomyxosis, columnaris, Furunculosis, infectious hematopoietic necrosis, redmouth and black spot disease, Erythrocytic Inclusion Body Syndrome, and whirling disease. In general, very little current or historical information exists to quantify changes in infection levels and mortality rates attributable to these diseases. However, studies have shown that naturally spawned fish tend to be less susceptible to pathogens than hatchery-reared fish. Steelhead have co-evolved with specific communities of these organisms, but the widespread use of artificial propagation has introduced exotic organisms not historically present in a particular watershed. Habitat conditions such as low water flows, high temperatures, and artificial passage routes through man-made barriers can exacerbate susceptibility to infectious diseases.

Introductions of non-native species and habitat modifications have resulted in increased predator populations and predator success rates. For example, striped bass have been introduced to the Russian River system and are known to consume juvenile salmonids. Numerous avian species also prey upon juveniles, and success is often improved by water development activities. Predation by pinnipeds (harbor seals and California sea lions in particular) is a concern due to the increase in their numbers along the Pacific Coast combined with the dwindling run sizes of CCC steelhead. However, steelhead have historically coexisted with pinnipeds and, while predation could potentially suppress recovery, it is unlikely that it has caused the low numbers of fish existing today. It has been reported that predation on anadromous salmonids by harbor seals and California sea lions at the mouth of the Russian River is minimal (Hanson 1993).

Summation: While localized effects of disease and predation may be occurring across the range, these factors are believed to be minor relative to the overall decline of the CCC steelhead population.

D. Inadequacy of Existing Regulatory Mechanisms: A variety of regulatory mechanisms and protective efforts existed at the time of listing with potential positive effects for abundance and survival of the CCC steelhead DPS. These efforts are described in one of two sections in the listing package: (1) within the five listing factors section, or (2) within the evaluation of protective efforts section. We have chosen to summarize the efforts here to allow changes since listing to be logically tracked in a similar manner to changes in other threats.

Federal Efforts

NMFS conducts section 7 consultations with over 20 federal action agencies that authorize, fund, or carry out projects in the range of CCC steelhead. NMFS provides technical assistance to

federal, state, and local agencies, and to private landowners for projects occurring throughout the range of CCC steelhead. NMFS staff evaluates impacts to CCC steelhead on a wide variety of projects including: irrigation and water diversion, timber harvest, watershed restoration, fish passage, gravel mining, grazing, and transportation projects. Consultations and technical assistance have improved designs, and avoided or minimized adverse impacts to steelhead and their habitats throughout the CCC steelhead DPS. Important consultations are ongoing with the US Army Corps of Engineers and the Sonoma County Water Agency (for the Russian River). NMFS is also engaged in an ongoing effort to assist in the development of Habitat Conservation Plans (HCPs) for state and private lands under section 10 of the ESA.

The Pacific Coastal Salmon Recovery Program allows NMFS to provide annual grants (Pacific Coastal Salmon Recovery Fund) to the State of California to assist salmon recovery efforts in coastal watersheds from the Oregon border to southern California.

The Comprehensive Conservation and Management Plan for the San Francisco Bay-Delta Estuary is designed to help restore and maintain the estuary's water quality and natural resources. This plan is jointly sponsored by the Environmental Protection Agency (EPA) and the State of California. Many of the recommended actions of this plan could improve rearing and migratory conditions for steelhead.

Non-Federal Efforts

The State of California's forest practice rules (CFPRs) contain provisions that can be protective of steelhead if fully implemented. However, the CFPRs do not adequately provide for properly functioning riparian habitat.

The California Department of Fish and Game (CDFG) has funded a development effort for a statewide coastal salmonid monitoring program. Due to the lack of comprehensive abundance and trend data for coastal salmonids, a coastal monitoring program is critical to assessing the viability of listed ESUs and DPSs.

CDFG has developed the Salmon and Steelhead Stock Management Policy to address the issues associated with introduction of non-native steelhead via hatcheries. Although this policy has the intent to classify each steelhead stream according to its genetic source and degree of integrity, this has not yet been accomplished.

California's Steelhead Management Plan focuses on restoration of native and naturally produced steelhead stocks. This plan presents a historical account of the decline of California's steelhead populations and identifies needed restoration measures.

Resource Conservation Districts (RCDs) along the California coast allow the agricultural community to voluntarily address and correct management practices that impact ESA listed salmonids and their habitats. The RCDs can assist landowners in developing and implementing best management practices that are protective of salmonids.

The North Coast Regional Water Quality Control Board is in the process of updating its north coast basin plan, which will establish water quality standards for all of the northern California rivers and streams (including the Russian River and tributaries). These plans will also incorporate newly developed Total Maximum Daily Load standards that are being developed for

those water bodies that are listed as 303d impaired under section 303(d) of the Clean Water Act. These plans will likely help reduce human impacts to the aquatic environments and thus protect ESA listed salmonids.

The Sotoyome Resource Conservation District has developed a voluntary certification program (Fish Friendly Farming) for grape growers in Sonoma and Mendocino Counties who implement land management practices that decrease soil erosion and sediment delivery to streams.

FishNet 4C is a multi-county group (including Mendocino and Sonoma) that coordinates county efforts such as road maintenance, fish barrier assessment and removal, riparian and grading ordinances, erosion control, implementation of bioengineering projects and the development of guidelines for public works departments that enhance or protect salmonid habitat.

The Sonoma County Water Agency is conducting a passage project on the Russian River that will give CC Chinook salmon access to an additional 15 – 20 miles of spawning and rearing habitat.

Local watershed councils and other groups throughout California have successfully developed restoration plans and have worked to implement habitat restoration projects that are expected to contribute to the conservation of listed salmonids ESUs. In the range of the CCC steelhead DPS there are watershed groups addressing Tomales Bay, Lagunitas Creek, and the Russian River.

The Santa Clara Valley Water District has initiated the Fisheries Aquatic Habitat Collaborative Effort which includes Coyote Creek in the CCC steelhead DPS. This program is among the most comprehensive, well funded, long-term protective efforts for salmonids in California.

In cooperation with the CDFG and the Alameda Creek Fisheries Restoration Workgroup, NMFS is working towards re-establishing steelhead in Alameda Creek on the eastern side of south San Francisco Bay.

Many other sub-watershed groups, landowners, environmental groups, and non-profit organizations throughout the range of CCC steelhead are conducting habitat restoration and planning efforts that may contribute to the conservation of the species.

Other efforts by the State of California that could provide benefits to steelhead are outlined in ‘Steelhead Conservation Efforts: a supplement to the notice of determination for west coast steelhead under the Endangered Species Act’ (NMFS 1996b) and the proposed listings for West Coast Salmonids of June 14, 2004 (69 FR 33102 at 33143).

Summation: Despite the extent of federal and non-federal efforts, most land use regulations across the range of the CCC steelhead DPS do not address continued threats from habitat degradation, thus existing regulatory mechanisms are inadequate.

E. Other Natural and Man-made Factors Affecting the Species’ Continued Existence:

Variability in natural environmental conditions has both masked and exacerbated the problems associated with degraded and altered riverine and estuarine habitats. Floods and persistent drought conditions have reduced already limited spawning, rearing, and migration habitats. El Nino events and periods of unfavorable ocean conditions can threaten the survival of steelhead

populations at low numbers due to degradation of estuarine habitats and reduced food availability (NMFS 1996a).

Two artificial propagation programs within the CCC steelhead DPS are likely to provide some limited benefits to the CCC steelhead DPS viability by contributing to local population abundance, but they do not substantially reduce extinction risk to the CCC steelhead DPS. Genetic diversity risk associated with out-of-basin transfers appears to be minimal, but diversity risk from domestication selection and low effective population sizes in the remaining hatchery programs remains a concern. CDFG has adopted policies designed to ensure that the use of artificial propagation is conducted in a manner consistent with the conservation and recovery of natural, indigenous steelhead stocks. The careful monitoring and management of current programs, and the scrutiny of proposed programs, is necessary to minimize impacts on listed species.

Summation: Variable environmental conditions may exacerbate problems resulting from habitat degradation. Two captive broodstock programs may contribute to future abundance and improved spatial structure of the DPS, but out-planting benefits are uncertain.

Changes to the Five Factors since Listing: This section documents changes that have occurred to the threats listed above since the time of listing. In some cases, threats may have been removed via restoration or management practices, and may no longer need to be considered for recovery actions. A thorough review of changes to the five listing factors will be done during recovery plan development. Examples of some changes by listing factor are provided here:

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes: A global moratorium on high seas driftnet fishing (via a United Nations resolution implemented by the US in 1992) has reduced the impact of this threat to salmonids.

D. Inadequacy of Existing Regulatory Mechanisms: The statewide coastal monitoring program funded by the California Department of Fish and Game (CDFG) is no longer in existence.

New Threats since Listing: Threats that were not present, or were not documented, at the time of listing may exist for the CCC steelhead DPS. A thorough review of these new threats will be included in development of the recovery plan.

Analysis of Threats: A formal analysis of threats will be conducted for the CCC steelhead DPS to identify the key factors that are limiting the recovery of the species. The analysis will be conducted using a ranking matrix developed by The Nature Conservancy (TNC). This method breaks each identified threat down into two components, stress and source of stress, then ranks each component for a number of different criteria. As a result of these rankings a final score is established for each threat. The scores allow recovery actions to be prioritized by those threats whose alleviation will have the greatest impact on recovery.

Conservation Assessment

The objective of a conservation assessment is to identify the steps that have been or are being taken to address the conservation needs of the species of interest. By considering the existing conservation actions and comparing them with threats identified in the previous section, the

types of recovery actions that still need to occur should become clear. Two types of conservation assessments are conducted for listing and recovery:

1. Protective efforts: evaluated pursuant to the “Policy for Evaluation of Conservation Efforts When Making Listing Decisions” (68 FR 15100; March 28, 2003)
2. Conservation assessment: pursuant to the Interim Recovery Planning Guidance (NMFS 2006)

Protective efforts: Under section 4(b)(1)(A) of the ESA, protective efforts are required to be assessed during listing decisions. Federal agencies are required to review the status of the species using the best scientific and commercial data available after taking into account efforts being made to protect the species. The efficacy of existing efforts must consider the following: (1) substantive, protective and conservation elements; (2) degree of certainty efforts will be implemented; and (3) presence of monitoring provisions that determine effectiveness and permit adaptive management. Protective efforts for the CCC steelhead DPS were evaluated in 1997 with the original listing (62 FR 43937) and again in 2006 when the threatened listing was re-affirmed by NMFS (71 FR 834). Protective efforts for steelhead range in scope from regional strategies to local watershed initiatives. Major efforts are summarized above in the ‘Threats under the Five Listing Factors at Time of Listing’ section. Efforts are described in greater detail in “Steelhead Conservation Efforts: a supplement to the notice of determination for west coast steelhead under the Endangered Species Act” (NMFS 1996b) and the proposed listings for West Coast Salmonids of June 14, 2004 (69 FR 33102 at 33143).

Conservation assessment: For recovery outlines and plans a conservation assessment is conducted pursuant to the Interim Recovery Planning Guidance (NMFS 2006). While correlating with protective efforts evaluated during listing, this assessment should provide additional information, including conservation efforts that have occurred since listing. Conservation efforts can include agreements that remain in place since listing, recovery-related research, habitat protection measures, measures implemented pursuant to section 7, section 4, section 10 and other regulatory mechanisms, and the work of active conservation constituencies.

The full suite of conservation efforts will be evaluated and documented during recovery plan development. While not a complete assessment, we provide here some of the ongoing efforts NMFS believes contribute to the conservation of the CCC steelhead DPS by abating or reducing threats outlined above.

- NMFS has addressed CCC steelhead DPS needs through biological opinions, participation in habitat conservation plans, and interagency technical work groups. These consultations have improved or minimized adverse impacts to listed salmonids and their habitats by improving habitat and fish passage conditions.
- NMFS has developed guidelines for bank stabilization, road maintenance, instream gravel mining, maintaining instream flows to protect salmonids below water diversions, fish screening, salmonid passage at stream crossings, summer dam mitigation and impacts, and timber harvest activities.
- Numerous federal, state and local conservation programs include:

- Pacific Coastal Salmon Recovery Funding Grant Program
- EPA Total Maximum Daily Load Programs
- Integrated Water Resource Management Plans
- State Coho Recovery Plan (efforts to recover coho will provide benefits to steelhead)
- State Steelhead Restoration and Management Plan for California
- CalFish and California Fish Passage Forum
- Improvements in Hatchery Programs
- Fish Friendly Farming Program
- Sonoma County Water Agency
- Salmonid Coalition of the Russian River
- 5 Counties Salmon and Roads Program
- FishNet 4C

Recovery Status Summary

The recovery status of the CCC steelhead DPS will be determined from a synthesis of the three assessments provided above: biological, threats, and conservation. Understanding the current status provides a basis for determining the direction that recovery actions will take.

Recovering the DPS will likely require a mix of improved access to historically available habitat and restoration of degraded habitat. Historical distribution provides an understanding of how an altered DPS may or may not persist in the future. Current distribution provides an understanding of how to efficiently safeguard the existence of the DPS. All of the CCC steelhead historical populations identified by the TRT as “functionally independent” have suffered severe declines, and several have been extirpated. Across the DPS but particularly within the San Francisco Bay Estuary, habitat supporting migration, spawning, and rearing has been seriously degraded. While CCC steelhead have experienced large declines in abundance, and long-term population trends suggest a negative growth rate, they have maintained a wide distribution throughout the DPS. This suggests that, while there are significant threats to the population, they possess a resilience that is likely to slow their decline and contribute to their recovery.

From the determination of the status of the CCC steelhead DPS, a recovery strategy with specific actions will be developed. While data are deficient and research and monitoring will be critical to recovery, NMFS believes the following outlines key needs:

Freshwater spawning sites:

- have good water quality and quantity; and
- have substrate for spawning, incubation, and larval development.

Freshwater rearing sites:

- have good water quality and quantity and floodplain connectivity to maintain habitat conditions;
- have forage for juvenile development; and
- have natural cover to provide refuge (such as submerged and overhanging large wood, log jams, beaver dams, aquatic vegetation, large rocks or boulders, side channels, undercut banks, etc.).

Freshwater migration corridors:

- are unobstructed;
- have good water quality and quantity;
- have natural cover to provide refuge to support juvenile and adult mobility and survival; and
- afford safe passage conditions for migrations

Estuarine areas:

- are unobstructed;
- have good water quality and quantity, with salinity conditions to support juvenile and adult physiological transitions between freshwater and saltwater;
- have natural cover to provide refuge to support migrations among systems; and
- have forage for juvenile and adult migrating fish.

Nearshore marine areas:

- are unobstructed;
- have good water quality and quantity conditions;
- have forage to support growth and maturation of fish; and
- have natural cover to provide refuge.

Offshore marine areas:

- have good water quality conditions; and
- have forage to support growth and maturation.

Preliminary Recovery Strategy

The preliminary recovery strategy describes initial decisions that have been made about how to recover the species. First, a Priority Number was determined for the species to rank its priority for recovery plan development and implementation. Next, a Recovery Vision Statement was made to clearly define the overall goal of recovery. Priority tasks were then developed which, if implemented, would improve the species' potential for recovery. Finally, a preliminary action plan for NMFS was written. This plan outlines potential coordination efforts between divisions within NMFS and with other entities involved in salmonid management and recovery. This is a starting point from which the full recovery strategy for the species will be developed.

Recovery Priority Number

A Priority Number of "3" was assigned to the CCC steelhead DPS in accordance with the Recovery Priority Guidelines (55 FR 24296, Section B). Priority Numbers are determined from a matrix comparing the species' magnitude of threat of extinction, recovery potential, and potential for conflict with economic activities. Priority Numbers range from 1 – 12 with lower numbers receiving higher priority for recovery plan development and implementation. Ranking for CCC steelhead is based on a high degree of threat, a low-moderate recovery potential, and anticipated conflict with development projects or other economic activity.

The high degree of threat determination is based on the following factors: 1) the largest run for the DPS (the Russian River) has been reduced in size and this decline continues (Good *et al.* 2005); 2) populations in the southern part of the range have declined substantially (Good *et al.* 2005); and 3) habitats are degraded (Good *et al.* 2005; Leidy *et al.* 2005). Additionally, the majority conclusion of the most recent Biological Review Team was that natural populations of CCC steelhead are likely to become endangered in the foreseeable future (Good *et al.* 2005). A

low-moderate potential for recovery exists for CCC steelhead due to the large amount of urbanization within the range. Imminent land use changes and encroaching urbanization into rural areas result in anticipated conflict of development with conservation needs of CCC steelhead.

Recovery Vision Statement

Recovery and delisting of the CCC steelhead DPS is the desired outcome of recovery planning. This outcome shall evolve from a "... process by which listed species and their ecosystems are restored and their future safeguarded to the point that protections under the ESA are no longer needed" (NMFS 2006). The process shall include the development and implementation of a recovery plan that provides for the conservation and survival of the CCC steelhead DPS pursuant to section 4(f)(1) of the ESA as well as the most recent judicial and policy guidance.

All methods and procedures which are necessary shall be used to bring CCC steelhead to the point at which the measures pursuant to the ESA are no longer necessary. Such methods and procedures shall result in the establishment and maintenance of a viable population of CCC steelhead via increased abundance, improved population growth rate, increased population spatial structure and greater genetic/life history diversity.

Priority Tasks to Improve Potential for Recovery

Priority actions that would improve the species' potential for recovery have been identified for the CCC steelhead DPS. These include, but are not limited to the following:

- Conduct and improve research and monitoring on distribution, status and trends and improve understanding of life-stage survival.
- Develop more effective and efficient federal and state mechanisms to correct already documented threats to listed salmonids.
- Educate the water-user community regarding actions and priorities.
- Improve understanding of life-stage survival at the population scale through focused research and monitoring.
- Provide outreach to federal action agencies regarding section 7(a)(1) and the carrying out of programs that conserve and recover federally listed salmonids.
- Collaborate with interested public, state and federal resource agencies, local agencies and special interest groups in identifying and implementing early actions in priority watersheds and streams, informed by TRT and Critical Habitat Analytical Review Team (CHART) reports.
- Encourage enforcement, improved performance and needed revisions to pertinent state and local rules and regulations such as Forest Practice Rules, Urban Stormwater Permits, County General Plans, and others.
- Protect and restore watershed and estuarine habitat complexity and connectivity.
- Improve freshwater habitat quantity and quality.
- Implement freshwater habitat restoration techniques as part of construction activities (e.g., set-back levees/bank stabilization/levee repair and maintenance, re-introduction of large woody debris, erosion control, etc.).
- Reduce and control impacts of urbanization through education, outreach, partnerships, and protective regulations.
- Balance water supply and allocation with needs and priorities for fish recovery through water rights programs, identification and designation of fully appropriated watersheds,

development of passive diversion devices and/or offstream storage, elimination of illegal water diversions, and improved criteria for water drafting, storage and dam operations.

- In priority watersheds, work with groups and counties involved with agriculture, instream gravel mining, and forestry practices.
- In priority watersheds, work with state/county/city planning, regulations (*e.g.*, riparian and grading ordinances) and state/county road maintenance programs.
- Identify barriers and facilitate their removal.
- Screen water diversion structures in priority anadromous fish-bearing streams, replace outdated septic systems, and improve wastewater management.
- Promote concept of multi-use/recycling of water to increase water supply (*e.g.*, use of tertiary treated wastewater for golf courses and other appropriate uses).
- Facilitate identification and treatment of point and non-point source pollution from wastewater, agricultural practices and urban environments to priority streams.
- Encourage modification to channel and flood control maintenance practices, where appropriate, to increase stream and riparian complexity.
- Encourage recruitment and maintenance of native riparian areas by removal of livestock and incentives for tree and vegetation retention.
- Improve harvest management strategies and reform hatchery practices where necessary.

Although many actions are generally applicable across the DPS, priority actions have been further refined to actions specific to three regions of the DPS: coastal streams north of the Golden Gate to the Russian River, tributaries to the San Francisco Bay Estuary, and central coast streams south of the Golden Gate to Aptos Creek (Table 1). These regions have different physical and climactic characteristics, and different predominant land use patterns, and therefore, will require different types of actions to achieve recovery. Actions specific to populations in each region have been identified to address more localized factors that currently suppress potential for recovery for the CCC steelhead DPS (Table 1).

Table 1. Priority Actions specific to recovery of CCC steelhead by distinct geographic region: Northern Coast (Russian River to the Golden Gate), San Francisco Estuary (the bay and its tributaries), and Central Coast (the Golden Gate to Aptos Creek).

Priority Actions	Northern Coast	San Francisco Estuary	Central Coast
<i>Enhance over-winter and summer survival of juveniles</i>	<ol style="list-style-type: none"> 1. Improve flow regimes below Coyote and Warm Springs Dams to improve salmonids production. 2. Improve release methods to reduce releases of fine material downstream of Coyote Dam. 3. Improve stream habitat complexity and recruitment and retention of large woody debris. 	<ol style="list-style-type: none"> 1. Improve stream habitat complexity. 2. Improve flows downstream of impoundments and diversions. 3. Eliminate barriers to upstream migration. 4. Protect and enhance riparian and aquatic habitats. 	<ol style="list-style-type: none"> 1. Improve flows downstream of impoundments and diversions. 2. Reduce groundwater withdrawals to improve in-stream flows. 3. Coordinate various entities extracting water, and curtail unauthorized extraction to improve flow conditions.
<i>Enhance smolt production</i>	<ol style="list-style-type: none"> 1. Reduce adverse effects from gravel extraction in the Russian River, Gualala River, Garcia River, and their tributaries. 2. Improve lagoon management. 	<ol style="list-style-type: none"> 1. Eliminate barriers to downstream migration. 2. Focus study efforts on changes to food web in the estuary, and potential solutions. 3. Control invasive species that compete for habitat and prey. 	<ol style="list-style-type: none"> 1. Improve lagoon management. 2. Eliminate barriers to downstream migration. 3. Study lagoon conditions to identify risk factors and improve conditions
<i>Enhance productivity</i>	<ol style="list-style-type: none"> 1. Improve flows to maintain connectivity between tributaries and mainstems. 2. Reduce sediment inputs. 3. Improve road maintenance practices to reduce sediment inputs. 4. Improve recruitment and retention of large woody debris. 	<ol style="list-style-type: none"> 1. Conduct focused monitoring to identify limiting factors for various life stages. 2. Reduce water exports from the Sacramento Delta to restore the estuary. 3. Promote concept of multi-uses of water to increase water supply (e.g., recirculation scheme using streams for water conveyance). 	<ol style="list-style-type: none"> 1. Improve road maintenance practices to reduce sediment inputs. 2. Install stream gauges on all fully adjudicated watersheds to monitor flows. 3. Improve recruitment and retention of large woody debris.
<i>Enhance spawning success</i>	<ol style="list-style-type: none"> 1. Eliminate barriers to upstream migration. 2. Improve connectivity to historical floodplain. 3. Improve release methods to reduce releases of fine material downstream of Coyote Dam. 	<ol style="list-style-type: none"> 1. Eliminate barriers to upstream migration. 2. Improve connectivity to historical floodplains. 3. Collaborate with local governments to improve protections for streams (e.g., riparian set back and grading ordinances). 	<ol style="list-style-type: none"> 1. Eliminate barriers to upstream migration. 3. Improve road maintenance practices to reduce sediment inputs.
<i>Improve spatial distribution throughout the DPS</i>	<ol style="list-style-type: none"> 1. Reduce constraints on stream forming processes to increase meanders and habitat complexity. 	<ol style="list-style-type: none"> 1. Remove existing barriers to upstream migration (e.g., BART weir, Alameda Creek, York Dam on York Creek). 2. Increase amount and extent of tidal wetlands to increase prey base. 	<ol style="list-style-type: none"> 1. Remove existing barriers to upstream migration (e.g., Old Stone Dam, Pilarcitos Creek).

Preliminary Recovery Action Plan

The goal of the action plan is to ensure NMFS is fulfilling its obligation under the ESA to conserve and recover CCC steelhead. NMFS shall focus primarily on linking and coordinating ESA programs to recovery planning, and developing stronger, more collaborative partnerships with other entities whose decisions affect steelhead recovery.

Outline of NMFS Actions ~ Coordinating ESA Programs with Recovery Planning:

- 1) Streamline programs through programmatic strategies and develop best management practices that can be provided to federal, state, county or city governments, and private landowners for the benefit of salmonid habitat.
 - Programmatic Strategies include, but are not limited to, State of California Road Maintenance Manual, Bank Stabilization Guidelines, Gravel Mining Guidelines (*completed 2004*), Ground Water Management Guidelines, Water Development and Rights Policies, Minimum Flow Policies for dry seasons to ensure appropriate water temperatures and conditions (*completed 2004*), Timber Harvest Guidelines (*expected completion date December 2007*), Stream Flow Protection Standards (Public Resources Code, Division 10, Section 10800 – 11005) and active participation in County General Plan updates.
- 2) Streamline section 7 processes by providing direction for NMFS consultations.
 - Heighten awareness of NMFS consultation staff to important populations within the CCC steelhead DPS and threats to be addressed.
 - Utilize programmatic approaches where appropriate.
 - Prioritize participation in interagency collaborative efforts seeking to streamline project implementation while contributing to the conservation strategy for the CCC steelhead DPS.
- 3) Identify types of section 7 conservation measures that may be appropriate on priority watersheds.
 - Utilize opportunities for enhancement of existing habitat conditions.
 - Incorporate priority recovery actions in consultations.
- 4) Coordinate recovery planning efforts with other NMFS programs (*e.g.*, those conducted by Southwest Fisheries Science Center, Sustainable Fisheries, and/or Habitat Conservation) through GIS and database development.
 - Develop tracking systems for: (a) “incidental take” permits; (b) annual section 10 reporting; and (c) implementation and effectiveness of NMFS recommendations (*e.g.*, terms and conditions from section 7 consultations).
 - Develop a formal process that outlines and prioritizes research needs to improve decision-making under the ESA and allow for a streamlined permitting process for applications that address priorities.
 - Develop and implement effectiveness/performance monitoring to ensure actions contribute to recovery and facilitate adaptive management, and assure research and monitoring priorities are being addressed and met.

- 5) Create higher levels of efficiency and scientific rigor to work products by continued development of a spatially-linked (geo-referenced) relational database (i.e. CalFish) that provides the best available information on the distribution, abundance and productivity of CCC steelhead.
- 6) Collaborate with the Office of Law Enforcement during recovery plan development.

Outline of Actions ~ Coordination and Outreach:

- 1) Promote communication and collaboration between different divisions, offices, laboratories, Science Centers, Regions and the Pacific Fisheries Management Council for steelhead recovery planning.
- 2) Assess how the State Coho Salmon Recovery Plan and identified implementation actions can be used to facilitate coordination and outreach for CCC steelhead (i.e. through education and increased awareness about conservation of salmonids).
- 3) Coordinate and improve communication with federal and state agencies regarding joint management responsibilities as well as diverging responsibilities such as water supply management and allocations, and competing species' needs.
- 4) Conduct outreach to promote CCC steelhead recovery.
 - Develop specific outreach plan for the public, stakeholders and private organizations (e.g., Sustainable Conservation, Natural Resources Conservation Service, Nature Conservancy, etc.).
- 5) Provide technical information about CCC steelhead life history, species needs and viable salmonid population structure to federal, state, regional planning organizations, county governments, special interest groups and non-governmental organizations to include in their project designs, general plans, watershed plans, etc.
- 6) Promote NMFS' student internship programs and other types of student appointments to recruit individuals with desired backgrounds, education and training.

Pre-planning Decisions

These are decisions that have been made about the development of the recovery plan for CCC steelhead DPS.

Product: Draft Recovery Plan for CCC steelhead

Scope of Recovery Effort:

Species X Recovery Unit Multi-Species Ecosystem

Recovery Plan Preparation: NMFS, Southwest Region Protected Resources Division, will initiate the preparation of a draft recovery plan for CCC steelhead (using the most recent Recovery Planning Guidance from October 2006) concurrent with the TRT distribution of the draft reports being prepared for the salmon ESUs and steelhead DPSs in the North Central

California Coast Recovery Domain. Primary authorship of the Recovery Plan will be the responsibility of NMFS staff. Outreach by NMFS to state, federal and private partners will be central to the recovery effort.

Administrative Record: The administrative record will be housed in the NMFS SWR Santa Rosa office.

Schedule and Responsibilities for Draft Modules of CCC Steelhead Recovery Plan:

Completed:

Summer 2006

- Published 'Notice of Intent to Prepare a Recovery Plan'
- Initiated recovery plan threats assessment
- Developed recovery brochures

Fall/Winter 2006

- Initiated recovery planning website for public outreach
- Initiated development of specific background recovery plan chapters
- Initiated development of threats assessment using TNC protocols

To be completed:

Winter 2006/2007

- Conduct outreach on draft threats assessment
- Finalize recovery outline

Spring 2007

- Host workshops for public involvement in recovery planning process
- Request TRT/Science Center review of draft recovery criteria, where appropriate
- Post products on website for review and comment
- Complete draft recovery plan

Summer 2007

- Issue draft recovery plan and publish Federal Register Notice
- Initiate public review and comment
- Initiate independent peer review

Fall/Winter 2007

- Revise draft recovery plan and finalize
- Post final plan on website
- Outreach to initiate recovery plan implementation for priority actions

Outreach and Stakeholder Participation: While NMFS is responsible for adopting recovery plans, the plans will have a greater likelihood of success if they are developed in partnership with entities that have the responsibility and authority to implement recovery actions. Hence, NMFS has initiated a series of outreach events, workshops and presentations in various forums to ensure high levels of communication and interaction with the public, stakeholders and agencies throughout the development and finalization process.

Anticipated Recovery Planning Actions:

- (1) NMFS has appointed a TRT for the North Central California Coast Recovery Domain comprised of scientists tasked to develop biological viability criteria for the two ESUs and two DPSs in the Domain including the CCC steelhead DPS. The final products from the TRT are expected in early 2007.
- (2) NMFS Protected Resources Division (PRD) staff are currently developing a strategy to initiate the development of the recovery plan per the most recent Federal guidelines to include inter- and intra-agency coordination and collaboration on regulatory operations, public input and plan development.
- (3) NMFS PRD will coordinate with NMFS Habitat Conservation Division, NMFS Sustainable Fisheries Division, NOAA Restoration Center, NMFS Science Center and other NOAA cooperators to ensure consistency and effectiveness in the recovery plan development.
- (4) NMFS PRD will work with all parties to evaluate best management practices and existing regulatory programs for integration into recovery planning.
- (5) NMFS PRD will begin outreach efforts to ensure the highest level of public participation in the process. Outreach will consist of website updates on recovery plan process, public meetings, development of educational materials and public input on the draft recovery plan.

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