

Executive Summary

Imperial Irrigation District Water Conservation and Transfer Project Habitat Conservation Plan

Preface

The Imperial Irrigation District (IID) prepared this Habitat Conservation Plan (HCP) to support its application for issuance of incidental take permits (ITP) under the Federal Endangered Species Act of 1973 (FESA) and the California Endangered Species Act (CESA) in order to implement the conservation and transfer of Colorado River water to other California water agencies. Through this HCP, IID commits to certain management and other actions that will minimize and mitigate the potential impact of any “take” of covered species that may occur as a result of IID’s implementation of the IID/San Diego County Water Authority (SDCWA) Transfer Agreement (Transfer Agreement) and the proposed Quantification Settlement Agreement (QSA), and related activities. The Transfer Agreement and QSA are, in turn, critical elements of California’s Colorado River Water Use Plan (formerly the “4.4 Plan”). California has developed the 4.4 Plan to reduce California’s use of water from the Colorado River in accordance with California’s 4.4 million acre-feet per year (MAFY) apportionment of Colorado River water.

Introduction

IID delivers water from the Colorado River to agricultural and domestic water users within the boundaries of its water service area. This service area covers about 500,000 acres in the Imperial Valley in southeastern California. Irrigated agriculture is the primary economic enterprise within IID’s service area and the primary use of water delivered by IID.

California’s Colorado River Water Use Plan

The use of Colorado River water is allocated among the seven states that comprise the Colorado River Basin. In accordance with the laws governing use of Colorado River water, including court decree, California’s apportionment of Colorado River water is 4.4 MAFY (plus 50 percent of any surplus water). Recent California diversions have been up to 800 thousand acre-feet per year (KAFY) above its normal year (i.e., non-surplus) apportionment. California recently published the Draft California Colorado River Water Use Plan (Water Use Plan) in which the steps necessary to reduce its use to 4.4 MAFY are outlined, including the need for cooperative water conservation and transfers from agricultural to urban use. The IID/SDCWA Water Conservation and Transfer Project is a key component of the Water Use Plan.

IID/SDCWA Transfer Agreement

In 1998, IID and SDCWA executed an Agreement for Transfer of Conserved Water. The IID/SDCWA Transfer Agreement is a long-term (75 years) transaction between IID and SDCWA involving the voluntary conservation by IID of up to 300 KAFY and the subsequent

transfer of all or a portion of the conserved water to SDCWA. The transferred, conserved water is intended for use within SDCWA's service area in San Diego County, California.

The conserved water will consist of Colorado River water that otherwise would be diverted by IID at Imperial Dam for use within IID's service area in Imperial County, California. IID's annual diversions of Colorado River water at Imperial Dam will be reduced by the amount of the conserved water. Water for transfer to SDCWA will be diverted at Parker Dam into the Colorado River Aqueduct operated by the Metropolitan Water District of Southern California (MWD), and SDCWA will receive an equivalent amount of water through MWD's distribution facilities pursuant to an Exchange Agreement between SDCWA and MWD.

Quantification Settlement Agreement

Subsequent to execution of the IID/SDCWA Transfer Agreement, a settlement was negotiated by and among IID, Coachella Valley Water District (CVWD), and MWD, with the participation of the State of California and the Department of the Interior. The proposed terms of the settlement agreement are incorporated in a draft QSA, which is intended to settle, for a period of up to 75 years, long-standing disputes among IID, MWD, and CVWD regarding the priority, use, and transfer of Colorado River water. The QSA facilitates a number of component agreements and actions which, when implemented, will enhance the certainty and reliability of Colorado River water supplies available to the signatory agencies and will assist these agencies in meeting their water demands within California's normal-year apportionment of Colorado River water. The QSA thus implements the goals and key programs of the Water Use Plan.

Under the terms of the QSA, up to 100 KAFY of the water conserved by IID may be transferred to CVWD or MWD or both. The QSA also includes a voluntary contractual limitation of IID's total diversions of Colorado River water under its third-priority water right to 3.1 MAFY.

Purpose and Need for the HCP

The purpose and need for the HCP stems from the need to comply with FESA and CESA and also IID's need for long-term regulatory certainty (up to 75 years) in committing to the IID/SDCWA Transfer Agreement and the QSA. Both the IID/SDCWA Transfer Agreement and the QSA establish long-term water supply arrangements designed to implement the Water Use Plan. Implementation of these agreements will require changes in current farming practices and substantial capital investments in water conservation equipment and technologies. Long-term, no-surprises assurances regarding FESA and CESA compliance measures and costs are needed by IID to commit to the long-term obligations set forth in the IID/SDCWA Transfer Agreement and the QSA.

Area Covered by the HCP

IID conveys and delivers water diverted from the lower Colorado River at Imperial Dam to customers in the Imperial Valley in IID's service area via the All-American Canal (AAC). The HCP area includes all lands comprising the approximately 500,000 acres of IID's service area, lands owned by IID outside of its service area that are currently submerged by the Salton Sea, and IID's rights-of-way along the AAC downstream from the point of diversion

at Imperial Dam. In addition, the HCP covers any take of covered species using the Salton Sea that could occur as a result of IID's activities.

Species Covered by the HCP

The HCP covers 96 fish, wildlife, and plant species with the potential to occur in the HCP area. Several of these are federally and/or state listed species, while the remainder represent currently unlisted species that are present or potentially present in IID's service area, the Salton Sea, or along the AAC.

Term of the HCP

IID is proposing a 75-year term (2002 through 2077) for the HCP. This term is consistent with the term of the IID/SDCWA Transfer Agreement and the QSA.

Activities Covered by the HCP

The activities covered by the HCP include:

- Water conservation and water use activities, including irrigation and drainage of lands to which IID delivers water
- Water conservation activities undertaken by IID, and the farmers, leaseholders or landowners of the Imperial Valley receiving IID water and participating in the conservation program
- Activities of IID in connection with the diversion, conveyance, and delivery of Colorado River water to users within IID's service area, including the AAC
- Activities of IID in connection with the collection of unused irrigation or drainage waters within its service area and conveyance to the Salton Sea

The covered activities specifically include all conservation and mitigation measures in connection with the conservation and transfer of up to 300 KAFY of Colorado River water pursuant to the IID/SDCWA Transfer Agreement and/or the QSA and compliance with the cap on IID's annual diversions of Colorado River water established by the QSA.

Biological Environment

The HCP area lies within the California desert. Before European settlement, the area consisted of native desert vegetation and associated wildlife. Periodically, the Colorado River changed course and flowed northward into the Salton Trough forming a temporary, inland sea. These former seas persisted as long as water entered from the Colorado River, but evaporated when the river returned to its previous course. Thus, despite the periodic occurrence of a lake within the Salton Trough, the HCP area consisted predominantly of a desert ecosystem.

The Salton Sea represents the remnants of the most recent occurrence of flooding by the Colorado River, which, in 1905, breached an irrigation control structure and flowed into the Salton Trough, a dry desert basin. By 1920, agricultural production had increased in both the Imperial and Coachella valleys and the Salton Sea was receiving agricultural drainage water. In 1924 and 1928, presidential orders withdrew all federal lands below -220 feet mean sea level (msl) "for the purpose of creating a reservoir in the Salton Sea for storage of waste and seepage

water from irrigated land in Imperial Valley.” Since its formation in 1905, the Salton Sea has been sustained by irrigation return flows from the Imperial, Coachella, and Mexicali valleys.

The availability of a reliable water supply affected by construction of Hoover and Imperial dams and the AAC facilitated sustained intensive cultivation within the Imperial Valley. To support agricultural production in the valley, an extensive network of canals and drains was constructed to convey water from the Colorado River to farms in the valley and subsequently to transport drainage water from the farms to the Salton Sea. The importation of water from the Colorado River and subsequent cultivation of the Imperial and Coachella valleys radically altered the Salton Trough from its native desert condition. The availability of water in the drains and canals supported the development of mesic (marsh-associated) vegetation and, in some locations, patches of marsh-like habitats (e.g., along the Salton Sea and seepage from canals). These mesic habitats, in addition to the productive agricultural fields and the Salton Sea, have attracted and currently support numerous species of wildlife that would be absent or only present in low numbers in the native desert habitat. Today, only isolated remnants of desert habitat remain in the HCP area, which is bounded by the main irrigation water delivery canals on the east and west sides of the IID water service area. The vast majority of the habitat supporting covered species is created and maintained by water imported to the Imperial Valley for agricultural production. Native desert habitat surrounding the IID water service area has not changed as a result of IID’s activities and will not change as a result of the water conservation.

Habitat Conservation Plan Components

The HCP employs both habitat-based and species-specific approaches. The habitat-based component of the conservation strategy of the HCP focuses on mitigating the potential loss of habitat values (quality and quantity) of each habitat type within the HCP area. The overall conservation strategy for the IID HCP is to maintain or increase the value (amount and/or quality) of each habitat in the HCP area in addition to implementing measures to minimize direct effects to covered species from operation and maintenance (O&M) and construction activities. In addition to the habitat-based conservation approach of the HCP, a species-specific approach is used to address individual species or groups of species (i.e., burrowing owls, desert pupfish, razorback suckers, and other covered species) that are not easily accommodated by habitat approach. Consistent with the guidance provided by the USFWS, all HCP effects are evaluated on a species-by-species basis.

IID’s HCP contains specific conservation strategies for:

- Salton Sea habitat
- Tamarisk scrub habitat
- Drain habitat
- Desert habitat
- Agricultural field habitat
- Burrowing owls
- Desert pupfish
- Razorback sucker
- Other covered species

General HCP Commitments

To ensure proper implementation of the HCP measures and the Monitoring and Adaptive Management Program, the HCP includes commitments by IID to:

- Hire a full-time biologist to oversee implementation of the HCP measures
- Establish and convene an HCP Implementation Team composed of representatives from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and IID to guide implementation of the mitigation and adaptive management elements of the HCP

Salton Sea Conservation Strategy

Water conservation by IID is anticipated to reduce drain water discharge and accelerate the rate at which salinity increases in the Salton Sea. The increase in salinity is expected to eventually lead to conditions in the Salton Sea that would no longer support fish. Although the Salton Sea is projected to become too saline to support fish even in the absence of water conservation, the anticipated acceleration of salinization caused by water conservation would hasten the loss of fish in the Sea and lead to the discontinued use by piscivorous (fish-eating) birds, such as pelicans. Current modeling projections suggest that average salinity in the Salton Sea under the IID/SDCWA Water Conservation and Transfer Project could reach a level that would no longer support viable populations of tilapia (the fish species in the Salton Sea that serves as the birds' primary forage base) approximately 11 years earlier than if the water conservation program were not implemented. The discontinued use of the Salton Sea by piscivorous birds could result in take as defined by the FESA by the U.S. Fish and Wildlife Service.

A salinity of 60 parts per thousand (ppt) is the threshold above which tilapia (the primary forage fish for piscivorous birds at the Salton Sea) are predicted to become impaired. For the Baseline, hydrological modeling predicted that the salinity of Salton Sea would exceed 60 ppt by 2030 with 95 percent probability. Under the Salton Sea Conservation Strategy, IID would acquire and discharge water to the Sea such that the salinity of the Salton Sea would remain at or below 60 ppt until 2030. Thus, provision of this water to the Sea would maintain the salinity of the Salton Sea equal to or lower than the salinity that would occur under the Salton Sea Baseline until 2030. Through this commitment, IID would ensure continued persistence of fish in the Salton Sea (and therefore piscivorous birds) for a period the same as that projected under the Salton Sea Baseline. Under this strategy, the duration and level of use of the Salton Sea by piscivorous birds would be expected to be the same as or longer than would have occurred under the Salton Sea Baseline. This approach also would avoid impacts to nesting/roosting sites from the water conservation and transfer programs because the provision of water to the Sea would maintain the elevation of the Sea at or above the surface elevation that would occur under the Salton Sea Baseline.

In addition, IID has committed to avoiding or mitigating take of other covered species resulting from increased salinity or reduced Sea level that could occur after IID ceases discharging water to the Salton Sea as mitigation. The key elements are to:

- Ensure an appropriate level of connectivity among pupfish populations in the drains if an increase in the salinity prevents movement of fish among drains

- Replace tamarisk scrub habitat lost as a result of reduced Sea levels caused by water conservation with native tree habitat consisting of mesquite bosque or cottonwood-willow habitat

Tamarisk Scrub Conservation Strategy

In the HCP area, tamarisk scrub is found along the New and Alamo rivers, sporadically along some drains, in seepage areas adjacent to the East Highline Canal and All American Canal, adjacent to the Salton Sea, and in other scattered and isolated patches throughout the HCP area wherever water is available. Although tamarisk is an exotic plant species and provides lower habitat value than native vegetation (e.g., mesquite and cottonwood), it dominates the plant community in portions of the HCP area and provides habitat for some covered species. Implementation of water conservation and ongoing O&M activities has the potential to affect tamarisk scrub habitat and the covered species that use it. The biological goal of the Tamarisk Scrub Habitat Conservation Strategy is to maintain the species composition and life history functions of covered species using tamarisk scrub habitats. The approach to the Tamarisk Scrub Habitat Conservation Strategy entails a combination of minimization and mitigation measures. The key elements are to:

- Minimize take, including disturbance, of covered species as a result of construction activities
- Protect or create native tree habitat to mitigate the take of covered species resulting from loss of tamarisk scrub or native tree/shrub habitat permanently removed as a result of construction activities

Drain Habitat Conservation Strategy

IID operates and maintains agricultural drains in the HCP area, portions of which support vegetation used by covered species. Implementation of water conservation and ongoing O&M has the potential to result in the take of covered species. The biological goal of the Drain Habitat Conservation Strategy is to maintain the species composition and life history functions of covered species using drain habitat. The approach of the Drain Habitat Conservation Strategy is to create high-quality managed marsh habitat to augment existing drain habitats and to implement measures to minimize the direct effects of O&M and construction activities on covered species. The key elements are to:

- Create at least 190 acres of managed marsh habitat
- Create up to an additional 462 acres of managed marsh habitat depending on the actual amount of covered species habitat in the drains determined by surveys
- Minimize disturbance and mortality/injury of covered species during dredging at the mouths of the New and Alamo Rivers
- Minimize take, including disturbance, of covered species as a result of construction activities

Desert Habitat Conservation Strategy

Desert habitat in the HCP area occurs in the rights-of-way of the AAC, East Highline and portions of the Westside Main, Thistle, and Trifolium Extension canals. IID's maintenance

operations rarely affect desert habitat directly, but activities conducted adjacent to desert habitat could result in the take of a covered species. The biological goal of the Desert Habitat Conservation Strategy is to avoid and minimize death or physical injury of individuals of the covered species, and to improve habitat contiguity and persistence to mitigate changes in habitat quality or quantity caused by construction activities. The approach to the Desert Habitat Conservation Strategy is to implement a program to minimize the potential for take of covered species during O&M activities, and to compensate for habitat loss if construction activities impact desert habitat. The key elements are to:

- Implement a worker education program
- Implement interim measures to avoid and minimize the potential for take of covered species during O&M activities
- Implement specific measures to avoid and minimize the potential for take of covered species during construction activities along the AAC, East Highline Canal, and portions of the Westside Main, Thistle, and Trifolium Extension canals
- Conduct surveys to determine the occurrence of covered species
- Acquire and protect offsite desert habitat if construction activities permanently reduce the quality or availability of habitat

Burrowing Owl Conservation Strategy

The agricultural areas of the Imperial Valley support high densities of burrowing owls, particularly along the canal and drain system operated and maintained by IID. Although IID's maintenance activities contribute to the quality of burrowing owl habitat, these activities have the potential to take burrowing owls. The biological goal of the Burrowing Owl Conservation Strategy is to maintain a self-sustaining population of burrowing owls across the current range of the species in the HCP area. The approach consists of a combination of measures to minimize effects of O&M and construction activities on owls and their habitat, and measures to enhance habitat availability. The key elements are to:

- Implement a worker education program
- Avoid and minimize the potential for covered activities to take individual owls by modifying maintenance activities in areas occupied by owls or scheduling activities during periods that would avoid the breeding season
- Continue maintenance practices that maintain and create suitable habitat conditions
- Initiate and implement a comprehensive population and demographic study to develop the information necessary to guide adjustments in the burrowing owl mitigation and management program
- Compensate for loss of burrows if construction activities would eliminate suitable burrows by installing replacement burrows
- Implement a farmer and public education program

Desert Pupfish Conservation Strategy

Desert pupfish have become established in many of the drains constructed and maintained by IID that discharge directly via gravity into the Salton Sea. Although IID routinely maintains adequate drainage in these channels by removing vegetation and sediment, these drains provide the habitat conditions necessary to support pupfish. IID's maintenance activities, while likely necessary to maintain the habitat characteristics that support pupfish, have the potential to result in the incidental take of pupfish. In addition, implementation of water conservation projects has the potential to change water quality in the drains occupied by pupfish and to adversely affect pupfish. The biological objective of the desert pupfish conservation strategy is to maintain or increase pupfish habitat in the drains relative to the current levels and to minimize the potential for IID's drain maintenance activities to result in take of pupfish. The key elements are to:

- Operate and maintain the drainage system in a manner that will maintain the amount of drain habitat currently available (i.e., no net loss) in the portion of IID drains that flow directly to the Salton Sea
- Operate and maintain drain channels in a manner that minimizes the effects of water conservation on water quality, particularly concentrations of selenium
- Increase the amount of pupfish drain habitat by extending, modifying, or creating drain channels on land exposed if the elevation of the Salton Sea recedes
- Implement a study to evaluate the potential effect of routine drain maintenance on pupfish occupying the drains and to determine the efficacy of modifying current maintenance practices to avoid and minimize the potential for incidental take
- Avoid or minimize the potential for incidental take of pupfish by IID construction activities by implementing procedures for dewatering construction sites and salvaging and relocating pupfish potentially stranded by construction activities

Razorback Sucker Conservation Strategy

Razorback suckers are known to occur in the All-American and East Highline Canal systems as a result of movement by fish from the Colorado River into the system. Because they are isolated from the main population and are not known to be reproducing, razorback suckers in the HCP area are not contributing to the overall razorback sucker population. As a result, loss of these individuals would have no effect on the razorback sucker population. Although incidental take of individual razorback suckers in the IID canals system would not impact the species' population, IID will implement measures to minimize mortality of suckers as a result of canal dewatering. The key element of this approach is to:

- Monitor segments of the canal system during dewatering operations and salvage and transport any stranded razorback suckers to the Colorado River

Agricultural Field Habitat Conservation Strategy

Agricultural fields in the Imperial Valley attract a large variety and number of wildlife species, including some covered species. Foraging is the predominant use of agricultural fields by covered species, although fields also are used as resting habitats. Species that exploit agricultural habitats would benefit under the HCP from IID obtaining incidental

take authorization and unlisted species assurances because such assurances would encourage continued agricultural production. The biological objective of the Agricultural Field Habitat Conservation Strategy is to maintain agriculture as the primary enterprise in IID's service area to continue to provide foraging habitat for covered species associated with agricultural field habitat. This objective is facilitated by the IID/SDCWA Water Transfer Agreement, the QSA, and the implementation of this HCP. In addition to the incentives to continue agriculture in the Imperial Valley provided by these actions, the approach includes a measure that will help avoid the potential for incidental take associated with implementation of on-farm water conservation techniques. This measure entails the installation of markers on any new power lines installed in association with the water conservation program (e.g., to serve pumps used for tail-water recovery ponds) to avoid or minimize the potential for collisions with wires by covered species.

Other Covered Species

Of the 96 species covered by this HCP, USFWS and CDFG identified 25 species for which existing information on the ecology and distribution in the HCP area is limited or that might not occur in the HCP area. Under the HCP, IID will implement species-specific measures to avoid, minimize and mitigate take of these 25 species. IID also will implement a research program to better understand the presence, distribution, and ecological requirements of these species in the HCP area. Based on the results of the research program, IID will implement revised measures to avoid, minimize, and mitigate the impacts of any take of these species resulting from the covered activities as recommended by the HCP Implementation Team and approved by the USFWS and CDFG.

Monitoring and Adaptive Management

Monitoring the effectiveness of the conservation measures and ensuring compliance with the terms of the conservation program are mandatory elements of an HCP. The HCP includes a comprehensive monitoring and adaptive management program to help ensure that compliance with the measures of the HCP is achieved, that the anticipated effectiveness of the measures is assessed, and that adjustments in the species conservation measures, where necessary, are made in response to new information. The monitoring requirements for each of the HCP elements are summarized below:

Salton Sea Conservation Strategy

- IID will demonstrate compliance with the measures for this strategy through the reporting requirements and involvement of the HCP implementation team (IT).
- IID will evaluate the effectiveness of the measures for this strategy by conducting baseline and periodic surveys to quantify net changes in the total amount of tamarisk in shoreline strand and adjacent wetland dominated by tamarisk.
- Based on the results of the effectiveness monitoring, IID and the HCP IT may recommend changes to one or more of the conservation measures. IID will submit a description of the actions to be implemented to the USFWS and CDFG for approval.

Tamarisk Scrub Habitat Conservation Strategy

- IID will demonstrate compliance with the measures for this strategy through the reporting requirements and involvement of the HCP IT.
- The involvement of the HCP IT and approval requirements from USFWS and CDFG will ensure that any property acquired or habitat created by IID will support use by the covered species associated with tamarisk scrub. IID will monitor use of the created habitat by covered bird species and other bird species. The HCP IT will develop the species requirements for monitoring, including the survey technique, timing of the surveys, and duration of the surveys following creation of the habitat.
- Monitoring data will be used in conjunction with other relevant data to adapt management of native tree habitats as necessary to meet the biological goals.

Drain Habitat Conservation Strategy

A baseline survey of the covered species will be conducted during a consecutive 3-year period to determine the seasonal occurrence and distribution of covered species using drains in the HCP area.

- IID will demonstrate compliance with the measures for this strategy through the reporting requirements and involvement of the HCP IT.
- IID will conduct species-specific surveys for Yuma clapper rails and California black rails and conduct general surveys for other covered species in the created managed marsh habitat.
- Monitoring data will be used in conjunction with other relevant data to adapt management of managed marsh habitats as necessary to meet the biological goals.

Desert Habitat Conservation Strategy

A baseline survey of the covered species will be initiated within 1 year of issuance of the incidental take permit and conducted during a consecutive 3-year period to determine the seasonal occurrence and distribution of covered species along the AAC, East Highline, Westside Main, Thistle, and Trifolium Extension canals in the HCP area. Prior to conducting surveys for the covered species along these canals, IID will conduct a habitat survey to identify and map habitat and habitat features.

- IID will demonstrate compliance with the measures for this strategy through the reporting requirements and involvement of the HCP IT. The HCP Implementation Biologist will also periodically conduct random checks (during their routine duties) of workers conducting O&M activities to assess whether workers are following the standard operating procedures.
- Information on the effectiveness of the measures will come from the workers and HCP Implementation Biologist. Workers will be instructed to report any incidences of mortality or injury of a covered species. The biologist will be regularly coordinating with workers, monitoring construction activities, and checking on the effectiveness of the measures.

- The HCP IT will review the measures of the desert habitat conservation strategy annually for the first 3 years and every 3 years thereafter. The HCP IT may adjust the measures based on results of the species and habitat surveys, prevailing practices for avoiding take, observations/recommendations of the HCP Implementation Biologist, among others.

Burrowing Owl Conservation Strategy

- Submission of preconstruction checklists and copies of the worker education manual and updates of the manual to the USFWS and CDFG will serve as compliance monitoring for this strategy. In addition, the HCP Implementation Biologist will periodically conduct random checks (during their routine duties) of workers conducting O&M activities to assess whether workers are following the standard operating procedures for burrowing owls.
- Monitoring to evaluate the effectiveness of the measures for this strategy will include surveys of the drainage and conveyance system in such a manner as to provide a valley-wide perspective of the burrowing owl population each year for the term of the permit and conduct of a study of the burrowing owl population to understand the status of the population and estimate key population parameters.
- The results of the demographic study will be used to determine the population trend of the burrowing owl population. If the burrowing owl population is shown to be in decline, the HCP Implementation Team will have the option to access the Owl Contingency Fund. The contingency fund may be used to conduct focused studies to understand the factors influencing the burrowing owl population, implement management actions to benefit the population (e.g., creating burrows), continue the demographic study, or other actions recommended by the HCP IT.

Desert Pupfish Conservation Strategy

- IID will demonstrate compliance with the measures for this strategy through the reporting requirements and involvement of the HCP IT.
- The HCP IT will develop an appropriate protocol for monitoring pupfish presence in drains maintained by IID and in drain channels constructed as mitigation. IID will also monitor selenium concentrations in any drains modified as mitigation to determine the effectiveness of the action.
- Through the adaptive management, drain maintenance activities could be adjusted based on information developed through the evaluation of the maintenance practices and drains could be reconfigured to improve water quality (selenium) conditions if justified by the results of studies of selenium effects on pupfish.

Razorback Sucker Conservation Strategy

- Whenever suckers are salvaged, IID will submit information on location, numbers, ages, and survival of salvaged suckers to the USFWS and CDFG within one week of salvaging the fish. Submission of this information will serve as compliance monitoring for this strategy.

- The reports submitted to USFWS and CDFG of the number of fish salvaged and the number surviving until release will allow an assessment of the effectiveness of the measure in avoiding mortality of razorback suckers.
- Over the term of the permit, the HCP IT may adjust the procedures to improve survival of fish during capture, transport and release. The HCP IT may adjust the procedure if the compliance monitoring shows a high level of mortality or for consistency with standard practices developed by the USFWS or CDFG.

Costs and Funding

The estimated cost of implementing the HCP ranges widely depending on the ultimate amount of habitat creation necessary under the Drain Habitat and Tamarisk Scrub Habitat Conservation Strategies, and for tamarisk adjacent to the Salton Sea under the Salton Sea Habitat Conservation strategy. Per commitments identified in the IID/SDCWA Water Conservation and Transfer Agreement and the QSA, approximately \$22.5 million has been allocated for the environmental mitigation required to mitigate project impacts and to minimize the impact of the potential take of covered species. Any mitigation costs in excess of the \$22.5 million estimated to minimize and mitigate project impacts could be funded through one or a combination of the following: revenue generated through conservation and transfer of water, additional funds contributed by the water agencies, and grants or funding provided by the federal and state governments.

Response to Emergencies

When an emergency occurs such that IID cannot comply with all of requirements of the HCP, IID will implement the following procedures:

- IID will notify the USFWS and CDFG within 24 hours of initiating emergency activities. In notifying the USFWS and CDFG, IID will describe the nature of the emergency and the actions necessary to correct the problem.
- Where multiple actions need to be taken, the HCP Implementation Biologist will work with repair crews to prioritize repairs based on the risk to covered species and habitats for covered species provided under the HCP and threats to human health and safety and property.
- The HCP Implementation Biologist will visit sites where emergency activities are being implemented as soon as possible. The biologist will take pictures of the damaged areas and note the general extent and species composition of any vegetation impacted by the emergency response activities.
- Within one month of completing emergency actions, IID will meet with USFWS and CDFG to review the measures IID will implement to mitigate any impacts resulting from the emergency actions.
- Following agreement with the USFWS and CDFG regarding appropriate mitigation, IID will prepare a Post Incident Report for submittal to these agencies.

To facilitate effective and appropriate responses to emergencies, the HCP IT may refine and further specify these general procedures to address specific types of emergencies that could arise.

Changed and Unforeseen Circumstances

IID identified several circumstances under which changes could occur during the term of the ITP that would result in a substantial and adverse change in the status of a species covered by the HCP. These relate primarily to circumstances that influence IID's ability to carry out its obligations: (1) on managed marsh and native tree habitats created and managed for mitigation, (2) in habitats supported by IID water (e.g., pupfish drains), and (3) in habitats acquired and managed for mitigation. These circumstances include:

- Seismic activity that affects IID's conveyance and drainage infrastructure and/or its ability to deliver or drain water
- Storm events that result in damage to IID infrastructure and substantial flooding
- Toxic spills that influence operations or directly affect species and habitat
- Introduction and invasion by exotic plant or animal species that affect covered species or their habitat
- Disease outbreaks that affect covered species
- Drought conditions in the Colorado River basin that influence the availability of water in the Imperial Valley
- Land condemnation actions by others

IID anticipates that these events could occur during the term of the HCP. Through the combination of implementing the emergency procedures and specific requirements outlined for each of these categories above, IID will ensure that the objectives of the HCP will continue to be met.

Alternatives

Section 10 of the FESA requires an applicant for an ITP to consider and describe "alternative actions to such takings" within the HCP. IID considered three alternatives in the process of developing the HCP that were determined to be inconsistent with its objectives and/or less likely to be successfully implemented. The alternatives to the HCP that were considered are listed below.

No Action Alternative

Under the No Action Alternative, IID would continue to meet the demands of farmers and other water users within its service area in the Imperial Valley using Colorado River water diverted in accordance with IID's existing water rights. IID would not engage in a program to conserve additional water for the purpose of transferring it outside the service area. IID has determined that this alternative could lead to the impairment of its ability to deliver water in the future and result in negative impacts to its customers, the biological resources,

and the agricultural economy that depend on water delivery. Therefore, IID considered the No Action Alternative to not be practicable or feasible.

Modification of Water Conservation and Transfer Amounts

Two different levels of water conservation (conservation and transfer of 130 KAF and 230 KAF) were examined as alternative actions to the level of take anticipated under the proposed water conservation programs and the HCP. The underlying premise for considering these alternatives was that the potential for impact and the level of take are related to the amount of water conserved and transferred out of the system. Each of these alternatives was anticipated to have incrementally less impact relative to the Proposed Project. However, IID determined that reduced conservation and transfer amounts would not substantially reduce the level of take or mitigation requirements. For these reasons, a reduced HCP alternative was not adopted. However, reduced levels of conservation are Project Alternatives and HCP alternatives as described in the IID Water Conservation and Transfer Project EIR/EIS and HCP.