

**DRAFT CONSERVATION PROGRAM
FOR THE SANTA ANA SUCKER (*Catostomus santaanae*)
WITHIN THE SANTA ANA RIVER WATERSHED**

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I. BACKGROUND AND PURPOSE

During the past 30 years, the status of the Santa Ana sucker (*Catostomus santaanae*, “sucker”) has declined throughout much of its historic range. Today, this fish only occurs in limited reaches of the Los Angeles, San Gabriel, Santa Ana, and Santa Clara rivers. Owing to this decline in status, on January 26, 1999, the U.S. Fish and Wildlife Service (Service) proposed listing the sucker as a federally threatened species within its native historic range of the Los Angeles, San Gabriel, and Santa Ana river systems (64 *Federal Register* 3915). The final rule listing the sucker as a federally threatened species was published on April 12, 2000 (65 *Federal Register* 19686).

The sucker resides in the Santa Ana River (SAR) from the Rialto Drain entrance downstream to the rubber dam near Imperial Highway. Flows in the SAR are primarily comprised of municipal and industrial tertiary treated wastewater as well as seasonal precipitation and rising groundwater.

In the spring of 1999, an informal group of concerned local, regional, State, and Federal agencies formed the Ad-Hoc Santa Ana Sucker Discussion Team (Discussion Team) to assist in reconciling economic activities with the conservation of the sucker and to identify and implement conservation measures that would contribute to the survival and recovery of the sucker, primarily within the SAR watershed. Research priorities and funding sources were identified, and a three-phase, coordinated effort was initiated and completed during 1999 and 2000. These initial scientific studies concentrated on physiochemical variables, including organic and inorganic tissue analysis, migration patterns, predatory fish relationships and tributary analysis.

As an outgrowth of these studies, the Discussion Team proposed a Conservation Program (the Program) for the sucker, for an initial term of five years, commencing on the effective date of the Memorandum of Agreement (MOA) signed by the agencies participating in the Program. The Program was developed using a conservation plan authored by San Marino Environmental Associates (SMEA 1999) and funded by the Participants that are local agencies concerned with the conservation of the sucker. In conjunction with development of the Conservation Program, the Discussion Team has continued to fund several studies completed by SMEA and others.

The Program’s purpose is to promote the conservation (i.e., survival and recovery) of the sucker, while providing the necessary authorization, pursuant to the Endangered Species Act of 1973 (Act), as amended, to allow for the incidental take of a limited number of suckers that is anticipated to occur when the participating agencies implement their Covered Activities. Covered Activities include operation, maintenance, repair, and reconstruction of existing projects and facilities (e.g., rebuilding existing levees for water conservation, constructed wetlands, and flood control) and the continuation of existing programs for flood control, water conservation, water treatment and discharge, protection of transportation routes, and wildlife conservation. The Program will promote sucker conservation by implementing necessary research, restoring

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and creating habitat, and instituting measures to avoid or minimize adverse effects to suckers during the implementation of Covered Activities.

Since the mid-1970's, formal water conveyance programs have added positive flows to the SAR. In essence, the SAR has been and will continue to be used as a water conveyance facility where surplus water is discharged into the river for conveyance downstream for beneficial use. For example, after the completion of the State Water Project in 1973, flows of high quality State water have periodically been introduced into the SAR via San Antonio Wash, which discharges into Prado Basin. Flows from this water conveyance program do not exceed 150 cubic feet per second and are purchased by the Orange County Water District (OCWD) for percolation in Orange County. Another example is the Arlington Desalter that was constructed by the Santa Ana Watershed Project Authority (SAWPA) in the early 1990s in the City of Riverside. The Arlington Desalter discharges highly treated groundwater at a rate of 10 cubic feet per second (cfs) into the SAR. In 2001, the Desalter discharged 4,848 acre feet of water into the SAR. OCWD also utilizes this water for percolation. More recently, OCWD and the San Bernardino Municipal Water District (SBMWD) entered into an agreement where up to 10,000 acre feet annually of high quality groundwater is discharged into the SAR upstream of the Rapid Extraction and Infiltration (RIX) Facility. As this water percolates to the groundwater basin, the RIX facility will pump an amount of groundwater equal to the amount that was percolated for conveyance downstream to OCWD. In another agreement, OCWD and Western Municipal Water District of Riverside County entered into a contract where 7,000 acre feet annually of high quality groundwater will be discharged into the SAR via the Riverside Canal at a rate of approximately 100 cfs. Thus, the SAR currently serves as a water conveyance facility and will likely continue this function as population increases and water supplies become more scarce.

New activities proposed by the participants, as described in Section IV(H) below, may also be Covered Activities if the Service determines that the anticipated effects associated with those activities were sufficiently addressed in the Program's biological opinion and incidental take statement. The biological opinion issued in connection with the Program and its MOA will assess effects of ongoing activities and, to the extent possible, anticipated new activities. The biological opinion will also take into consideration conservation benefits resulting from the Program. Any new activity that is determined to be not sufficiently addressed in the Program's biological opinion shall require further consultation under Section 7 of the Act. For example, the construction of new hardbank stabilization structures, a new Prado Basin water conservation program, or the construction of new wetlands or other facilities are examples of new activities that are not considered Covered Activities under this Program. Determinations on incorporating new activities, and associated impact minimization and avoidance measures, into the program will be made through the process used to adopt Annual Operating Plans.

Determinations on incorporating new activities, and associated impact minimization and avoidance measures, into the program will be made through the process used to adopt Annual Operating Plans. For example, new projects requiring further consultation include a new Prado Basin water conservation program, or the construction of new wetlands.

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Some incidental take of suckers may occur in the course of carrying out the Covered Activities despite the impact minimization measures being proposed by the Participants. Implementation of the Program's research and habitat improvement measures may also result in some incidental take of suckers, even though the purpose of these actions is to contribute to the species' survival and recovery. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under sections 7 (Federal consultations) and 10 (habitat conservation plans) of the Act, or through a special rule under section 4(d) of the Act for federally threatened species. The Participants need incidental take authorization to exempt them from the existing section 9 prohibitions against take of suckers stemming from their Program's Covered Activities and conservation efforts.

Another purpose of the Program is to move towards a broad and robust conservation program within the watershed for wildlife habitat and water quality conservation in accordance with the SAR Watershed Memorandum of Understanding signed by local, State and Federal agencies, including the Department of Interior, in September 2000 and to support and supplement regional Habitat Conservation Plans (HCPs) as defined under section 10 of the Act such as the one currently being developed by Riverside County. To this end, with the approval of the Participants, the Program may include coordination with other conservation programs to address additional species and elements of the riverine ecosystem.

The final goal of the Program is to conserve the sucker in the watershed of the SAR in a comprehensive and integrated effort. This effort is needed to reverse the decreasing trend in status, restore and/or create habitat and hydrological conditions that are essential for long-term survival and recovery, and minimize the potential adverse effects from ongoing Covered Activities by the Participants.

II. PROGRAM ELEMENTS

A. Participants and the Discussion Team

Participants are defined as agencies or individuals that agree to abide by the Program and MOA and provide financial support to the Program.

The Participants for the initial term (200# - 200#) include the following seven agencies:

§ City of Riverside Regional Water Quality Control Plant

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- § The Rapid Extraction and Infiltration (RIX) Facility which is operated by City San Bernardino Municipal Water Department and owned by the Colton/San Bernardino Regional Tertiary Treatment and Water Reclamation Facility
- § Orange County Water District
- § Orange County Public Facilities and Resources Department
- § Riverside County Flood Control and Water Conservation District
- § Riverside County
- § San Bernardino County Flood Control District

The Discussion Team is comprised of representatives of state and local flood control districts, departments, and resource agencies. Additionally, members of the scientific community also participate. The Discussion Team members for the 2000#-200# Plan year include the following:

- § U.S. Fish and Wildlife Service
- § California Department of Fish and Game
- § Santa Ana Watershed Project Authority (SAWPA)
- § Orange County Water District
- § Orange County Flood Control District
- § Riverside County Flood Control District
- § Riverside County
- § San Bernardino County Flood Control District
- § City of San Bernardino Municipal Water Department
- § City of Riverside (Riverside Water Quality Control Plant)
- § San Marino Environmental Associates
- § Dr. Camm Swift

B. Coverage for Incidental Take of the Sucker

The Program consists of research and adaptive management activities that are developed through an Annual Operating Plan and the Participant's Covered Activities including a set of agreed-upon measures that will be implemented to avoid or minimize adverse effects to the sucker resulting from the Covered Activities. A formal consultation will be done on these elements prior to the effective date of this Program, pursuant to section 7 of the Act, to assess effects on the sucker and other federally listed species. If it is determined that the Program will not jeopardize the continued existence of the sucker and other federally listed species, then some anticipated level of incidental take stemming from the implementation of the Covered Activities and sucker conservation efforts will be authorized and the Participants will be exempt from section 9 prohibitions against take as long they adhere to the Program and the incidental take statement.

The effects of some of the Covered Activities on other federally listed species and designated critical habitats have already been addressed in biological opinions previously issued by the Service. Appendix A provides information regarding these existing biological opinions.

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The Covered Activities and measures included within the Program may be revised during annual reviews by the Participants and the Service. When Program modifications or new activities are proposed, the Service will determine through the Annual Operating Plan approval process if they can be included as Covered Activities as addressed in the Program's biological opinion and incidental take statement. If it is determined that the proposed changes may substantively alter effects to the sucker, then reinitiation of formal Section 7 consultation, pursuant to the Act, will be required if the Participants decide to formally propose the changes.

C. Program Administration

The Program is established for a term of five years (Initial Term), commencing the effective date of the MOA. Each year, the Participants and the Service shall prepare and approve an Annual Operating Plan for the coming year as well as evaluate and refine long-term (i.e., five years out) goals and objectives for research and adaptive management. Thus the Program will be "evergreen" in nature, with annual updates to the five-year strategic plan. Annual Operating Plans will commence on September 1st of each year and expire on August 31st of the following year. Proposed Annual Operating Plans for the coming year will be submitted to the Discussion Team by July 31st and shall be approved by the Participants and the Service by August 31st. In the event that an Annual Operating Plan is not approved by August 31st, the Program may be terminated by the Service or the Participants upon 60 days written notice. An Annual Operating Plan may be revised if necessary in the same manner as it was originally approved. In addition, as part of the Program, a draft "Conservation Plan" for the sucker will be prepared by the end of the Initial Term. This Conservation Plan may prove integral to future development of a Recovery Plan for the Sucker.

Notwithstanding the foregoing, without the approval of an affected Participant, neither the Participants nor the Discussion Team:

- a. May amend the Program or make determinations that would increase the funding required of such affected Participant; or
- b. Restrict the right of an affected Participant to terminate its participation in the Program.

The Discussion Team, Participants, and the Service will conduct the Program in an open, public, and collaborative manner with the affected constituency of agencies and interests, including, but not limited to the biologists for the various agencies that have participated in the development of the Program. They will continue to conduct monthly meetings, open to the public, on the progress of the Program and with respect to any proposed revisions or extensions. Additionally, Participants must also comply with all applicable Federal and State regulations, including the Act, National Environmental Policy Act (NEPA), California Endangered Species Act (CESA),

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California Environmental Quality Act (CEQA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act.

The Program will be formally administered by the Participants based upon the majority action of the Participants in consultation with the Discussion Team. The Participants may select one or more public agencies to administer the Program or elements thereof. Among other things, an Administrator may be authorized by the Participants to engage scientists, consultants, and other subcontractors to undertake elements of an approved Annual Operating Plan. At this time, the Santa Ana Watershed Project Authority (SAWPA), a joint powers agency of the five major water districts within the watershed, has been appointed the Administrator of the Program subject to further action of the Participants.

The Participants shall not be obligated or liable with respect to the carrying out of the Program, including, but not limited to, the acts of the Administrator or contractors engaged by the Administrator, in excess of the funds provided or committed to. With respect to the Program, there is no partnership, joint venture or agency relationship among or with respect to the Participants or any Participant and the Administrator. In administering the Program or any element thereof, the Administrator shall act as an independent contractor and shall take responsibility with respect to the contracts, services arrangement and engagements entered into by it.

D. Funding Obligations

The Program will be funded at a minimum of \$125,000 per year, commencing with the effective date of the MOA, and may increase as provided in the Annual Operating Plan for subsequent years. Each of the Annual Operating Plans will commence on September 1st of each year and end on August 31st of the following year. For the 2002 Plan year, seven agencies within the Santa Ana River Watershed have agreed to abide by the terms of the Memorandum of Agreement and will be participating financially in the Program. Although these Participants are responsible for funding the Program, other sources, including private, State and Federal funding will be solicited to augment funding from the Participants.

Unless otherwise directed by the Participants, funds for the Program will be deposited into and held in a dedicated fund (Conservation Fund) administered by the SAWPA. Funds will only be disbursed in accordance with an approved Program and budget. The expenditure of Program funds from the Conservation Fund will require approval of the Service, which will be accomplished through the approval of the Annual Operating Plan and budget.

Pursuant to this agreement, the Participants will deposit the specified amounts in the Conservation Program Fund on presentation of invoice by SAWPA. The Participants and the Service agree that the Program Administrator will provide an Annual Operating Plan accomplishment report as defined in Section II(E).

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E. Reporting Requirements

Annual reports of the previous year's research and management accomplishments will be prepared by the Program Administrator. This report will be provided to the Discussion Team and the Service by December 31st of each year. The report will include two components.

The Research and Adaptive Management portion of the report will include the following information: (1) a list and brief summary of significant actions that were accomplished; (2) results and evaluation of monitoring and surveys completed as part of the research aspect of the Program; (3) location, amount and success of habitat restoration efforts if any, (4) population estimates or percent occupied habitat, (5) new and additional information concerning type of habitat occupied and reproductive biology, (6) analysis of information obtained in the previous year's research (7) assessment of the status of the sucker in the SAR and (7) recommendations for future research efforts.

The Covered Activities portion of the report will include the following information: (1) a brief summary of significant actions that were accomplished; (2) estimates of the amount of habitat disturbed and disturbance type (i.e., permanent, temporary); (3) observations of listed species or their sign onsite or in the vicinity of instream activities; (4) known or likely occurrences of incidental take; (5) updates on the implementation and completion of the Covered Activities (e.g., any water diversions or de-watering of river sections that were conducted), and any anticipated changes in the project description or implementation schedule; (6) any other pertinent data concerning success in meeting conservation measures outlined in the Program or biological opinion, and an explanation of failure to meet such measures, if any; (7) any anticipated new activities including an assessment of anticipated effects to the sucker and any minimization measures and (8) recommendations.

F. Termination of Participation

Any Participant may terminate its participation upon 90 days prior written notice to the other Participants and to the Service. Upon termination by a Participant, the terminated Participant shall have no further obligation except for funds already deposited with SAWPA or for reasonably unavoidable costs and expenses. The terminated Participant shall no longer be covered by the Biological Opinion and incidental take statement for this Program. The Participant may engage the Service in consultation for their activities through Section 7 or Section 10 of the Act as appropriate.

The Program may be terminated in the event that if, by the commencement of any Plan year, the Participants have failed to approve an Annual Operating Plan and budget for that year. In addition, the Program may be terminated at any time prior to the end of the term (including approved extensions) upon 90 days prior written notice with two-thirds approval of the Participants. If the Program is terminated, then it is expected that each Participant would initiate consultation for their project as appropriate with the Service.

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The Service would review *annually or as needed* the normal/covered activities for consistency with the biological opinion. If the Service determines that the activities of an individual Participant's are no longer in accord with their project description, the Service would notify that Participant and the Army Corps of Engineers in writing and if appropriate, request reinitiation of consultation.

III. RESEARCH AND ADAPTIVE MANAGEMENT

A. Planning Guidelines

The Program's Research and Adaptive Management component will be planned across a five-year time frame. Each year, the Participants and the Service will prepare and approve a detailed plan for research and management activities that will be a part of the Program's Annual Operating Plan (see Program Administration section). The detailed plan will include specific studies, monitoring projects or habitat improvement projects that will be implemented in the coming year. These studies or habitat improvement projects must include a short description of the proposed measures. This description must include the purpose and need for the project, location, sucker abundance if any, and a detailed plan that will provide a method for evaluating the success of this project. Habitat restoration on the Santa Ana River will be a learning process, and information gained from previous projects should be used to prepare more effective habitat restoration projects in the future.

During the first two years, the program will focus at least 80 percent of the effort on research, and the remaining effort on monitoring and habitat restoration. Research will include studies investigating the biology and ecology of the species. In particular, migration, reproductive patterns, recruitment patterns and essential habitat elements will be assessed. Results from these studies will be incorporated into the Program and move the focus of the Program towards habitat restoration and monitoring. Within five years of Program initiation, the Service envisions that a majority of the effort will be focused on habitat restoration and monitoring.

B. Initial Research Accomplishments (September 1, 2000-August 31, 2001)

The Program's initial research agenda was developed by the Discussion Team, the SMEA Conservation Program and the Participants. Accomplishments from that initial work include the following:

- § Determined that suckers reproduce in the SAR between March and June;
- § Determined the photoperiod and water temperature in which suckers reproduce in the SAR;

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- § Located breeding habitat in Sunnyslope Creek, Rialto Drain, and portions of the SAR and obtained detailed descriptions of the breeding habitat characteristics including water velocity, water depth, stream width, substrate size and stream structure;
- § Determined the number of individuals that breed at the known reproductive sites;
- § Determined the characteristics of migration, including timing and direction, and measured the environmental correlates of migration, including flow, temperature, and photoperiod.
- § Produced a progress report documenting and describing activities from the previous fiscal year.

C. Continuing Program

1. Information Needs/Research

- § The SBMWD, operator of the RIX Facility by agreement with the Colton/San Bernardino Regional Tertiary Treatment and Water Reclamation Authority (Authority), owner, and the Service will participate in a study to determine adverse effects, if any, of discharge shutdowns on Santa Ana suckers. After consultation with the Service, SBMWD retained a qualified biologist familiar with the biology of the species to conduct the study. SBMWD staff, sucker biologists and the Service will participate in study design and implementation. Funding for the sucker biologists and the study will be withdrawn from Program funds.
- § Continue the mark and recapture studies that were began in June 2001 and use these to refine population estimates.
- § Prepare and implement a study that will adequately assess the status of the sucker population between Prado Dam and Imperial Highway. This study should include the following goals: (1) establish the portions of stretch occupied by sucker, (2) discover whether reproduction is occurring in this portion of the SAR, and if so, where and (3) find out if suckers are moving into this stretch from the portion of the SAR upstream of Prado Dam.
- § Additional research may be performed with the agreement of the Discussion Team.

2. Recovery Implementation

- § Prepare and implement a detailed habitat enhancement plan that includes the following aspects: (1) specific location and amount of area to be enhanced, (2) if not already known, provide an estimate of the number of suckers that currently occupy potential

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enhancement sites, (3) type of enhancement, (4) monitoring needs and (5) description of success criteria.

§ Identify other potential enhancement sites.

3. Monitoring

§ Monitor population size and structure between Prado Dam and Mission Street Bridge.

§ Monitor the number of breeding individuals on identified reproductive sites and the number of juveniles produced.

4. Information/Education

§ Sponsor/host a one day outreach/information seminar for agencies and interested parties regarding the scientific data and conservation plan strategies regarding the sucker.

5. Long-term Goals and Objectives (2006-2007)

- Develop successful habitat enhancement methods.
- Establish a standard procedure and database for population trend analysis.
- Identify and map occupied sucker habitat within the SAR.
- Establish an exotic species removal program. This should be done in coordination with other agencies restoration efforts on the SAR.

IV. COVERED ACTIVITIES AND IMPACT MINIMIZATION MEASURES

What follows are the specific Covered Activities (sections A-G) that are included in the Program. Covered Activities can be performed by independent contractors. Future new activities may be included in the Program if they fit into the categories of actions identified in section H below and are approved by the Service.

A. Riverside County Flood Control and Water Conservation District

Activity: Maintenance of Flood Control Structures, Flood Capacity and Low Flow Channels within the Santa Ana River

Purpose: The SAR conveys a substantial quantity of flow that deposit sediments producing sandbars, which in turn cause these flows to meander. When these flows run immediately adjacent to the groins and levees that protect adjacent industrial,

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commercial and residential property they jeopardize the structural integrity of the levees and groins. The low flows of the SAR will be allowed to meander no closer than 100 feet from the end of the groins. The RCFCD also removes sediment from and mows along the Sunnyslope Creek outlet and storm drains that enter the SAR. The RCFCD controls the vegetation within the Santa Ana River by mowing and application of approved herbicides to impede the growth of invasive plant species that dominate this area. The purpose of these activities is to ensure that the facility continues to function at the design capacity and that the tributary flows are not obstructed.

Location: The low flow channel maintenance, mowing and sediment removal activities will occur from 0.5 miles upstream of Main Street/Riverside Avenue Bridge to approximately 1.5 miles downstream of Mission Street Bridge

Specific Actions Covered:

Levee and Groin Protection: If river flows encroach within the groin buffer zone, they will be relocated by excavating a channel and, if necessary, constructing berms to realign flows away from levees and groins. The depth and width of the former low flow channel will be maintained when excavating the new channel. After suckers have been removed and flowing water no longer exists in the stretch of river from which water has been diverted, the RCFCD will fill the area with sediment free of trash, debris and vegetation.

Sediment Removal: The removal or spreading of localized sediment deposits or sandbars where the active flow of the river is not affected can be accomplished during any time of the year. This activity will be accomplished by maintenance crews using a backhoe, excavator, and dump truck. Any equipment used in this activity will be staged in the yard or on top of the levees or away from the active flow of the SAR. When this activity affects the active flow of the SAR it will only be completed between August and December.

Vegetation Mowing and Treatment: On both sides of the SAR, mowing operations occur for about two weeks once a year. These operations are done by RCFCD crews or mowing contractors using track and rubber tire mowing equipment. Within two weeks of mowing, the non-native vegetation is sprayed with an herbicide that has been approved for use in aquatic environments by the Environmental Protection Agency.

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Channel Maintenance at Sunnyslope Creek: Sediment and vegetation will be removed as needed from the concrete portion of Sunnyslope Creek. Mowing is performed along approximately 50 feet of the grouted riprap outlet on Sunnyslope Creek, which begins 1,200 lineal feet southwest of Rio Road.

RCFCD Minimization Measures:

As a Participant of the Program, the RCFCD agrees to implement the following measures during their Covered Activities to avoid or minimize effects to suckers:

- i. Flood control activities within the SAR will be conducted between August and December.
- ii. Low flows in the SAR will be allowed to meander so long as the flows are kept 100 feet away from the end of constructed groins.
- iii. The treatment of vegetation will only be accomplished with aquatic-approved chemicals such as Rodeo, and employees will receive training in the correct method of chemical application.
- iv. During the spawning season, vegetation will not be mowed or chemically treated within a 10-foot buffer on either side of the active river flow to ensure that refugia created by vegetation will not be removed. However, outside of the spawning season, vegetation may be mowed and invasive species may be chemically treated with approved chemicals.
- v. Mowing equipment will be moved across the river: (a) only as needed to perform necessary maintenance, (b) only in areas that the Service has identified as non-sensitive habitat, and (c) only outside of the sucker's spawning season (March 15 through June 15).
- vi. Necessary maintenance of Sunnyslope Creek will be scheduled so that it occurs outside of the sucker's spawning season (March 15 - June 15).
- vii. Maintenance activities will not be conducted within the earthen portion of Sunnyslope Creek downstream of the ungrouted riprap outlet.

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- viii. A qualified biologist is defined for the remainder of this document as an individual that has been approved by the Service. Approval is dependent upon the submission of the names, any permit numbers, résumés, and at least three references of people who are familiar with the relevant qualifications of the proposed biologist to the Service at least 15 days prior to the initiation of the defined activities. Proposed activities shall not begin until the biologist has been approved by the Service.
- ix. Prior to diverting water or de-watering a reach of the river, a qualified biologist will implement and oversee the execution of the diversion, survey and relocation efforts, and construction monitoring of the project site. Diversions and dewatering will be done in a manner that minimizes the stranding of suckers. The affected reach(es) will be surveyed for fishes throughout the duration of the project using seining, traps, or electrofishing, as necessary. Captured suckers will be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) will be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers will be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. These fish will be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.
- x. The RCFCD will ensure that habitat of similar type, quantity and quality (i.e., gravel/cobble substrate) will be replaced in any new channels constructed to divert water from encroaching on groins. The amount of habitat lost and subsequently replaced will be kept to a minimum.
- xi. To minimize impacts to the sucker following the initial re-channelization of low flows away from the groins and levees, the RCFCD will monitor the status and location of the active flows each year after the rainy season ends on April 30th. If it is determined that the active flows have begun to encroach into the 100-foot wide buffer area, the District proposes to redirect the flows towards the center by placing rip-rap along the banks, thereby redirecting the flows towards the center. This work will only occur if and when necessary and outside of the spawning season of any given year.
- xii. Sandbags or rip-rap will be placed at the primary point of diversion and at other areas throughout the reach(es) that are susceptible to erosion caused or exacerbated by the

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diversion, so as to reduce local erosion, sedimentation, and siltation. Silt curtains will be used in construction zones, as necessary, to minimize increases in turbidity within the reach(es) and adjoining downstream river reaches.

- xiii. If the low flow channel continues to meander towards the groins and threaten their stability, the RCFCD in consultation with the Service will incorporate adaptive management strategies in developing a plan that will further minimize effects to the sucker.

B. Riverside County

Activity: Maintenance of Flood Control Structures, Flood Capacity and Low Flow Channels within the Santa Ana River

Purpose: Sand miners have been contracted by Riverside County to excavate sand in the vicinity of River Road Bridge to provide freeboard under and around the bridge so that it will not be damaged during high SAR flows. This activity is needed only until a new bridge is constructed for River Road. A new bridge is anticipated to be completed by December 2006.

Location: The activity area extends from approximately 700 feet downstream of River Road bridge to 1000 feet upstream of the bridge to a depth of up to 13 feet in the Santa Ana River.

Specific Actions Covered:

Berm Construction and Sediment Excavation: An excavation area that is 600 feet wide and between 700 and 1,400 feet long will be maintained by constructing temporary sand berms. These sand berms will divert river flows around the excavation area. Sand will be removed from the excavation area using heavy machinery. Water that seeps into the excavation area will be pumped out of the area enclosed by sand berms into the main river flow.

Riverside County Minimization Measures:

As a Participant of the Program, the Riverside County agrees to implement the following measures during their Covered Activities to avoid or minimize effects to suckers:

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- i. Prior to diverting water within a reach of the river (i.e., building the sand berms around the excavation areas), a qualified biologist will implement and oversee (1) the execution of the diversion, (2) survey and relocation efforts, and (3) construction monitoring of the project site. Diversions and dewatering must be accomplished in a manner that minimizes the stranding of or harm to suckers. The affected reach(es) should be surveyed for fishes throughout the duration of the project using seining, traps, or electrofishing, as necessary. Captured suckers should be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) will be recorded each hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers will be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured will be retained in river water in insulated, aerated, and covered containers, as necessary. The fish should be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured will not be released back into affected reach(es) or other areas supporting native fish
- ii. Limit construction of sand berms to between September 1 and April 30 of each year. If between May 1 and August 31, Riverside County informs the Service that the River Road Bridge is imminently threatened by high river flows that also destroy existing sand berms, Riverside County can rebuild the sand berms as soon as possible.

C. San Bernardino County Flood Control District

Activity: Maintenance of flood control structures, flow capacity, and low flow channels within the Santa Ana River (SAR).

Purpose: To protect property adjacent to the SAR from damage or loss caused during storm events. This is done by keeping flows controlled down the center of the SAR, maintaining the capacity of low-flow channels, and preventing erosion of levees. The SBCFCD proposes to provide this protection annually by removing sediment and vegetation within a 150-foot-wide, 2-3-foot-deep, low-flow channel for approximately 4 miles. Additional vegetation control beyond the 150-foot low flow channel may occur every few years on an as needed basis to prevent the capacity of the river from diminishing. The patches of mature riparian vegetation on either side of the river may be trimmed and the understory thinned. All exotic vegetation will be removed in phases annually within the four-mile river reach.

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Location: These activities occur on the SAR between Tippecanoe Avenue, in the City of Redlands, and Riverside Avenue, in the City of Colton. Certain activities will also occur within the following tributaries of the SAR: Reche Canyon, Warm Creek, Twin Creek and San Timoteo Creek.

Specific Actions Covered:

Low-flow channel maintenance: A 150-foot-wide, low-flow channel will be maintained following the channel alignment from previous years, near the center of the SAR wash, along a 3.8-mile stretch between Tippecanoe Avenue and La Cadena Avenue. To minimize disturbance to the mature vegetation located downstream of La Cadena Avenue, the centerflow (150 ft) will follow the natural, meandering, watercourse to the Rialto Channel confluence. The low-flow channel will be excavated by the SBCFCD operations, using scrapers and dozers that will travel along the low-flow channel. Excess sediment will be placed in locations outside of the river and will be removed by private contractors.

Tributary channel maintenance: SBCFCD will remove sediment and vegetation to meet design grade specifications, on an as needed basis, from Reche Canyon, Warm Creek, Twin Creek, and San Timoteo Creek, up to 1000 feet along each tributary upstream of its confluence with the SAR. Exotic vegetation (e.g., giant reed) will also be removed from these tributaries. The Rialto Channel is considered by the SBCFCD to present a significant flood control risk due to its adjacency to the Rapid Extraction and Filtration (RIX) Facility. If floods overtop the banks of Rialto Channel, it could threaten the integrity of the RIX Facility's wastewater treatment ponds. Therefore, SBCFCD proposes to annually clear vegetation from the eastern bank and the main channel of Rialto Drain, while keeping the western bank vegetated. The vegetation control will be performed by the SBCFCD, using a boom mower. Once the vegetation is cut, it will be hand sprayed with an approved and permitted herbicide.

Emergency Levee Maintenance: The only maintenance activities anticipated between Rialto Drain confluence with the SAR and Riverside Avenue are periodic grading of the north levee road top and emergency repairs of the north levee. Emergency repairs would

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consist of importing material and backfilling blowouts in the levee from the top of the levee road. Equipment will not be required to enter the river to conduct emergency repairs to the north levee, unless repairs to the toe of the slope become necessary.

SBCFCD Minimization Measures:

As a Participant of the Program, the SBCFCD agrees to implement the following measures during their Covered Activities to avoid or minimize effects to suckers:

- i. No vegetation clearing or sediment removal will occur along SAR between Rialto Drain and Riverside Avenue.
- ii. Sand and gravel mining operators will be required to maintain machinery outside of the riverbed.
- iii. Sediment and vegetation removal will be done outside of the sucker's spawning season (March 15 - June 15).
- iv. Activities within the Rialto Channel will be limited to non-spawning periods.
- v. Phase sediment removal if possible.
- vi. Remove and relocate suckers prior to sediment removal operations.
- vii. Remove sediment in limited sections of the channel.
- viii. Implement best management practices in wetted river channels to reduce turbidity.

The SBCFCD will also continue to implement the following conservation measures as a result of a previous consultation (1-6-97-F-32, April 30, 1999) on effects to other listed species:

The effects from the loss of willow habitat within the river channel will be minimized by removal of non-native vegetation within the project area. The exotic removal program will not impede or preclude passive or active native plant revegetation of the area. A program to control/prevent trespass of off-highway vehicles into the project area will be implemented. Gravel and mining operations will be required to prevent silts and other pollutants from entering the channel. Vegetation removal will be done outside of bird nesting seasons to reduce harm and harassment to the listed bird species.

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D. Orange County Flood Control District, County of Orange Public Facilities and Resources Department

Activity: Maintenance of Flood Control Structures, Flood Capacity and Low Flow Channels within the Santa Ana River

Purpose: Flood control activities are required to maintain flood control protection, provide for public safety, encourage recreation, and protect and/or restore fish and wildlife habitat features. All operation and maintenance activities of the lower SAR and Prado Dam and Basin will be in accordance with the Corps Operation and Maintenance Manual and the SAR Canyon Habitat Management Plan. All routine operations and maintenance activities are performed by the County of Orange Public Facilities and Resources Department (OCPFRD) or its authorized contractor, under the general authority of the Flood Control Act.

Location: Flood control activities are routinely conducted along 16.4 miles of river between the Orange/Riverside County line and Imperial Highway

Specific Actions Covered:

Arundo Control/Vegetation Management: Removal of giant reed will be performed by yearly cuttings and applications of herbicide that has been approved for use in the aquatic environment by the Environmental Protection Agency until the rhizome dies. This process takes at least three years, with eradication achieved by five years. Vegetation control will not require staff to enter the active flow of the SAR. Arundo removal will be divided into three reaches or phases. Phase 1 is located between the Orange County line and Gypsum Canyon Road bridge. Phase 2 is located from Gypsum Canyon Road bridge to Weir Canyon Road bridge. Phase 3 is located between Prado Dam to the Orange County line. If possible, the native material will be allowed the maximum amount of time to establish itself before the storm season. Exotics may be phased out with native planting and continued weeding. Dead plant material such as tree stumps will only be removed if there is high possibility of being washed into the channel, due to their value in erosion control. Other vegetation management activities include irrigation for planting until it is established and trimming when needed for fire

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safety and along trails.

Flood control structure maintenance:

Structural maintenance and repair work includes repair of concrete side drains and headwalls, maintenance of recreational trail improvements, and maintenance and repair of water control gates and/or devices. Storm-related damage will be repaired by restoration of displaced riprap sections, eroded areas, and damaged slope paving. Areas where the OCPFRD is required to maintain the grouted riprap stabilization structures extend from approximately one mile upstream of Weir Canyon Road to Ball Road on the northern bank of the SAR and approximately 0.9 miles upstream of Gypsum Canyon Road down to Ball Road on the southern bank of the SAR.

Low-flow channel maintenance:

Routine activities will include silt removal, flow restoration and redirection, and debris or obstruction removal when necessary. Periodic inspections by seasonal storm and security patrols should ensure quick reaction with appropriate measures to maintain the flood channel. Service roadways for the channel will also be maintained to ensure a safe travel surface and proper drainage flow toward center.

OCPFRD Minimization Measures:

As a participant of the program, the OCPFRD will implement the following measures during their Covered Activities to minimize the effects of the activities to the sucker and human environment as long as it is in accordance with the Corps' Operation and Maintenance Manual for the lower SAR:

- i. Sediment will not be removed within the SAR reach between Imperial Highway and Prado Dam.
- ii. The treatment of vegetation will only be accomplished with aquatic-approved chemicals such as Rodeo, and employees will receive training in the correct application of these chemicals.
- iii. Activities within the active flow of the SAR will incorporate best management practices to decrease turbidity.
- iv. Activities within the active flow of the SAR will occur only on an as needed basis.

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- v. Sandbags or rip-rap will be placed at the primary point of diversion and at other areas throughout the reach(es) that are susceptible to erosion caused by or exacerbated by the diversion so as to reduce local erosion, sedimentation, and siltation. Silt curtains should be used in construction zones, as necessary, to minimize increases in turbidity within the reach(es) and adjoining downstream river reaches.

E. City of Riverside (Regional Water Quality Control Plant)

Activity: Maintenance of Flood Control Structures, Flood Capacity and Low Flow Channels within the Santa Ana River

Purpose: Tertiary treated flow from the plant is conveyed to wetlands via an earth and sand channel instead of a pipeline because the substrate is sand 150 feet down to bedrock and thus does not provide stability needed for pipeline placement. A portion of this channel, approximately 2000 feet in length (depending on the course of the river) is protected by a sand dike directly adjacent to the river. The dike is a barrier between effluent flow and the “natural” river flow. This dike is washed out by storm flows from the SAR and associated storm drainages six to ten times a year. When the dike is breached by floods or otherwise compromised, it is rebuilt with sand from the main channel using a tracker dozer after storm waters recede.

Location: This dike begins approximately 1000 feet west of the Van Buren Boulevard Bridge and extends approximately another 2000 feet.

Specific Actions Covered:

Dike maintenance: The work is performed by the agricultural leaseholder of the adjacent County Parks lands. The dozer is driven from their facility to the dike by way of an established dirt road. The dozer enters the river and moves accumulated sand from the far side of the river to re-establish the dike. The reconstruction process typically takes between 5 and 40 hours depending on the severity of the storm event and the resulting damage to the dike.

City of Riverside Minimization Measures:

As a Participant of the Program, the City of Riverside agrees to implement the following measures during their Covered Activities to avoid or minimize effects to suckers:

- i. The City of Riverside will remove suckers from the project site by sweeping the area with seine nets or other means prior to conducting maintenance or rebuilding activities on the sand dike between May 1st and September 30th of each year. Instream activity must

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be accomplished in a manner that minimizes the stranding of suckers. Individuals responsible for seining in the project area will be provided training by the Service in the proper handling of seine nets. They will also be trained in fish identification and capture, retention and relocation techniques.

If suckers are captured, they will be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) will be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers will be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by our agency. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fishes that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. The fish will be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.

- ii. The effectiveness of the capture and relocation minimization measure will be evaluated between October 1st and January 1st of the following year. Should these minimization measures not appear effective at removing suckers from the project vicinity (i.e., suckers continue to be present during activities), alternative minimization measures must be provided. Conversely, should the minimization measure show that suckers are not present in this area during the prescribed time of year, these measures will not be required for the City of Riverside activities within the SAR.

F. City of San Bernardino Municipal Water Department (Rapid Infiltration & Extraction Facility)

Activity: Wastewater Treatment Plant Operation and Maintenance

Purpose: The RIX facility provides treatment equivalent to conventional tertiary processes. Several safeguards that ensure compliance with the National Pollutant Discharge Elimination System (NPDES) permit as issued by the California Regional Water Quality Control Board (RWQCB) permit are built into the operational plan for the facility.

Location: The City of San Bernardino Municipal Water Department (SBMWD) operates a Rapid Infiltration and Extraction (RIX) Facility located adjacent to the SAR near the San Bernardino and Riverside County borders.

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Specific Actions Covered:

Temporary Plant Shutdowns:

If any of the safeguards indicate that a non-compliant situation might occur, the facility is automatically shut down and cannot be restarted until the situation causing the warning message is corrected. This can lead to down times of 20 minutes to several hours where no water is discharged. Shutdowns that result in periods of no discharge also occur due to routine maintenance on facilities, training, or power failures.

Water Quality Sampling:

The RIX facility samples water quality for temperature and dissolved oxygen and pH within the SAR on a weekly basis. This requires that they cross the SAR on a daily basis to collect samples. Quarterly they grab water from the SAR for laboratory analysis.

Piezometer Maintenance:

Twelve piezometers that measure water level have been installed around the border of the RIX facility between La Cadena Avenue and Riverside Avenue in the river channel. Readings must be obtained from these devices on a regular basis. The frequency of crossings will be determined and described in the operations and maintenance plan for the RIX facility. The monitoring and the maintenance of these devices result in river crossings by vehicle in non spawning season and by walking during spawning seasons. Vehicles will cross the river driving slower than five miles per hour.

SBMWD Minimization Measures:

The operators of the RIX facility have agreed to implement the following measures as a Participant of the Program:

- i. The SBMWD will perform maintenance activities outside of sucker spawning season (March 15 through June 15) to the maximum extent possible.
- ii. The SBMWD and the Service will participate in a study to determine adverse effects, if any, of discharge shutdowns on Santa Ana suckers. SBMWD retained a qualified contractor, who is acceptable to the Service and familiar with the biology of the species, to conduct the study. SBMWD staff, sucker biologists and the Service will participate in study design and implementation. Funding for the sucker biologists and the study will be withdrawn from Program funds. The final study results will trigger a meeting involving SBMWD, the Authority and the Service. The study results will be used to determine (1) if conservation measures are necessary, (2) design effective minimization measures, if

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any are needed, and (3) determine the funding mechanism for minimization measures, if any are needed. The commitment to the Program will not require the SBMWD or the Authority to violate Federal or State laws or regulations, limit the SBMWD's or the Authority's ability to appeal minimization measures recommended by the Service, or limit the right of the SBMWD or the Authority to sell recycled water from the RIX facility.

G. Orange County Water District

Action: Maintenance of Constructed Wetlands for Water Treatment

Purpose: OCWD maintains a sand dike that diverts 50 percent of the flow of the SAR into constructed wetlands. The diversion is an earthen berm that is comprised of approximately 1,800 cubic yards of fill positioned across the river and measures approximately 30-feet long, 20-feet wide, and 6 to 10-feet high. Maintenance of the wetland ponds involves annual reconstruction of levees, berms, and roads.

Location: The diversion into the constructed wetlands in the Prado Basin is located just west or downstream of the River Road Bridge, just southwest of the City of Norco and the Riverside County line.

Specific Actions Covered:

Dike maintenance and reconstruction: The diversion is constructed from onsite materials after the winter rains and between storms, up to 6 times per year. Culverts are placed at the bottom of the dike to allow 50 percent of the flow to continue along the river channel and to accommodate fish passage.

Maintenance of wetland ponds: The ponds are dried out on a three-year rotation to reduce the coverage by rushes and cattails and as needed for repairs of the water conveyance system of ditches, weirs, pipes, and culverts.

Minimization Measures:

As a Participant of the Program, the OCWD agrees to implement the following measures during their Covered Activities to avoid or minimize effects to suckers:

- i. A qualified biologist will implement and oversee the execution of survey and relocation efforts within the project site. Instream activity must be accomplished in a manner that

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minimizes the stranding of or harm to suckers, therefore suckers will be captured and relocated to a previously designated area upstream of this activity. Prior to the seining and relocation effort, a blocking net will be placed immediately upstream of the project area. Captured suckers should be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) should be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers should be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. The fish should be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.

- ii. The OCWD will install fish screens or other mechanisms approved by the Service to minimize the movement of suckers into the wetland ponds. The OCWD will also establish return passage from the diversion channel to the main SAR channel.
- iii. The OCWD will establish upstream and downstream fish passage at the diversion dike within the main SAR channel by redesigning the culvert system or providing a gravel-cobble fish bypass. Any redesign of the culverts or the design of a bypass must be approved by the Service.

Activity: Groundwater Recharge

Purpose: The OCWD has been capturing and percolating river water since 1933 with a system of earthen "T" levees and off-stream percolation "lakes." The purpose of the "T" levees is to maximize percolation rates into underground aquifers by forcing the water through a maze-like system, thus slowing flow and enlarging the surface area over which the water flows. The "T" levees must be rebuilt after major storm events.

Location: These activities occur in Orange County between the first rubber dam in the SAR downstream of Imperial Highway and Ball Road in the City of Anaheim, a distance of approximately 6 miles and covering a 1,000-acre area.

Specific Actions Covered:

Levee construction and maintenance: A bulldozer enters the SAR through various access

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roads and pushes sand from the bottom into a three-foot levee. Depending on the number of storm events, the levees are rebuilt two to five times during the winter from November through March.

Sediment removal:

The OCWD also continually maintains the river channel downstream of the second rubber dam by periodically removing about a half inch of sediment from the river bottom with a bulldozer.

Minimization Measures:

As a Participant in the Program, the OCWD will implement the following additional measures during their Covered Activities to minimize the effects of the activities to the sucker and human environment:

- i. The OCWD and the Service in coordination with the Program and other Participants will design and implement a research program that will assess the abundance of the sucker in the stretch of the SAR between Prado Dam and the drop structure downstream of Imperial Highway. This study will identify sites that can be accessed and provide appropriate conditions for surveys (i.e., shallow, low flow, appropriate substrate, etc.). Upon completion of the study the OCWD will initiate appropriate action to reduce adverse effects to the sucker. These actions could be removal and relocation of suckers, establishment of a fish barrier and/or habitat restoration.
- ii. Immediately after high flows, suckers that have been washed down the lower reaches of the river below the Imperial Highway rubber dam will be captured and physically transported to a site designated by the Service. A qualified biologist will implement and oversee the execution of survey and relocation efforts within the project site. Captured suckers should be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) should be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers should be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. The fish should be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.

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H. Future Program Participants and Activities

New activities proposed by the participants may be added to the list of Covered Activities if the Service determines that the anticipated effects associated with those activities were sufficiently addressed in the Program's biological opinion and incidental take statement. The biological opinion issued in connection with the Conservation Program and its MOA will assess effects of ongoing activities and, to the extent possible, anticipated new activities. The biological opinion will also take into consideration conservation benefits resulting from the Program. Any new activity that is determined to adversely affect suckers in a manner not sufficiently addressed in the Program's biological opinion, shall require separate consultation under Section 7 or Section 10 of the Act, as appropriate. For example, a new activity could be the inclusion of water conveyance activities, such as the addition of flow to the SAR. As the human population increases and water supplies become more scarce, the utilization of the SAR as a water conveyance facility is expected to increase. However, neither the construction of hardbank stabilization facilities or withdrawals of water as a result of water conveyance activities would be included as Covered Activities under this Program.

The Covered Activities categories are described below. The minimization measures for each of the Covered Activities that prospective Participants must agree to implement will be more fully defined after the Participant provides a project description specific to their activities. Additional minimization measures may vary depending on the intensity, frequency and geographic location of the activity. The prospective Participant's activity may be included as part of the activities covered under the Program after they have provided a formal written request.

Category I: Maintenance of existing flood control structures and recharge basins.

Existing flood control structures are defined to include levees, groins, riprap bank stabilization structures, drop structures and grade stabilizers. Maintenance does not include the construction of new flood control structures. Maintenance of existing flood control structures include repairing or replacing rip-rap where it has been destroyed through floods, erosion or vandalism and replacing compromised dikes in the same location. Maintenance of recharge basins will consist of rebuilding or repairing levees after storm events or after they have been otherwise compromised.

A second aspect of maintenance can be the modification or replacement of hard bank stabilization structures and drop structures, when they fail or are otherwise compromised, with equal or less impactful structures. Possible modifications or replacements include providing bank stabilization by adding riparian vegetation, changing the slope of the bank to reduce the probability for slope failure, implementing soil bioengineering, maintaining or returning the floodplain to an undeveloped state or modifying channel width. Drop structures may also be modified by providing fish passageways to improve connectivity for the sucker.

General minimization measures for Category I activities:

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1. The Participant must remove and relocate suckers prior to and during instream activities occurring in stretches of the SAR that have known concentrations of sucker. A qualified biologist will implement and oversee the execution of survey and relocation efforts within the project site. Instream activity must be accomplished in a manner that minimizes the stranding of or harm to suckers, therefore suckers will be captured and relocated to a previously designated area upstream of this activity. Prior to the seining and relocation effort, a blocking net will be placed immediately upstream of the project area. Captured suckers should be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) should be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers should be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. The fish should be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.

2. Activities within areas of particularly sensitive habitat, including the unimproved portion of Sunnyslope Channel, Rialto Drain, and any other areas defined by the Program to be particularly important to the survival and recovery of the sucker will require additional minimization measures or may be prohibited.

Category II: Low flow channel maintenance

To maintain capacity of the low flow channel, sediment may be periodically removed from the existing low flow channels.

General Minimization Measures for Category II activities:

1. Avoid sediment removal during spawning season.
2. Use best management practices to reduce turbidity during instream activities.
3. Participate through funding or other measures in preparing a sediment management plan for the SAR.
4. The Participant must remove and relocate suckers prior to and during instream activities occurring in stretches of the River that have known temporal and/or spatial concentrations of sucker. A qualified biologist will implement and oversee the execution of survey and relocation efforts within the project site. Instream activity must be accomplished in a manner that minimizes the stranding of or harm to suckers, therefore suckers will be captured and relocated to a previously designated area upstream of this activity. Prior to the seining and relocation

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effort, a blocking net will be placed immediately upstream of the project area. Captured suckers should be retained in river water in insulated, aerated, and covered containers. Temperature, dissolved oxygen levels and fish behavior (e.g., fish gulping at surface may indicate overcrowded conditions and subsequent low dissolved oxygen levels) should be recorded once an hour until relocation to ensure the optimum water quality is maintained. The physical condition of the suckers should be recorded including gender if detectable from external examination and the presence of external parasites or lesions. Suckers will be relocated within four hours of capture to appropriate areas in the vicinity of the affected reach(es) or other locations specified by the Service. Any Santa Ana speckled dace (*Rhinichthys osculus* spp.), arroyo chubs (*Gila orcutti*), or other native fish that are captured should be retained in river water in insulated, aerated, and covered containers, as necessary. The fish should be relocated as soon as possible to appropriate areas in the vicinity of the affected reach(es) or other locations as specified by the Service. Any exotic fish that are captured should not be released back into affected reach(es) or other areas supporting native fish.

5. Sediment removal and other low flow channel maintenance activities within the unimproved portion of Sunnyslope Channel, Rialto Drain, and any other areas defined by the Program to be particularly important to the survival and recovery of the sucker of the SAR may be prohibited due to the sensitive nature of the habitat and the likelihood of extreme detrimental effects to the sucker.

Category III: Exotic vegetation removal

The removal of exotic vegetation is likely important for the recovery of the sucker within the SAR. There are ongoing efforts within the SAR watershed to remove exotic vegetation, and in particular, giant reed, (*Arundo donax*). These existing programs should be implemented in a coordinated manner to ensure the most effective removal and the least disturbance to the SAR and the sucker.

General Minimization Measures for Category III activities:

1. Avoid disturbance to vegetation along the riverbanks between March and August.
2. In areas where non-native species form monotypic stands, it may be necessary to plant native vegetation.

Category IV: Operation and Maintenance of Wastewater Treatment Plants

As human population growth continues, wastewater treatment plants will likely be constructed and contribute water to the SAR. These wastewater treatment plants may be beneficial to the sucker as treated wastewater contributes to the perennial flow of the SAR. Although the construction of wastewater treatment plants will not be included in the Program, the operation and maintenance of wastewater treatment plans can be incorporated into the Program.

General Minimization measures for Category IV activities:

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1. Ensure water quality levels appropriate to the sucker in the SAR. Water quality standards will be consistent with those required by the California Regional Water Quality Control Board, Santa Ana Region. The Service will work with the California Regional Water Quality Control Board, Santa Ana Region to ensure that those standards are consistent with the conservation of the sucker.

Category V: Operation and Maintenance of Created Wetlands

Constructed wetland are commonly used to remove excess nitrogen from the system and provide wildlife values. Wetlands provide beneficial habitat for birds and other riparian dependent species. The operation and maintenance of wetlands are routine activities that can be covered under the Program. The construction of new wetlands will not be included as a covered activity.

General Minimization Measures for Category V activities:

1. Maintain constructed wetlands so that breeding grounds for non-native predators and competitors of native fish are minimized.
2. Ensure that the influent and effluent channels to and from constructed wetlands have mechanisms to reduce immigration to the wetlands by the sucker and emigration of non-native predators and competitors into the main river channel.

Conservation measures to avoid and minimize potential adverse effects to the sucker during the proposed Covered Activities, including funding to increase the scope and/or extent of Program activities, must be reviewed and approved by the Service. The prospective Participant must commit to transferring the agreed-upon funds to the Program account prior to commencing or re-commencing the proposed Covered Activity.

The Conservation Program may incorporate future Participants as a part of their Section 7 consultation or Section 10 HCP with the Service. Participants, the Service, and the Discussion Team must agree to their participation and the Agreement must be offered and signed by the prospective Participant prior to the conclusion of any subsequent section 7 consultation.

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V. APPENDIX

A. Relevant Biological Opinions and Concurrence Letters

Biological Opinion FWS-SB-2371.2, River Road Sand Mining Biological Opinion, Riverside County, California, April 30, 2002.

Amendment to Biological Opinion, FWS-SB-2371.3, Amendment to River Road Sand Mining Biological Opinion, Riverside County, California, May 15, 2002.

Concurrence Letter, 1-6-96-I-318, Consultation on the River Road Bridge Protection Project, Santa Ana River, Prado Basin, Riverside County Transportation Department, Riverside County, California, September 19, 1996.

Biological Opinion 1-6-97-F-32, Regional General Permit Authorization to Conduct Routine Channel Maintenance Along the Santa Ana River, San Bernardino County, California, April 30, 1999.