UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

AUG 11 2000 F/SWR4: MH

Mr. Mark Capik
Acting Chief, Planning Division
U. S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814

Dear Mr. Capik:

This document transmits the National Marine Fisheries Service's (NMFS) Biological Opinion on the proposed Guadalupe River Flood Control Project ("Downtown Project") located in the City of San Jose, Santa Clara County, California, and addresses project effects on the threatened Central California Coast evolutionarily significant unit (ESU) of steelhead (*Oncorhynchus mykiss*) and its critical habitat in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This document also transmits NMFS' tentative essential fish habitat (EFH) Conservation Recommendations for chinook salmon (*Oncorhynchus tshawytscha*) as required by section 305 (b)(4)(A) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) as amended (16 U.S.C. 1801 et seq.). While EFH designations for chinook salmon have yet to be approved by the Secretary of Commerce, we expect them to be forthcoming and provide these recommendations to facilitate your consultation obligations.

The Biological Opinion and EFH Conservation Recommendations are based on information provided in the Biological Data Report (February 2000) and Draft General Re-evaluation and Environmental Report for Proposed Project Modifications, Volume 1 (June 2000). The Opinion and Recommendations also reflect NMFS' participation in routinely scheduled meetings with project staff and resource agency representatives regarding the development of construction designs and mitigation options (i.e., Guadalupe River Flood Control Project Collaborative) and a review of the ecological literature on steelhead and chinook salmon. A complete administrative record of this consultation is on file in the NMFS Santa Rosa office.

Please note that because of the common habitat requirements for steelhead and chinook salmon, NMFS has chosen to include four of the five Reasonable and Prudent Measures with their respective Terms and Conditions listed in the Incidental Take Statement of the Biological Opinion as its tentative EFH Conservation Recommendations for chinook salmon. Once the EFH designations for chinook salmon are approved, the Corps has a statutory requirement subject to section 305(b)(4)(B) of the MSFCMA and 50 CFR 600.920(j) under the EFH regulations to submit in writing within 30 days to NMFS a detailed description of measures proposed for avoiding, mitigating, or offsetting the impact of the activity on EFH. If the Corps is unable to complete a final response within 30 days of final approval, they should provide NMFS an interim written response within 30 days.

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If you have any questions concerning this Biological Opinion or EFH Recommendations, please contact Mr. Mark Helvey at (562) 980-4046.

Sincerely,

for J J Lawson

Rodney R. McInnis
Acting Regional Administrator

Enclosure

Guadalupe River Flood Control Project

BIOLOGICAL OPINION
(Endangered Species Act -Section 7 Consultation)

and

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS
(Magnuson-Stevens Fishery Conservation and Management Act - EFH Consultation)

Endangered Species Act -Section 7 Consultation

BIOLOGICAL OPINION

Agencies: U.S. Army Corps of Engineers.

Activity: Flood Control Project for the Guadalupe River, Downtown San Jose, California

Consultation Conducted By: National Marine Fisheries Service, Southwest Region.

Date Issued: AUG 11 2000.

I. INTRODUCTION

The Downtown Guadalupe River Flood Control Project is proposed to provide flood protection along less than a three mile portion of the Guadalupe River within the City of San Jose, California, between Grant Street and Interstate 880 (Figure 1). The U. S. Army Corps of Engineers, Sacramento District (Corps) is the federal agency and the Santa Clara Valley Water District (SCVWD), City of San Jose, and San Jose Redevelopment Agency are the non-federal sponsors. The project requires a Clean Water Act Section 404 permit.

The project is being implemented in six stages with three of these stages already completed (Figure 2). The first two construction stages, Contracts 1 and 2, were completed in 1994 and 1996, respectively. A third stage, Contract 3C Phase 1, was finished in 1999. The fourth stage, Contract 3C, Phase 2 will begin in 2001. The fifth stage includes the work in Contracts 3A and 3B and also the construction of an underground bypass to convey flood flows between West Santa Clara Street and Coleman Avenue in downtown San Jose. Contracts 3A and 3B will be completed in 2002. The sixth stage includes Contract 3C Phase 3 which will also be completed in 2002. Mitigation for the project has occurred or will occur onsite in the areas of Contracts 1, 2, and 3 and offsite in Reach A and lower Guadalupe Creek.

Because the federally threatened Central California Coast evolutionarily significant unit (ESU) of steelhead (*Oncorhynchus mykiss*) occurs in the project area, the Corps, pursuant to the Endangered Species Act (ESA), 16 U. S. C. § 1531 et. seq., requested formal Section 7 consultation on the fourth, fifth and sixth stages in a letter dated February 8, 2000 to the National Marine Fisheries Service (NMFS). NMFS initiated its Section 7 consultation at that time, as the formal request was accompanied by a completed biological assessment. Project action is defined as construction in Contracts 3A and 3B, Contract 3C, Phase 2, Contract 3C, Phase 3 and the operational effects of the entire Guadalupe River Project (effects of water flow through the flood bypasses and the flow of water through Contracts 1, 2, 3A, 3B, and 3C reaches.

This biological opinion is based on the written descriptions of the flood control project (U.S. Army Corps of Engineers and Jones & Stokes Associates 1999, U. S. Army Corps of Engineers 2000, U. S. Army Corps of Engineers and Santa Clara Valley Water District (SCVWD) 2000), participation in ongoing monthly meetings with project staff and resource agency

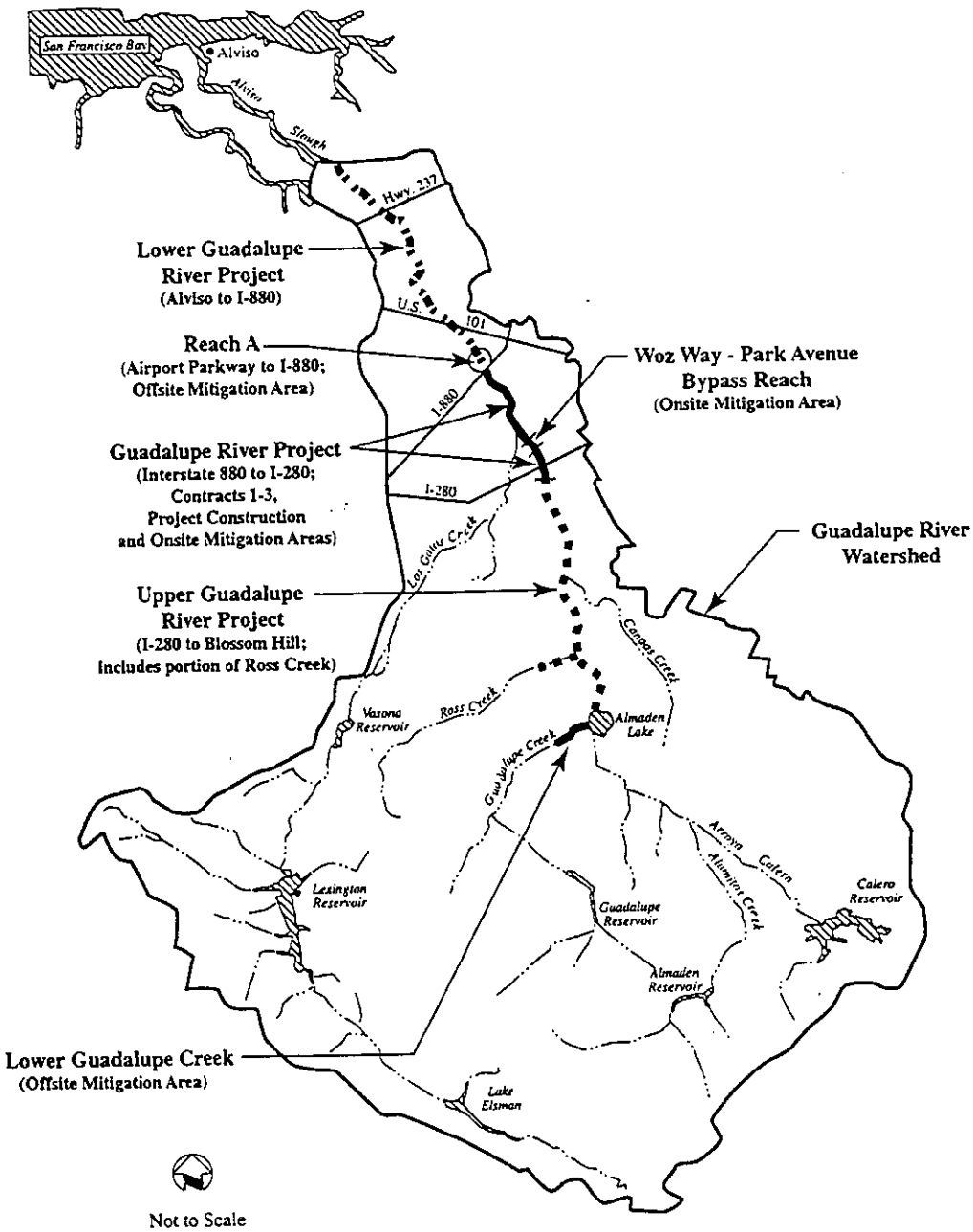

Figure 1. Map of the Guadalupe River watershed. The Guadalupe River Project or "Downtown Project" is indicated by the solid dark line.

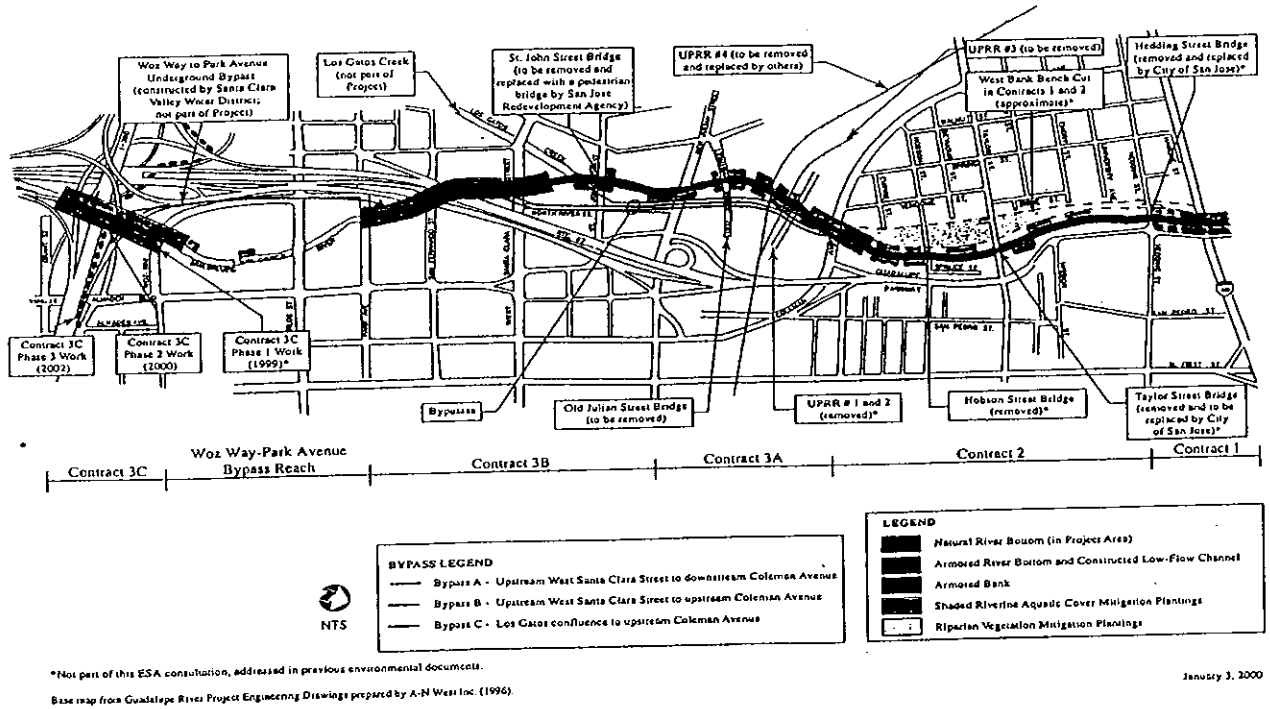

Figure 2. Guadalupe River Project with the proposed action. Flood protection and onsite mitigation components are shown.

representatives on the development of construction designs and mitigation options (i.e., Guadalupe River Flood Control Project Collaborative) and a review of the ecological literature on steelhead.

The Administrative Record for this consultation is maintained at the NMFS Santa Rosa office, 777 Sonoma Ave., Room 325, Santa Rosa, California, 95404.

II. PROPOSED ACTION

The Guadalupe River basin is located in Santa Clara County at the south end of San Francisco Bay. The Guadalupe River drains a 160 square mile area in the Santa Cruz Mountains and suburban San Jose, flowing north from the confluence of Alamitos and Guadalupe Creeks through the City of San Jose, California, before emptying into south San Francisco Bay. The river currently cannot contain the 100-year flood event (17,000 cubic feet per second [cfs], per. comm. N. Bicknese, U. S. Army Corps of Engineers, April 2000) resulting in repeated flooding of the San Jose community over the years, most recently in 1995. To control future flooding, channel modifications are proposed along three sections or reaches[1] of the river. The Federal action involves Federal authorization through Section 404 of the Clean Water Act and cost-sharing with the SCVWD, the Corp's partner sponsor for the flood control project. The SCVWD would use the cost-sharing funds to modify a segment of the Guadalupe River between Grant Street and I-880 within San Jose for increasing the capacity of the Guadalupe River to contain the 100-year flood event, and for reimbursement of costs associated with project mitigation sites along Guadalupe Creek and Reach A of the river.

The project action occurs along a 2.6 mile section of the Guadalupe River between Grant Street, just upstream of I-280, and I-880 in downtown San Jose. The project area supports a narrow, discontinuous corridor of riparian forest habitat and shaded riverine aquatic (SRA) cover along the river bank. Moving from upstream to downstream, the project is divided into three reaches identified as Contracts 3C, 3B, 3A, 2 and 1 (Figure 2).

Contract 3C is located at the upstream end of the project between Woz Way and Grant Street and is separated from the downstream Contract 3A and 3B reaches by the Woz Way-Park Avenue Bypass Reach that was completed by the SCVWD in 1988 and has not been operational as neither an inlet nor outlet were constructed. Contract 3C is further subdivided into three subreaches: Phases 1, 2 and 3. However, only Phases 2 and 3 are part of the proposed action. The Corps and SCVWD previously consulted with NMFS on the construction of 3C Phase 1 in 1999.

Contract 3C-Phase 2 subreach includes 1,250 feet (ft) of proposed bank armoring from downstream of Woz Way to Grant Street on the west bank. The armoring includes gabions at the toe of the slope and stone terraces on the bank. On this bank, the inlet section to the existing 2,500 ft Woz Way-Park Avenue bypass will be constructed. (A concrete weir will be constructed at the inlet to control flows entering the bypass and a bulkhead retaining wall will be constructed at the entrance to the bypass to divert water from the bypass until the Project is operational). On the east bank, 1,085 linear feet (lf) of the reach will be armored with gabions at the toe of the slope and stone terraces on the river bank. The river bottom will be armored

[1] Reaches are convenient subdivisions of the river corresponding to major bridge crossings.

with concrete cellular mattresses (CCM) and concrete for 1,045 lf. Within the armored river bottom, a low-flow channel will be constructed to provide for fish passage at low flows. The constructed low-flow channel in 3C phase 2 will have a trapezoid/boulder design. Construction of the 3C phase 2 subreach is scheduled to begin in summer 2001 and end in early 2002.

The Contract 3C Phase 3 subreach includes construction of flood training walls in the uplands adjacent to the reach. These training walls would direct overbank flood flows into the river channel. These walls will be located on both the east and west sides of the river. On the east bank of the river, 860 lf of wall will be constructed and the west bank will have 1,593 lf of floodwalls. Construction of this subreach is scheduled for 2002.

For phases 2 and 3 of the Contract 3C reach, all 1.9 acres of the existing riparian vegetation will be lost, 773 lf of the existing 919 lf of SRA cover will be lost and all 200 ft^2 of the existing spawning gravel habitat will be lost.

Contract 3B reach is the center reach of the project and is located between New Julian Street and Park Avenue. Contract 3B reach construction includes approximately 1,861 lf of west river bank armoring, 2,231 lf of east bank armoring, and 1,940 lf of river bottom armoring. Bank armoring will include gabions at the toe of the slope and stone terraces on the slope and a vertical concrete retaining wall. The river bottom will be armored with CCM and include a low-flow channel to provide fish passage. The low-flow channel will include approximately 5-7 concrete check structures to pool water, as well as logs, boulders, and gravel placed on top of the CCM to concentrate flows in the low-flow channel. An existing gaging weir currently blocking fish passage will be removed and replaced with an invert stabilization structure. The St. John Street bridge may be demolished to maintain the necessary hydraulic capacity but would be replaced with a pedestrian/maintenance bridge. Contract 3B will include the construction of the outlet section of the Woz Way - Park Ave. bypass at the upstream portion of this reach. Inlets to the proposed bypass system (Santa Clara Street-Coleman Avenue bypass) will be constructed in the downstream portion of this reach.

Construction of Contract 3B will result in the loss of 3.4 acres of the existing 6 acres of riparian vegetation, the loss of 2,430 lf of the existing 3,838 lf of SRA cover and all 9,700 ft^2 of spawning gravel habitat. Construction of Contract 3B is scheduled for 2001 - 2002, concurrent with the construction of Contract 3A.

Contract 3A, the furthest downstream reach, is located between Coleman Avenue and New Julian Street. Approximately 695 lf of the west river bank will be armored, 745 lf of the east river bank will be armored, and 695 lf of river bottom armoring will be installed at the downstream end of the reach. Gabions will armor the toe of the slope, stone terrace will armor the river bank and CCM will armor the river bottom. A low-flow channel will be created in the CCM using approximately 5-7 concrete sills, logs, boulders and gravel placed at grade and on top of the CCM-armored river bottom to concentrate flows in the low-flow channel. The Old Julian Street bridge will be removed and two railroad bridges will be replaced by a single railroad bridge. An exposed gas and sewer line that may act as a barrier to fish at low flows will be relocated under the river. Outlets for the Santa Clara Street-Coleman Avenue bypass system will be constructed in the downstream section of this reach near Coleman Avenue.

Construction of Contract 3A will result in the loss of 2.3 acres of the existing 4.5 acres of riparian vegetation, the loss of 1,430 lf of the existing 3,062 lf of SRA cover and all 10,600 ft^2 of

spawning gravel habitat in Contract 3A. Construction of this reach is scheduled at the same time as Contract 3B in 2001 - 2002 concurrent with the construction of 3B.

To fully compensate for all habitat impacts resulting from project construction, a Mitigation and Monitoring Plan or MMP (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000) has been prepared by the project sponsors to address these impacts. The components of the plan have been endorsed and ratified by all members of the Guadalupe River Flood Control Project Collaborative, including the U. S. Fish and Wildlife Service, NMFS and California Department of Fish and Game (Guadalupe Collaborative 1999). The Collaborative members have committed to implementation of the MMP to restore and compensate for adverse environmental effect of the project (Guadalupe Collaborative 1999). The MMP provides a framework to verify that mitigation will be adequate and successful for ensuring that the project causes no harm to environmental resources, that mitigation fulfills requirements spelled out in project permits and authorizing documents, that mitigation complies with governing laws and that adaptive management methods (based on measures that track key ecological functions and habitat values) are supervised by an Adaptive Management Team (comprised of Collaborative members) and implemented as needed to ensure that established ecological functions and habitat values are met. The MMP identifies and describes project actions that will ensure the protection or restoration of existing habitat structure and function present in the project area. Five key habitat structure and function elements have been identified: riparian vegetation, shaded riverine aquatic cover vegetation (SRA cover) and their effect on water temperatures, steelhead spawning habitat, steelhead fish passage, and steelhead rearing habitat.

To address projected impacts to 7.6 acres of riparian vegetation and 4,634 lf of SRA cover, the MMP describes the completion of 21 acres of riparian vegetation plantings native to the Guadalupe River in Contracts 1 and 2 (just downstream of the Contract 3 reach) between 1994 and 1999. These plantings were undertaken to compensate for 6.4 acres of riparian habitat impacted in other segments of the river between 1992 and1994 and in anticipation of the projected impacts for this project. To compensate for SRA cover impacts, SRA cover mitigation plantings will occur both onsite and offsite. Onsite SRA cover mitigation includes the planting of 3,000 lf both within the project area (1,344 lf in the Contract 3C and 3A reaches and the remaining amount in Contract 1 and 2 reaches immediately downstream of the Contract 3A reach). Plant material will be placed in areas disturbed during construction as well as in areas currently void of SRA cover vegetation to fill the existing gaps in the riparian canopy.

Offsite SRA cover mitigation includes planting 7,848 lf of SRA cover vegetation in Reach A (Figure 1) and 12,044 lf in lower Guadalupe Creek (Figure 1), a tributary to the Guadalupe River located approximately 6 miles upstream of the project area. Onsite SRA cover mitigation plantings in Contracts 1, 2, and the Woz Way Park reach as well as offsite SRA mitigation plantings are expected to be completed by 2001. Onsite SRA plantings in Contracts 3A and 3B are expected to be completed by 2002. SRA plantings will start providing shade before year 5 of planting and reach maturity and maximum shade density after year 40. Shade provided by the SRA cover plantings is anticipated to cool Guadalupe River water temperatures. Should water temperature measurements indicate harmful temperatures to steelhead onsite, the adaptive management strategy of the MMP allows for implementing pro-active procedures including the placement of boxed trees along the constructed low-flow channel in Contracts 2, 3A, and 3B from approximately June through October until mitigation plantings begin providing enough shade to lower water temperatures below harmful levels to steelhead. Shade cloth may

be used in place of boxed trees if it is found that the use of boxed trees is not feasible. Planting faster growing trees in SRA mitigation sites and removing these once mitigation planted trees begin providing shade may also be performed (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000).

The project may affect up to an estimated existing 20,500 ft^2 of potential spawning gravels, (i.e., 200 ft^2, 9,700 ft^2 and 10,600 ft^2 in reaches Contract 3C Phase 2, 3B and 3A, respectively). If project activities do result in the loss of spawning gravels, river-run gravels will be placed in both the natural and armored channel invert sections of Contract 3A and 3B reaches after construction as well as in the Contract 1 and 2 reaches. Sufficient gravel deposits will be made to insure a minimum 1 foot thickness at appropriate spawning habitat locations whenever gravel coverage drops below 80 percent of the pre-project levels based on preconstruction surveys. Restocking will take place between June 15 and August 31. Gradient-control structures (or invert stabilization structures) will also be placed in the natural bottom sections of the river in Contracts 3A and 3B to promote gravel deposition.

A low-flow channel will be included in the armored sections of the river bottom to provide fish passage through the project area. In each of the armored river-bottom sections of Contract 3A and 3B reaches, a low-flow channel will be created using approximately 5-7 concrete sills (or check structures) as well as logs, boulders, and gravel placed at grade on top of the CCM-armored bottom to concentrate flows in the low-flow channel. The design will maintain minimum average low-flow water depth required for migrating adult steelhead. The low-flow channel check structures will also provide pools of water 1.2 feet deep at extremely low flows (1 cfs) and thereby maintain cooler downstream water temperatures.

In the Contract 3C reach, a trapezoid/boulder low-flow channel will be constructed into the armoring that protects approximately 1,045 lf of river bottom. The design includes the placement of clusters of boulders in the trapezoidal shaped, low-flow channel to increase waters depth, provide low-flow passage for steelhead and provide fish habitat.

Invert stabilization structures proposed for the natural river bottom sections of the Contract 3A and 3B reaches are expected to promote the development of plunge pools and gravel bar sequences in these reaches of the river. Geomorphic instream features installed as part of the SRA mitigation plantings will improve bank stability, increase instream cover and improve the suitability of spawning and rearing habitat for steelhead. Geomorphic features may include rock weirs and vanes, boulders, root wads, and deflector logs.

The Corps will implement preventative measures to avoid and minimize potential adverse effects on riparian vegetation (including SRA cover) and other fish resources that could occur during project construction. These preventative measures include: 1) implementing a Vegetation Protection Plan using best management practices for protecting and replacing vegetation damaged during construction; 2) implementing a Storm Water Pollution Prevention Plan (SWPP) that complies with the statewide General Permit administered by the California State Water Resources Control Board for the National Pollutant Discharge Elimination System; 3) implementing an Erosion and Sediment Control Plan for minimizing the potential for sediment input into the stream; 4) implementing a Toxic Material Control and Spill Response Plan for preventing toxic material spills; 5) implementing a Soil Management Plan that provides criteria for classifying wastes in soil and managing soils possibly contaminated with mercury and methyl mercury concentrations; 6) implementing a Hazardous and Toxic Materials Contingency

Plan that outlines a course of action in the event that unlisted hazardous and toxic sites are uncovered during construction; and, 7) implementing construction area-fish management constraints pertaining to diversion of flows and the removal of fish from impacted areas; and 6) limiting in-river construction to the May 1 - October 15 timeframe assuming that stream-monitoring criteria have been met for water temperatures and absence of out-migrating steelhead. In the event that stranded juvenile steelhead are found in pools remaining in the affected river segment after the flow is diverted, fish will be captured by a qualified fisheries biologist using a backpack electroshocker and relocated.

III. LISTED SPECIES AND ENVIRONMENTAL BASELINE

Central California Coast steelhead are likely to be adversely affected by the project action due to riparian and instream habitat impacts, including temporary loss of spawning and rearing habitat, potential changes in water temperature, sedimentation and turbidity effects, bypass channel entrapment and migration diversion, and interruptions to functioning instream habitat. These impacts would occur along a 2.6 mile section of the Guadalupe River between Grant Street (just upstream of I-280) and I-880 in downtown San Jose, California. Sedimentation and turbidity effects mays also occur immediately downstream of the project construction area. On August 18, 1997, NMFS published a final rule listing the Central California Coast Steelhead ESU as threatened under the ESA (62 FR 43937). Consequently, the status of the species, its life history and habitat requirements, and recent factors affecting its population (i.e., environmental baseline) are described below. Critical habitat for this ESU was designated on February 16, 2000 (65 FR 7764).

STATUS

The abundance of steelhead in the Central California Coast ESU was summarized by Busby et al. (1996). The authors commented that steelhead populations within the major streams occupied by this ESU appear to be greatly reduced from historical levels. Steelhead in most tributaries to San Francisco and San Pablo Bays have been virtually extirpated (McEwan and Jackson 1996). In a 1994 to 1997 survey of 30 San Francisco Bay watersheds, steelhead occurred in small numbers at 41 percent of the sites, including the Guadalupe River, San Lorenzo Creek, Corte Madera Creek, and Walnut Creek (Leidy 1997).

Little information is available regarding the contribution of hatchery fish to natural spawning, and little information on present run sizes or trends for this ESU exists. However, given the substantial rates of declines for stocks where data do exist, the majority of natural production in this ESU is likely not self-sustaining.

Critical Habitat: Central California Coast steelhead critical habitat is designated to include all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California (inclusive), and the drainages of San Francisco and San Pablo Bays. Excluded is the Sacramento-San Joaquin River Basin of the California Central Valley as well as areas above specific dams including Almaden Reservoir, Calero Reservoir, Guadalupe Reservoir and Vasona Reservoir.

LIFE HISTORY AND HABITAT REQUIREMENTS

The timing of upstream migration is correlated with higher flow events, such as freshets or sand bar breaches, and associated lower water temperatures. Unusual stream temperatures during spawning migration periods can alter or delay migration timing, and increase fish susceptibility to diseases. The minimum stream depth necessary for successful upstream migration is 7.2 inches (Thompson 1972). Reiser and Bjornn (1979) indicated that steelhead preferred a depth of 9.5 inches or more.

Steelhead spawn in cool, clear streams featuring suitable gravel size, depth, and current velocity. Intermittent streams may be used for spawning (Barnhart 1986; Everest 1973). Fry typically emerge from the gravel two to three weeks after hatching (Barnhart 1986). After emergence, steelhead fry usually inhabit shallow water along perennial stream banks. Older fry establish territories which they defend. Streamside vegetation and cover are essential for their survival and removal of this vegetation and cover can be considered an adverse impact.

Steelhead juveniles are usually associated with the bottom of the stream. In smaller California streams, the water levels may drop so low during the summer that pools are the only viable rearing habitat. No passage between pools can occur until river levels rise with the onset of the rainy season. Therefore, juvenile steelhead rearing in isolated summer pools are extremely vulnerable to disturbance or water quality impacts. Daytime temperatures in summer rearing pools may also be near lethal levels; riparian shading and the presence of sub-surface, cold water seeps are often essential to maintain pool temperatures at tolerable levels. In winter, steelhead juveniles become inactive and hide in any available cover, including gravel or submerged woody debris.

The majority of steelhead in their first year of life occupy riffles when there is adequate water, although some larger fish inhabit pools or deeper runs. Juvenile steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Water temperatures influence the growth rate, population density, swimming ability, ability to capture and metabolize food, and ability to withstand disease of these rearing juveniles. Rearing steelhead juveniles prefer water temperatures of 45° to 58° F and have an upper lethal limit of 77° F (Raleigh et al. 1984).

Suspended and deposited fine sediments can directly affect rearing salmonids by abrading and clogging gills, and indirectly cause reduced feeding, avoidance reactions, destruction of food supplies, reduced egg and larval survival, and changed rearing habitat (Reiser and Bjornn 1979).

Juvenile steelhead live in freshwater between one and four years (usually one to two years in the Pacific Southwest) and then become smolts and migrate to the sea from November through May with peaks in March, April, and May. Fish size appears to be positively correlated with water velocity and depth with larger fish occurring in faster and deeper areas of the channel (Chapman and Bjornn 1969, Everest and Chapman 1972).

Further information is available in the NMFS Status Review of west coast steelhead from Washington, Idaho Oregon, and California (Busby et al. 1996), the NMFS Status Review for Klamath Mountains Province Steelhead (Busby et al. 1994), and the NMFS final rule listing the

Southern California Coast steelhead ESU, South Central California Coast steelhead ESU, and the Central California Coast steelhead ESU (NMFS 1997).

ENVIRONMENTAL BASELINE

The action area for this project will occur along a 2.6 mile section of the Guadalupe River between Grant Street (just upstream of I-280) and I-880 in downtown San Jose, California. Sedimentation and turbidity effects may also occur immediately downstream of the action area.

Documentation of steelhead in the Guadalupe River is limited although steelhead abundance is believed to be substantially less than that of historical conditions primarily because of the construction of barriers to fish passage (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000). From a historical perspective, Skinner (1962) noted that the Guadalupe River system probably supported small runs of steelhead and accounts of their occurrence in the river have been documented (Leidy 1984). Adults would have entered the river from south San Francisco Bay in early winter and migrated upstream into cooler tributaries (e.g., Guadalupe Creek) to spawn. After the completion of upstream reservoirs in the 1930s and 1950s, steelhead migration was restricted to tributary streams downstream of the reservoir dams (Montgomery Watson et al. 2000). Prior to the construction of a fish ladder in fall,1999, at the Alamitos drop structure[2], located at the confluence of Guadalupe and Alamitos Creeks (the downstream end of Almaden Lake), steelhead entering the Guadalupe River system had been prevented from migrating to historic upstream spawning and rearing areas (U. S. Army Corps of Engineers 2000). Despite these threats and impacts in this urban setting, steelhead have been able to persist in low numbers and have been recorded in the Guadalupe River at least since 1986 (Ulmer 1988 as reported in U.S. Fish and Wildlife Service 1998).

Observations of adult steelhead in the Guadalupe River suggests that they enter the river to spawn. Whether the adults actually use the river for spawning purposes cannot be confirmed because water clarity is poor during the steelhead spawning season in Santa Clara Valley watersheds and sightings of actual steelhead redds have not been made (pers. comm., T. Neudorf, SCVWD, 25 May 2000). However, steelhead smolts have been captured in outmigrant trapping operations conducted between 1997 and 1999 (pers. comm., T. Neudorf, SCVWD, 25 May 2000). The presence of juvenile steelhead (or rainbow trout) indicates the project area is used for rearing purposes.

Adverse impacts to steelhead in the Guadalupe River system are consistent with the primary reasons for the decline in steelhead abundance throughout California. These declines have resulted from the destruction and modification of habitat, overfishing, and natural and human-made factors (National Marine Fisheries Service 1996, 1997). Specifically for the Guadalupe River, logging, followed by the construction of numerous barriers, impoundments, diversions, pollution from the fruit canning industry and other urban runoff, gravel mining, and the introduction of non-native fish species (e.g., largemouth bass, sunfishes, carp) have greatly reduced the habitat quality of the Guadalupe River (U.S. Fish and Wildlife Service 1998). Based on NMFS' observations, factors adversely affecting steelhead occurring in the project

[2]This structure was an impassable barrier to steelhead migration until October 1999 when construction of a fish ladder was completed. The operation of this ladder at the downstream end of Almaden Lake now provides fish access to another 2.9 miles of upstream habitat along Guadalupe Creek (J. Ferguson, SCVWD, pers. comm.).

area of the Guadalupe River appear to be consistently related to the alteration or modification of instream habitat, barriers to fish passage, urbanization, and questionable water quality. Modification of instream habitat can reduce the availability of spawning and rearing habitat and also increase water temperatures when SRA cover habitat is reduced. Fish passage barriers reduce available habitat for spawning and rearing purposes in upper reaches of the Guadalupe River and its tributaries. Poor water quality (e.g., water temperature) can affect steelhead survival and that of their prey.

Immediately upstream and downstream of the project area are 6.4 miles of channel proposed to be modified in another flood control project (Upper Guadalupe Flood Control Project) previously reviewed by NMFS under Section 7 of the ESA. Modifications include main channel excavation including the creation of wider channels and bench cuts, bank stabilization, bridge construction, floodwall and levee construction, and revegetation. These modifications are proposed to take place over a 25 year time frame and may affect steelhead downstream by sedimentation and turbidity release although these releases are expected to be minimal due to the summertime, low-flow condition, construction window.

Concerns regarding mercury contamination in Guadalupe Creek, a tributary to the Guadalupe River, have recently surfaced. A "preassessment screen determination" prepared by the U. S. Fish and Wildlife Services pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and issued on February 17, 2000, suggests that mercury from defunct mercury mining operations in the Guadalupe Creek and Alamitos Creek watersheds may be capable of causing injuries to sediments, fish and wildlife resources. While a final decision on whether to proceed with a comprehensive natural resource damage assessment has yet to be made, the Corps and SCVWD staff involved in the flood control project have developed an amiable dialogue with state and Federal agency representatives involved in the mercury issue and have expressed their intent to fully cooperate with these agencies in addressing the contamination issue.

IV. EFFECTS OF THE PROJECT ACTION

General: Effects of the proposed project on steelhead are those associated with site preparation, excavation of the channel bed and bank, streamflow diversion, workspace dewatering and installation of bed and bank armoring. Effects will involve some temporary loss of riparian and instream habitat. Take is possible in the form of capture, trap, harm, harassment, injury, and mortality of adult and juvenile steelhead during and as a result of construction activities.

The following is a discussion of specific effects of the proposed project on steelhead. These effects are categorized into seven categories: alteration of riparian habitat, alteration of instream habitat structure, interruption of functioning instream habitat, sedimentation, turbidity, by-pass channel entrapment and fish passage improvements:

ALTERATION OF RIPARIAN HABITAT

The riparian zone acts as the interface between terrestrial and aquatic ecosystems by moderating the effects of upslope processes and provides important ecological functions (Spence et al. 1996, Flosi et al. 1998). Riparian vegetation, including shaded riverine aquatic (SRA) cover, provides juvenile steelhead cover from predators, increases habitat complexity,

provides a source of insect prey for juvenile salmonids and provides shade for maintaining water temperatures within suitable ranges for all life stages. The functional values of riparian corridors and the benefits they provide to stream fish populations are well documented (Karr and Schlosser 1978, Wesche et al. 1987, Gregory et al. 1991, Caselle et al. 1994, Wang et al. 1997). For this project, construction activities associated with grading and excavation of the riverbank and bank protection activities would affect 7.6 acres of the existing 12.4 acres of riparian vegetation (61 percent of the total in Contract 3A, 3B and 3C reaches) and 4,634 lf of the existing 7,820 lf of SRA cover (58 percent of the total in Contract 3A, 3B and 3C reaches). NMFS considers this impact significant because the existing amount of stream shading for the three reaches occurs in a highly urbanized area of downtown San Jose where the swath of the riparian vegetation corridor and SRA cover is sporadic and sparse with some areas supporting little if any riparian vegetation. Any removal of existing riparian vegetation can only exacerbate the existing marginal habitat condition of the downtown Guadalupe River for steelhead.

Water temperatures will be affected in the short-term by the removal of riparian vegetation and SRA cover. This impact will persist until intended mitigation activities associated with plantings of riparian vegetation and SRA cover begin to provide functional habitat (e.g., canopy cover). The Corps and SCVWD would prepare and implement a compensatory Monitoring and Mitigation Plan (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000) to replace and reestablish riparian vegetation and SRA cover removed during construction, and would replace as much of the affected SRA cover as possible onsite with the remainder of the affected SRA cover replaced offsite in Reach A and lower Guadalupe Creek.

Reach A was selected as an offsite mitigation area because of its close proximity to the project construction area. Guadalupe Creek was selected because it provides the opportunity to expand the range for steelhead rearing and spawning habitat in the upper tributaries of the Guadalupe River watershed. Both offsite mitigation sites currently provide very limited SRA cover and these additions would provide an improvement to aquatic habitat quality on these reaches.

Once mitigation plantings begin providing shade, increases in average maximum water temperatures associated with the project are expected to be not more than 3.5^0 F for the Contract 3 reach and 2.5^0 F for the downstream Contract 1 and 2 reaches (U.S. Army Corps of Engineers 2000). Simulated post-mitigation temperatures in the offsite mitigation Reach A and lower Guadalupe Creek areas are projected to be as much as 2.2^0 F ^{0} and 7.6 F lower, respectively, than pre-project temperatures. NMFS believes the short-term temperature increases in Contracts 1,2, and 3 may preclude steelhead from fully utilizing cover and rearing opportunities within the project areas. The applicant propose to take remedial actions as proposed in its MMP for short-term thermal impacts by including an adaptive management strategy that would consider placing large boxed trees along the low-flow channel in Contracts 2, 3A, and 3B from June through October until mitigation plantings have matured. The applicant will also consider planting faster growing tees in SRA mitigation sites and possibly installing shade cloth over the constructed low-flow channel in Contract 3A and 3B reaches (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000). However, NMFS believes the temporary loss of riparian habitat and the uncertainty of mitigation planting success could result in harm or mortality to rearing juvenile steelhead by removing cover from predators, reducing nutrient sources and increasing water temperatures. In the absence of the applicant taking any remedial actions, steelhead may be precluded from use of the project area and possibly prevent or delay their access to spawning reaches.

ALTERATION OF INSTREAM HABITAT STRUCTURE

Instream habitat structure includes channel substrate and channel form. Substrate, the composition of channel bottom, is an important component of steelhead spawning and rearing habitat requirements. In general, adult steelhead require relatively clean gravels in which to lay their eggs. Steelhead prefer gravel sizes in the 0.5 to 6 inch range dominated by 2 to 3-inch gravel (Flosi et al. 1998). Gravels are also important for maintenance of healthy invertebrate prey populations. Low gravel abundance and/or quality can limit productivity and abundance of steelhead in the project area. Channel form includes riffles, runs and pools and these habitat types are preferred by young-of-year juveniles (Flosi et al. 1998). Riffles provide important fish spawning habitat and food-producing areas and pools, because of their depth, provide cover and sources of cooler water temperatures during the warm months. Water depths are also important for fish passage. The minimum stream depth necessary for successful upstream migration is 7.2 inches (Thompson 1972). Reiser and Bjornn (1979) indicated that steelhead preferred a depth of 9 inches or more.

The project action relative to channel widening and armoring of the channel invert (bottom) will result in the direct and permanent loss of channel gravels by either direct removal or overlaying with concrete or concrete cellular mattresses (CCM). Other existing habitat features including pools, riffles and runs will be lost to construction activities. The loss of spawning gravels will be mitigated by the continual placement of river-run gravels by the Corps and SCVWD at appropriate spawning habitat locations in both the natural and armored channel invert (bottom) sections after construction (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000). In addition, the placement of invert stabilization structures (grade control structures) in sections of the unarmored, natural river channel of Contracts 3A and 3B are intended to reduce erosion of the river bottom, increase instream cover, provide improved spawning and rearing habitat by the creation of pools and riffles, and facilitate gravel deposition. In the armored river-bottom sections of Contract 3A and 3B, the construction of a low-flow channel using concrete sills, with logs, boulders and gravel placed at grade on top of the CCM-armored river bottom will concentrate flows in a low-flow channel. The low-flow channel is intended to allow fish passage through the reach by increasing water depth and maintaining a minimum depth of 7.2 inches at flows as low as 4 cfs. The low-flow channel check structures are also intended to maintain a minimum average water depth of 1.2 ft when the flow is zero to 1 cfs. The low-flow channel in the armored bottom of Contract 3C will have a trapezoid/boulder design. This design will also increase water depth during low-flows to provide fish passage. The range of depth for the trapezoid/boulder low-flow channel is 0.8 to 1.1 ft during flows as low as 4 cfs. These low-flow channels are expected to maintain cooler water temperatures than would occur if the flows were diffused over the river bottom. Fish passage is assured through implementation of a mitigation and monitoring plan that utilizes an adaptive management strategy (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000). The adaptive management process provides a mechanism by which remedial actions can be implemented if measurable objectives of ecological functions and habitat values affected by the project are not achieved.

Although proposed mitigation and monitoring actions (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000) for evaluating and restocking gravel levels as needed and the installation of a constructed low-flow channel would mitigate for changes in channel form (e.g., loss of pools), NMFS believes that the outcome of these methods cannot be accurately predicted. Further, even if mitigation actions are adaptively managed for, steelhead

may still incur short-term impacts until remedial actions take effect. Consequently, NMFS expects this project to harm steelhead due to habitat modification or degradation to spawning and feeding areas that would preclude, interrupt or delay spawning; reduce spawning success, reduce prey availability, preclude or reduce migratory passage, and, degrade or reduce available rearing areas during and immediately after the construction period.

INTERRUPTION OF FUNCTIONING INSTREAM HABITAT

Instream habitat will be temporarily lost when the streamflow is diverted (e.g., coffer dams or culverts) and the workspace is dewatered as a result of project construction. In channel construction such as channel widening, construction of reinforced banks, bridge replacement, and other activities requiring stream dewatering, heavy equipment operation in the channel or stream crossing could harm or kill rearing steelhead because riffle, run, and pool habitats used by these early life history phases could be impacted. Diverting streamflow could harm individual anadromous fish by concentrating or stranding them in residual wetted areas (Cushman 1985) or by causing them to migrate to adjacent habitats that do not meet their needs for survival (Clothier 1953, Clothier 1954, Kraft 1972, Campbell and Scott 1984). Dewatering the workspace may cause harm, injury, or death to steelhead by confining them to areas that are predisposed to dewatering (or may be intentionally dewatered), increased water temperature, decreased dissolved oxygen concentration, and predation (Cushman 1985). Impacts associated with channel construction activities will be confined to the April 15 to October 15 timeframe each year. Construction requiring streamflow diversion and dewatering, stream crossings, or work in the channel invert will not commence until May 1 provided that average daily water temperatures exceed 68^{0} F for a minimum of 5 consecutive days. Should the stream-monitoring criteria not be met, river bottom work and stream dewatering would not be allowed to commence until June 1. Because NMFS believes that adult steelhead will have migrated from the area due to natural increases in water temperature, only juvenile steelhead rearing in the project areas may be harmed, injured or killed as a result of instream construction activities.

The applicant has proposed to remove any remaining steelhead by means of backpack electroshockers used by qualified fisheries biologist (in coordination with NMFS) and relocated to suitable areas immediately upstream or downstream of the work space . The number of steelhead that may become stranded is difficult to estimate because of the uncertainty of steelhead abundance in this river and the project area. If strandings do occur, relocation is expected to benefit these fish by relocating them from areas where they would be extremely susceptible to death or serious injury. However, some minimal mortality associated with capture and relocation may occur.

BYPASS CHANNEL ENTRAPMENT AND MIGRATION DIVERSION

The proposed project includes the construction of a underground bypass system and the completion of the Woz Way-Park Avenue bypass. The underground bypass system would consist of three box culverts located on the eastern bank of the Guadalupe River. The three box culverts would be 5,000 ft, 4, 000 ft, and 2,500 ft long. Both the Woz-Park bypass and the proposed bypass system will become operational at the completion of the project. The flow thresholds for both bypasses is 1,500 cubic feet per second (cfs). Use of the bypass channels avoids and minimizes adverse effects on riparian vegetation, including SRA cover that would have been removed if the natural river channel had been widened in order to accommodate

flood flows in these portions of the river. The potential exists for adult and juvenile steelhead to be swept downstream into either bypass channels during flood events and possibly become stranded during receding flows. The likelihood of fish entrapment during receding flows increases should pool habitats form within the channel bottoms of the respective bypass channels. The design of both bypass channels will exclude features (e.g., gradient control structures) that could result in the formation of ponded-water habitats with the potential to entrap fish during receding flows. It is also believed that the bypass channels would operate infrequently and for short durations. An analysis of daily peak flow determined that during the 6-month rainy season from 1972 through 1991, Guadalupe River flows equaled or exceeded 1,500 cfs on 42 days or approximately 1.5 percent of the total days during the rainy season (U. S. Army Corps of Engineers 2000). Based on a proposed design that avoids features (e.g., gradient-control structures) for trapping steelhead in the bypass culvert, the rarity of 1500 cfs flows, and because the downstream end of the bypass culverts would reconnect with the Guadalupe River, NMFS believes that juvenile and adult steelhead entering the bypass culverts on downstream flows would be carried unimpeded through the bypass channels and immediately reenter the river.

The potential also exists for upstream migrating adults to stray from the river and enter the bypass channels during flood events when the bypass systems are operating. A central issue is whether migrating adults will be attracted to bypass flows and veer from the natural channel during flood events as it has been long assumed that fish are attracted to areas of highest momentum, that is, highest flow and highest velocity, when migrating upstream (Powers and Orsborn 1985, Bell 1991). Based on estimates of velocities at both bypass outlets and the natural channel of the Guadalupe River, flow velocities in both bypass channels would exceed natural channel velocities beginning with the 20 year flood event (Tables 1 and 2). At 20 year flood flows of 9300 cfs and 7590 cfs in the Santa Clara Street-Coleman Avenue bypass and the Woz Way-Park Avenue bypass, respectively, bypass water velocities of 8.3 feet per second (fps) and 7.4 fps, would exceed the adjacent natural channel velocities of 7.9 fps and 5.3 fps, respectively. Flows in both bypass channels are expected to be greater than flows in the natural channel approximately 50 to 55 percent of the time that flood water diverts to the bypasses (pers. comm., N. Bicknese, USACOE, Sacramento District). However, according to Thompson (1972), the maximum water velocity that enables upstream migration of adult steelhead is 8.0 fps. Consequently, once flows in the bypass become more attractive to upstream migrants in the sense that the flows are swifter in the bypass channel, these bypass flow velocities begin to exceed the maximum water velocity threshold calculated for steelhead. Another consideration is whether upstream migration would actually be occurring during these excessive flood events. Bates (1992) suggests that upstream migrants do not move during highest river flows and based on the criteria of Thompson (1972), these upstream migrations would probably cease at 20 year flood events or greater.

The presence of the darkened environment of the enclosed bypass channels may also create an obstacle to fish passage. Gauley (1967) found that steelhead selected lighted entrances over dark entrances when encountering fishway entrances. Whether adult steelhead would enter the bypass at night is unlikely as most adult steelhead appear to migrate during daylight hours (Bates 1992). Even though some upstream migrants may not be completely averted from entering the bypass and therefore become delayed in their migration, NMFS believes that the potential for this to occur will be low and should not result in the harm or harassment or stranding of adult steelhead as several natural factors regulating the migrating behavior of adult steelhead will be operating during flood events.

Table 1. Estimate of water velocities at the Santa Clara Street-Coleman Avenue box culvert outlets and the natural channel of the Guadalupe River (pers. comm. N. Bicknese, Corps, Sacramento, CA, April 20, 2000).

Flood Frequency	Total Flow	Natural Channel	Box Culvert
Years	cubic feet per sec. (cfs)	feet/sec. (fps)	feet/ sec. (fps)
2	2350	4.27	0.31
5	4500	5.64	3.37
10	6700	6.79	5.98
20	9300	7.92	8.30
50	13,500	9.32	11.30
100	17,000	10.36	13.51

Table 2. Estimate of water velocities at Woz Way-Park Avenue box culvert outlets and the natural channel of the Guadalupe River (pers. comm. N. Bicknese, Corps, Sacramento, CA, May 1, 2000).

Flood Frequency	Total Flow	Natural Channel	Box Culvert
Years	cubic feet per sec. (cfs)	feet/sec. (fps)	feet/ sec. (fps)
2	1752	4.80	0.80
5	3500	4.90	2.90
10	5370	5.10	5.10
20	7590	5.30	7.40
50	11,330	5.60	9.60
100	14,600	5.90	10.70

SEDIMENTATION

Increased sedimentation (rapid settling of suspended sediment) would result mostly from erosion contributed into the Guadalupe River resulting from or resuspended during construction activities including excavation and backfilling, bridge removal and replacement, construction of bypass culverts and floodwalls, installation of streamflow diversion devices, installation of cofferdams, installation of pipes, culverts and gabions, roadway removal and repaving and vegetation removal and replanting in the Guadalupe River and Guadalupe Creek. The specific sedimentation rate would depend on the duration, volume, and frequency that sediment is contributed to the river. Among other impacts, substantial sedimentation rates could bury less mobile organisms (Cordone and Kelley 1961) that serve as fish forage, and degrade instream habitat conditions (Cordone and Kelley 1961, Eaglin and Hubert 1993). Although specific sedimentation rates have not been estimated, they are expected to be low to moderate and temporarily occur during the summer construction window. These impacts will occur repeatedly during each construction season. Based on the implementation of proper control measures proposed by the applicant including a vegetation protection plan, stormwater pollution prevention plan, erosion and sediment control plan, and limiting in-channel construction to the summer, low-precipitation period, sedimentation in the project area will likely only be a temporary and minor impact on the steelhead that may be present.

TURBIDITY

Elevated levels of turbidity (suspended particulate matter) may result when fine sediment is resuspended in the river during excavation and backfilling, installation of streamflow diversion devices, bridge and ramp construction, installation of cofferdams, installation of pipes, culverts and gabions, roadway removal and repaving and vegetation removal and replanting. Turbidity may cause indirect harm, injury, or mortality to juvenile steelhead in the vicinity and downstream of the project area. High turbidity concentrations can cause fish mortality, reduce fish feeding efficiency and decrease food availability (Berg and Northcote 1985, McLeay et al. 1987, Gregory and Northcote 1993). The effect of any elevated turbidity level on juvenile anadromous fish is difficult to evaluate as the amount of sediment contributed and the resulting turbidity level is speculative. The duration and concentration of the turbidity would depend on the extent of the activities listed above and the efforts taken to eliminate and minimize activities within the streambed. NMFS believes turbidity levels could increase substantially over ambient levels during each construction period over the lifetime of project construction. However, based on the implementation of proper control measures proposed by the applicant including a vegetation protection plan, stormwater pollution prevention plan, erosion and sediment control plan, and limiting in-channel construction to the summer, low-precipitation period, turbidity in the project area will likely only be a temporary and minor impact on the steelhead that may be present.

FISH PASSAGE IMPROVEMENTS

Barriers to fish passage through the Guadalupe River project area and to the upstream mitigation site will be removed or modified to improve fish passage. Proposed channel modifications include the removal of the USGS gaging weir upstream of the St. John Street bridge and replacement with an invert stabilization structure designed to accommodate fish passage under low-flow conditions. An exposed gas and sewer line that crosses the river under the Old Julian Street bridge will be relocated. Removing barriers in the project area will improve access for fish migrating from San Francisco Bay upstream to the mitigation sites on

Guadalupe Creek. The project action will improve passage for steelhead on the Guadalupe River system because existing impediments during certain low flow regimes currently hamper steelhead passage.

V. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Activities that may occur in the action area include the Guadalupe River Park Project (master plan for the development of recreational facilities along the Guadalupe River), the San Jose International Airport Expansion Plan (street widening, bridge removal and replacement) and the Santa Clara Valley Water District Maintenance Program (streambed maintenance). Population growth in the area (e.g., net population change of 423,200 has occurred from 1990-1997 in the San Francisco-Oakland-San Jose metropolitan area (U. S. Census Bureau 1998)) could add additional sources of surface water runoff in the project area. The cumulative effects of the anticipated projects may exacerbate water quality conditions, primarily sedimentation and turbidity during river construction.

VI. INTEGRATION AND SYNTHESIS OF EFFECTS

Based on the effects analysis, the most serious impact to steelhead in the project area of the Guadalupe River appears to be the temporary and permanent alteration of riparian habitat, instream habitat structure and interruption of functioning instream habitat. All of these impacts are expected to result in harm or mortality to adult and juvenile steelhead. While the alteration and interruption of bank and instream habitat will be permanent in some areas, its removal does not impose an adverse threat to the survival and recovery of steelhead in the Guadalupe River system for four reasons. First, the project, which spans a 2.6 mile section of a highly urbanized section of the Guadalupe River, has been intentionally designed to avoid and minimize the loss of riparian habitat. Of this river stretch, 61 percent of the existing riparian vegetation and 59 percent of the existing SRA cover will be affected but fully mitigated in both the project area and at offsite mitigation areas with plantings of native vegetation. In addition, the use of two bypass channels substantially lessens the impacts to existing riparian and SRA cover habitat. Second, instream impacts will be mitigated by including an artificial low-flow channel in the design of the armored sections of the river bottom to provide fish passage throughout the project area. Invert stabilization structures placed in the natural river bottom will provide a natural low-flow channel and incorporate particular habitat features such as plunge pools and riffle habitat into the project design. Further, river-run gravels will be placed at appropriate spawning habitat locations whenever gravel coverage drops below established guidelines. Third, all alterations to instream habitat will be fully mitigated and an adaptive management strategy will be implemented to insure that measurable indicators of performance are met as part of an ongoing comprehensive mitigation and monitoring plan that will be supervised by an adaptive management team comprised of members of the Colloborative. NMFS has been an active participant with other state and federal natural resource agencies in the development of the plan as part of the Guadalupe River Flood Control Project Collaborative and undoubtedly will continue in a supervisory role with the other state and federal natural resource agencies. Lastly, because all habitat impacts not mitigated onsite will be compensated by offsite mitigation efforts at Reach A and Guadalupe Creek this will extend the available habitat to steelhead in

other reaches both upstream and downstream of the project area in the Guadalupe River watershed that currently do not exist. These net benefits to steelhead habitat should assist in the recovery of the population and improve the viability of steelhead in this particular system. The remaining project effects and cumulative effects are fairly minor in nature and do not impose serious threats to this steelhead population or to the larger ESU.

While some areas of the project area will modify habitat, the replacement of riparian and SRA cover habitat, spawning gravels, the creation of pool and riffle habitat and the removal of fish barriers will maintain and improve the character of habitat such that the project action will not diminish the value of critical habitat for both the survival and recovery of steelhead.

VII. CONCLUSION

After reviewing the best available scientific and commercial data, the current status of steelhead, the environmental baseline for the action area, the effects of the flood control project, and the cumulative effects, it is NMFS' biological opinion that the project action, as proposed, is not likely to jeopardize the continued existence of the federally threatened Central California Coast ESU of steelhead or result in the destruction or adverse modification of its critical habitat.

VIII. INCIDENTAL TAKE STATEMENT

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7 (b) (4) and 7 (o)(2), taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with this Incidental Take Statement.

Section 7 (b)(4) of the ESA provides for the issuance of an incidental take statement for the agency action if the biological opinion concludes that the proposed action is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. In such a situation, NMFS will issue an incidental take statement specifying the impact of any incidental taking of endangered or threatened species, providing Reasonable and Prudent Measures that are necessary to minimize impacts, and setting forth the Terms and Conditions with which the action agency must comply in order to implement the Reasonable and Prudent Measures.

The measures described below are non-discretionary and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to the SCVWD, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this Incidental Take Statement. If Corps (1) fails to assume and implement the Terms and Conditions or (2) fails to require the SCVWD to adhere to the Terms and Conditions of the Incidental Take Statement through enforceable terms that are added to

the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to NMFS as specified in the Incidental Take Statement (50 CFR §402.14(I)(3)).

Amount or extent of take anticipated

The NMFS anticipates incidental take of steelhead will be difficult to detect due to the dimensions and variability of the Guadalupe River system and the operational complexities of the phased flood control construction activities. However, the instream and riparian habitat of the steelhead will be both temporarily or permanently modified by the proposed action. This modification is expected to result in the harm, harassment, and mortality of juvenile and adult steelhead by changing water temperatures, prey availability and reducing available spawning habitat. Therefore, the level of take of this species is measured by the temporary loss of an estimated 7.6 acres of riparian vegetation, 4,634 linear feet of SRA cover habitat and 20,500 ft^2 of spawning gravel habitat. These losses adversely affect adult steelhead spawning and juvenile steelhead rearing and foraging opportunities and may result in reduced survival. In addition, some fish may be stranded during construction (and relocated). NMFS believes that stranding will be a rare event that will affect a few fish, probably less than ten fish per construction season. If stranded fish are relocated, it is likely that most will survive the relocation, thereby minimizing impacts to the population. NMFS anticipates that no more than 10 percent of the relocated fish may die as a result of capture and handling methods/effects. Take is not expected to occur from bypass channel operations.

Effect of the take

In the accompanying biological opinion/conference opinion, NMFS determined that this level of anticipated take is not likely to result in jeopardy to the Central California Coast Steelhead ESU.

Reasonable and Prudent Measures

The NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of threatened Central California Coast Steelhead caused by activities related to the Guadalupe River Flood Control Project:

1. Avoid and minimize bank and instream construction impacts to the Guadalupe River ecosystem.

2. Minimize the extent of temporary and permanent changes to instream and riparian habitat and ensure that proposed mitigation measures used to replace these losses meet identified measurable objectives (U. S. Army Corps of Engineers and Santa Clara Valley Water District 2000).

3. Use a fisheries biologist for the purposes of monitoring the affected area, and for removing and relocating steelhead from the affected area.

4. Implement adequate control measures to avoid or minimize sediment, turbidity and pollutant inputs to the Guadalupe River.

5. Prepare and submit monitoring reports annually to document status of construction as well as mitigation activities and performance.

Terms and Conditions

The Corps is responsible for the following Terms and Conditions that implement the reasonable and prudent measures described above. These Terms and Conditions are intended to minimize incidental take of steelhead associated with the Guadalupe River Flood Control Project.

1. The following Terms and Conditions implement Reasonable and Prudent Measure No. 1.

   A. The Corps and SCVWD shall isolate each workspace from flowing water for the purpose of avoiding heavy equipment in flowing water, sedimentation, turbidity, and direct effects to steelhead. Prior to construction activities, diversion materials shall be installed (e.g., sandbag cofferdams, straw bales to divert streamflow away or around each workspace. The diversion shall remain in place during the project construction, then removed immediately after work is completed.

   B. The Corps and SCVWD shall ensure and maintain a corridor for unimpeded passage of steelhead during construction of the project action.

   C. When practical, the Corps and SCVWD shall use existing points of ingress or egress, or perform work from the top of the river bank, for the purposes of avoiding work and heavy equipment in flowing water, and disturbing riverbank, vegetation, and instream habitat.

   D. The Corps and SCVWD shall confine in-channel construction activities to the summer low-precipitation period (April 15 - October 15), with the condition that construction requiring stream dewatering, stream crossing or work in the channel invert not commence until May 1 assuming that two stream-monitoring criteria are met. The first is that a qualified fisheries biologist (see Term and Condition No. 3A) survey the project area and verify the absence of juvenile steelhead for a minimum of three consecutive sampling days. The second is that average daily water temperatures exceed 68^0 F for a minimum of three consecutive days. Should stream-monitoring criteria not be met, channel invert work and stream dewatering will not be allowed until June 1.

   E. All aquatic macrofauna that may be affected by instream activities shall be removed from the work site by a qualified fishery biologist (see Term and Condition No. 3B) and placed downstream.

   F. The Corps and SCVWD shall examine all opportunities for reducing the amount of hardscape bank and river bottom armoring (e.g., New Julian Bridge, Coleman Avenue Bridge, bypass system inlet structures) whenever possible.

   G. The Corps and SCVWD shall design a low-flow channel and bypass channel outlets for both the Santa Clara Street-Coleman Avenue bypass and the Woz Way-Park Avenue bypass protective to steelhead and approved by NMFS.

H. A worker education program shall be conducted prior to construction activities on the importance of protecting steelhead and their critical habitat and the project measures to do so.

2. The following Terms and Conditions implement Reasonable and Prudent Measure No. 2.

A. The Corps or SCVWD shall photograph the project area prior to and after each construction season for the purpose of developing a reference library of instream and riparian habitat characteristics.

B. The Corps and SCVWD shall prepare and implement a Mitigation and Monitoring Plan to address the replacement and reestablishment of riparian vegetation (including SRA cover) and instream habitat functions. The pan will also describe maintenance procedures to protect and enhance the riparian system. The Mitigation and Monitoring Plan shall include offsite SRA mitigation that could expand the existing range of steelhead in the watershed. The plan shall be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to the Corps and SCVWD that plan modifications are necessary for acceptance.

C. The Corps and SCVWD shall incorporate an adaptive management process to insure that monitored indicators of measurable objectives are fully met and, if necessary, appropriate remedial actions are taken to ensure that agreed upon ecological functions and habitat values defined in the MMP and affected by the project are reestablished and maintained.

D. All mitigation areas that have been set aside as compensation for project impacts resulting from this project or any other project will not be disturbed or impacted during construction activities and will be preserved in perpetuity and not used as mitigation for other projects.

E. The Corps and SCVWD shall prepare and implement a Vegetation Protection Plan to prevent the inadvertent loss of riparian vegetation above and beyond that necessarily resulting from project construction activities. The plan will also describe remedial actions required if preserved trees are inadvertently impacted by construction activities. The plan shall be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to the Corps and SCVWD that plan modifications are necessary for acceptance.

3. The following Terms and Conditions implement Reasonable and Prudent Measure No. 3.

A. The Corps and SCVWD shall retain a fisheries biologist with expertise in the areas of resident or anadromous salmonid biology and ecology, fish/habitat relationships, and biological monitoring; and, handling, collecting, and relocating salmonid species. The biologist will monitor activities prior to and during

inchannel activities especially during temporary blockage or redirection of the flow of water through the use of coffer dams or culverts.

B. The biologist shall monitor placement and removal of channel diversions for the purpose of removing any steelhead that would be adversely affected. The biologist shall capture such steelhead and individuals stranded in residual wetted areas as a result of streamflow diversion and workspace dewatering, and relocate the individuals to a suitable instream location immediately upstream or downstream of the particular project area. One or more of the following NMFS approved methods shall be used to capture steelhead: dip net, seine, throw net, minnow trap, and, hand. Electrofishing may only be used if NMFS has reviewed the biologist's qualifications and given approval. The biologist shall note the number of individual steelhead observed in the affected area, the number of individuals relocated, and the date and time of the collection and relocation.

C. The biologist shall monitor inchannel activities, instream habitat, and performance of sediment control/detention devices (see Term and Condition No. 4) for the purpose of identifying and reconciling any condition that could adversely affect steelhead or their habitat. The Corps and SCVWD and their contractors, upon notification from the biologist, shall halt the work activity causing the condition affecting steelhead and recommend measures for avoiding the condition. Work can resume when NMFS agrees that the proposed measures are appropriate for avoiding the condition.

D. The biologist shall contact NMFS (707-575-6050) immediately if one or more steelhead are found dead or injured. The purpose of the contact shall be to review the activities resulting in take and to determine if additional protective measures are required.

4. The following Terms and Conditions implement Reasonable and Prudent Measure No. 4.

A. Erosion control and sediment detention devices shall be incorporated into the project and implemented at the time of the project action. These devices shall be in place during the project action, and after if necessary, for the purpose of minimizing fine sediment and sediment/water slurry input to flowing water. The devices shall be placed at all locations where the likelihood of sediment input exists.

B. At the time of the project action, the Corps and SCVWD shall prepare and implement a Storm Water Pollution Prevention Plan as part of the National Pollutant Discharge Elimination System (NPDES) to avoid or minimize increased sediment and turbidity impacts. This plan will be reviewed and approved by NMFS prior to construction.

C. The Corps and SCVWD shall prepare and implement an Erosion and Sediment Control Plan for minimizing the potential for sediment input into the stream, a Toxic Material Control and Spill Response Plan for preventing toxic material spills, a Soil Management Plan that provides criteria for classifying wastes in soil and managing soils possibly contaminated with mercury and methyl mercury

concentrations and a Hazardous and Toxic Materials Contingency Plan in the event that unlisted hazardous and toxic sites are uncovered during construction.

D. The Corps and SCVWD shall fully cooperate with state and federal agencies involved with mercury contamination issues to insure that actions involving the flood control project including mitigation issues are compatible and conducted in a cooperative manner with potential mercury contamination cleanup actions.

E. All water within the construction site shall be pumped off-site or into a settling basin or tank and not directly into the downstream channel.

F. All pilings, support piers, abutments and rock materials shall be non-toxic. Any combination of wood, plastic, concrete, or steel is acceptable, provided that there are no toxic coatings, chemical antifouling products, or other treatments that may leach into the surrounding environment.

5. The following Terms and Conditions implement Reasonable and Prudent Measure No. 5.

A. The Corps and SCVWD shall provide a written construction monitoring report to NMFS within 30 working days following completion of each construction season (no later than November 30). The report shall include the number of steelhead killed or injured during the project action and biological monitoring; the number and size of steelhead; any effect of the project action on steelhead that was not previously considered (reinitiation of consultation would be required, see section IX, item 2 of the Biological Opinion); photographs documenting compliance with Reasonable and Prudent Measures No. 1, 2 and 4; and, photographs taken before and after work activity.

B. The Corps and SCVWD shall provide a written report describing results of their mitigation activities to NMFS on a schedule that is developed in the Mitigation and Monitoring Plan. At the very minimum, the report shall include a description of the locations planted or seeded, the area (ft^2) revegetated, a plant palette, planting or seeding methods, performance or success criteria, and pre- and post-planting color photographs of the revegetated area.

C. The Corps and SCVWD shall provide a written report describing results of their Vegetation Protection Plan to NMFS on a schedule that is developed during the adoption of the plan.

D. All reports, proposed plans, and annual updates shall be submitted to: Protected Resources Division Supervisor, NMFS, 777 Sonoma Ave., Room 325, (707) 575-6050, Fax (707) 578-3435.

IX. REINITIATION OF CONSULTATION

Reinitiation of formal consultation is required if there is discretionary Federal involvement or control over the action and if (1) the amount or extent of taking specified in any incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed

species or critical habitat in a manner or to an extent not previously considered; (3) the action is subsequently modified in a manner that causes an effect to the listed species that was not considered in the biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. If the amount or extent of incidental take is exceeded, consultation shall be reinitiated immediately.

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Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS[3]

The Pacific Fisheries Management Council has recommended an EFH identification for the Pacific salmon fishery which has yet to be approved by the Secretary of Commerce. If approval occurs before the Corps has issued a permit, they will need to provide a detailed response in writing describing the measures proposed by the Corps for avoiding, mitigating, or offsetting the impacts of the project on EFH.

I. IDENTIFICATION OF ESSENTIAL FISH HABITAT

The geographic extent of freshwater essential fish habitat (EFH) for the Pacific salmon fishery is proposed as waters currently or historically accessible to salmon within specific U. S Geological Survey hydrologic units (Pacific Fisheries Management Council 1999). For San Francisco Bay, the aquatic areas that may be identified as EFH for salmon are within hydrologic unit maps numbered 1805003 and 1805004 (titled Coyote and San Francisco Bay, respectively) that includes Santa Clara County through which the Guadalupe River flows.

Chinook salmon (*Oncorhynchus tshawytscha*) occur in the Guadalupe River drainage and may be part of the California Central Valley fall/late-fall run ESU[4]. Adults have been documented on the Guadalupe River at least since 1986 (Ulmer 1988 as reported in USFWS 1998). Adults are known to migrate up the Guadalupe River and have been reported as far upstream at the Alamitos drop structure immediately upstream of Blossom Hill Road (Santa Clara Valley Water District and U. S. Army Corps of Engineers 1998). Within the project area, chinook were observed spawning in November of 1986 and 1987 in Reach 9 (Santa Clara Valley Water District and U. S. Army Corps of Engineers 1998). During stream surveys in 1987, 28-31 redds were found at 13 potential spawning sites from Canoas Creek to I-280 with the greatest concentration (12-13 each) observed in Reaches 7A and 9A. The number of redds appears to be increasing as 57 were counted in the river in the 1995-96 season (Santa Clara Valley Water District and U. S. Army Corps of Engineers 1998). Juvenile chinook have also been documented in Reach 11 (Santa Clara Valley Water District and U. S. Army Corps of Engineers 1998). Based on the observations of redds and juvenile chinook salmon in the project area,

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[3]The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) set forth new mandates for the National Marine Fisheries Service (NMFS) and federal action agencies to protect important marine and anadromous fish habitat. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to NMFS "EFH Conservation Recommendations."

[4]Recent changes to the listing of chinook salmon under the Endangered Species Act for the Guadalupe River are noted in the Federal Register (Vol. 64, No. 179, September 16, 1999). NMFS has found that the Central Valley fall and late-fall chinook evolutionarily significant unit does not warrant a threatened status as originally proposed. NMFS will protect and enhance the habitat of these chinook salmon through the "essential fish habitat" provisions of the Magnuson-Stevens Act.

NMFS also believes that the areas affected by the project action may provide essential fish habitat (EFH) for spawning and rearing chinook salmon.

LIFE HISTORY AND HABITAT REQUIREMENTS

General life history information for chinook salmon is summarized below. Further detailed information on chinook salmon ESUs are available in the NMFS status review of chinook salmon from Washington, Idaho, Oregon, and California (Myers et al. 1998), and the NMFS proposed rule for listing several ESUs of chinook salmon (NMFS 1998).

Chinook salmon spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs at depths greater than 6 inches, usually 1-3 feet to 10-15 feet. Preferred spawning substrate is clean loose gravel. Gravels are unsuitable when they have been cemented with clay or fines or when sediments settle out onto redds reducing intergravel percolation (NMFS 1997).

At the time of emergence from their gravel nests, most fry disperse downstream towards the estuary, hiding in the gravel or stationing in calm, shallow waters with fine sediments substrate and bank cover such as tree roots, logs, and submerged or overhead vegetation. As they grow, the juveniles associate with coarser substrates along the stream margin or farther from shore (Healey 1991). Along the emigration route, submerged and overhead cover in the form of rocks, submerged aquatic vegetation, logs, riparian vegetation, and undercut banks provide food, shade and protect juveniles from predation. Chinook salmon in the Southern Oregon and California Coastal ESU exhibit an ocean-type life history, that is, they typically migrate to seawater in their first year of life (NMFS 1998). However, when environmental conditions are not conducive to subyearling emigration, ocean-type chinook salmon may remain in freshwater for their entire first year (NMFS 1998).

Principal foods of chinook while rearing in freshwater and estuarine environments are larval and adult insects and zooplankton such as *Daphnia,* flys, gnats, mosquitoes or copepods (Kjelson et al. 1982), stonefly nymphs or beetle larvae (Chapman and Quistdorff 1938) as well as other estuarine and freshwater invertebrates.

II. PROPOSED ACTION

The proposed action is described in Part II of the preceding Biological Opinion for the threatened Central California Coast Steelhead ESU.

III. EFFECTS OF THE PROJECT ACTION

Due to the common habitat requirements shared by steelhead and chinook salmon including migration corridors, water quality conditions, thermal preferences, and rearing and spawning habitat requirements, the direct, indirect and cumulative adverse effects of the proposed project actions predicted for steelhead will also adversely effect the potential EFH for chinook salmon. Adverse effects to EFH will result from activities associated with site preparation, excavation of the channel bed and bank, streamflow diversion, workspace dewatering and installation of bank structures. These project activities will result in temporary and permanent losses of riparian

habitat, rearing and spawning habitat, temporary changes in water temperature, possible sedimentation and turbidity events, and interruptions in ecosystem functions in the instream habitat. These effects are discussed in greater detail in the preceding Biological Opinion.

IV. CONCLUSION

Upon review of the effects of the flood control project, NMFS believes that the project action, as proposed, will adversely affect the potential EFH of chinook salmon in the project area of the Guadalupe River.

V. EFH CONSERVATION RECOMMENDATIONS

NMFS recommends that Reasonable and Prudent Measures Nos. 1, 2, 4 and 5 and their respective Terms and Conditions listed in the Incidental Take Statement prepared for the Central California Coast Steelhead ESU in the preceding Biological Opinion, and, appropriate for EFH, be adopted. Reasonable and Prudent Measures Nos. 1, 2, 4 and 5 and their respective Terms and Conditions are repeated below as Conservation Recommendations:

Conservation Recommendations

1. Avoid and minimize bank and instream construction impacts to the Guadalupe River ecosystem.

2. Minimize the extent of temporary and permanent changes to instream and riparian habitat and ensure that proposed mitigation measures used to replace these losses are fully successful.

3. (Not included)

4. Implement adequate control measures to avoid or minimize sediment, turbidity and pollutant inputs to the Guadalupe River.

5. Prepare and submit monitoring reports annually to document status of construction and mitigation activities and performance.

Terms and Conditions

The Corps should consider the following Terms and Conditions that implement the Conservation Recommendations described above.

1. The following Terms and Conditions implement Conservation Recommendation No. 1.

    A. The Corps and SCVWD should isolate each workspace from flowing water for the purpose of avoiding heavy equipment in flowing water, sedimentation, and turbidity. Prior to construction activities, diversion materials should be installed (e.g., sandbag cofferdams, straw bales to divert streamflow away or around each workspace. The diversion should remain in place during project construction, then removed immediately after work is completed.

B. The Corps and SCVWD should ensure and maintain a corridor for unimpeded passage of chinook during construction of the project action.

C. When practical, the Corps and SCVWD should use existing points of ingress or egress, or perform work from the top of the river bank, for the purposes of avoiding work and heavy equipment in flowing water, and disturbing riverbank, vegetation, and instream habitat.

D. A worker education program should be conducted prior to construction activities each on the importance of protecting EFH and the measures to do so.

2. The following Terms and Conditions implement Conservation Recommendation No. 2.

A. The Corps or SCVWD should photograph the project area prior to and after each construction season for the purpose of developing a reference library of instream and riparian habitat characteristics.

B. The Corps and SCVWD should prepare and implement a Mitigation and Monitoring Plan to address the replacement and reestablishment of riparian vegetation (including SRA cover) and instream habitat functions. The pan should also describe maintenance procedures to protect and enhance the riparian system. The Mitigation and Monitoring Plan should include offsite SRA mitigation that could expand the existing range of steelhead in the watershed. The plan should be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to the Corps and SCVWD that plan modifications are necessary for acceptance.

C. The Corps and SCVWD should incorporate an adaptive management process to insure that monitored indicators of measurable objectives are fully met and, if necessary, appropriate remedial actions are taken to ensure that agreed upon ecological functions and habitat values defined in the MMP and affected by the project are reestablished and maintained.

D. All mitigation areas that have been set aside as compensation for project impacts resulting from this project or any other project should not be disturbed or impacted during construction activities and should be preserved in perpetuity and not used as mitigation for other projects.

E. The Corps and SCVWD should prepare and implement a Vegetation Protection Plan to prevent the inadvertent loss of riparian vegetation above and beyond that necessarily resulting from project construction activities. The plan should also describe remedial actions required if preserved trees are inadvertently impacted by construction activities. The plan should be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to the Corps and SCVWD that plan modifications are necessary for acceptance.

3. (Not included)

4. The following Terms and Conditions implement Conservation Recommendation No. 4.

   A. Erosion control and sediment detention devices should be incorporated into the project and implemented at the time of the project action. These devices should be in place during the project action, and after if necessary, for the purpose of minimizing fine sediment and sediment/water slurry input to flowing water. The devices should be placed at all locations where the likelihood of sediment input exists.

   B. At the time of the project action, the Corps and SCVWD should prepare and implement a Storm Water Pollution Prevention Plan as part of the National Pollutant Discharge Elimination System (NPDES) to avoid or minimize increased sediment and turbidity impacts. This plan should be reviewed and approved by NMFS prior to construction.

   C. The Corps and SCVWD should prepare and implement an Erosion and Sediment Control Plan for minimizing the potential for sediment input into the stream, a Toxic Material Control and Spill Response Plan for preventing toxic material spills, a Soil Management Plan that provides criteria for classifying wastes in soil and managing soils possibly contaminated with mercury and methyl mercury concentrations and a Hazardous and Toxic Materials Contingency Plan in the event that unlisted hazardous and toxic sites are uncovered during construction.

   D. The Corps and SCVWD should fully cooperate with state and federal agencies involved with mercury contamination issues to insure that actions involving the flood control project including mitigation issues are compatible and conducted in a cooperative manner with potential mercury contamination cleanup actions.

   E. All water within the construction site should be pumped off-site or into a settling basin or tank and not directly into the downstream channel.

   F. All pilings, support piers, abutments and rock materials should be non-toxic. Any combination of wood, plastic, concrete, or steel is acceptable, provided that there are no toxic coatings, chemical antifouling products, or other treatments that may leach into the surrounding environment.

5. The following Terms and Conditions implement Conservation Recommendation No. 5.

   A. The Corps and SCVWD should provide a written monitoring report to NMFS within 30 working days following completion of each construction season (no later than November 30). The report should include the number and size of chinook salmon killed or injured during the project action and biological monitoring; any effect of the project action on chinook salmon habitat that was not previously considered; photographs documenting compliance with Reasonable and Prudent Measures No. 1, 2, and 4; and, photographs taken before and after work activity.

B. The Corps and SCVWD should provide a written report describing results of their mitigation activities to NMFS on a schedule that is developed in the Mitigation and Monitoring Plan. At the very minimum, the report should include a description of the locations planted or seeded, the area (ft^2) revegetated, a plant palette, planting or seeding methods, performance or success criteria, and pre- and post-planting color photographs of the revegetated area.

C. The Corps and SCVWD should provide a written report describing results of their Vegetation Protection Plan to NMFS on a schedule that is developed during the adoption of the plan.

D. All reports, proposed plans, and annual updates should be submitted to: Protected Resources Division Supervisor, NMFS, 777 Sonoma Ave., Room 325, (707) 575-6050, Fax (707) 578-3435.

Should these EFH conservation recommendations be implemented, significant improvements to the potential EFH of chinook salmon in the Guadalupe River are expected, and adverse impacts to their potential EFH would be mitigated.

VI. CORPS STATUTORY REQUIREMENTS

The Magnuson-Stevens Act and Federal regulations (50 CFR Sections 600.920) to implement the EFH provisions of the MSFCMA require federal action agencies to provide a written response to EFH Conservation Recommendations within 30 days of their receipt. Because the EFH designations for Pacific salmon have yet to be approved, this regulation does not apply until approved by the Secretary of Commerce at which time the 30 day period will commence. A preliminary response is acceptable if final action cannot be completed within 30 days. The Corps final response must include a detailed description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity. If the Corps response is inconsistent with our EFH Conservation Recommendations, the Corps must provide an explanation of the reasons for not implementing them.

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