

6.0 HABITAT CONSERVATION PLAN/MEASURES TO AVOID, MINIMIZE AND MITIGATE IMPACTS

6.1 IMPLEMENTATION OF THE FIVE POINT POLICY

The U.S. Fish and Wildlife Service and National Marine Fisheries Service have a five-point policy for HCPs. The five-point policy addresses (1) biological goals for species covered by an HCP, (2) adaptive management, (3) monitoring, (4) permit duration, and (5) public participation. These elements of the five-point policy were used in developing this HCP, as discussed below.

6.2 BIOLOGICAL GOALS AND OBJECTIVES

The biological goals and objectives of this HCP are to minimize and mitigate authorized incidental take from activities included in the HCP on covered species. The HCP includes a conservation program to avoid, minimize, and mitigate adverse effects on covered species. The HCP includes biological goals and objectives based on conservation needs of the covered species and their habitat.

The objectives of the HCP are to (1) reduce mortality and enhance habitat for steelhead and red-legged frogs, identified for protection under the Endangered Species Act, and (2) promote recovery of steelhead and red-legged frogs. The HCP identifies management actions to:

- Minimize and avoid adverse impacts that would jeopardize species;
- Minimize and avoid indirect impacts on species from increased predation, and impacts to wetland/riparian vegetation and instream habitat;
- Provide habitat enhancement to compensate for unavoidable losses; and
- Implement actions to protect covered species and promote their recovery.

Specific objectives of the HCP are:

- Use managed releases from Lopez Reservoir to (1) enhance instream habitat for steelhead, (2) reduce or avoid adverse impacts from dewatering steelhead habitat, and (3) reduce or avoid adverse impacts of instream flows on red-legged frog habitat;
- Implement habitat improvement and actions to reduce or avoid impacts and enhance environmental conditions to benefit steelhead and/or red-legged frogs;
- Reduce or avoid adverse impacts of operations and maintenance under the direct authority of the District.

Conservation strategies to enhance red-legged frog habitat while allowing increased flows for steelhead include:

- Creation of deep pools in Arroyo Grande Creek to allow red-legged frog refuge from fast flows;

- Creation of side pools and ponds adjacent to the main channel that are unaffected by diminished late season flows; and
- Protection of existing red-legged frog breeding ponds.

6.3 ADAPTIVE MANAGEMENT AND THE TECHNICAL COMMITTEE

Adaptive management provides flexibility to modify conservation actions as new information becomes available. The HCP uses adaptive management to account for new information from biological monitoring conducted under the HCP and information collected in the region by other investigators. The adaptive management strategy includes priorities and program adjustments to respond to new information on risk of adverse effects on covered species, uncertainty, and alternative methods to avoid, minimize, or mitigate adverse effects on covered species. A Technical Committee will provide scientific guidance in evaluating monitoring, reviewing and revising priorities, identifying actions to protect covered species and improve and enhance habitat conditions in Arroyo Grande Creek and the adjacent watershed, and provide recommendations to the District regarding funding of management actions under the HCP. This will allow the program to respond to new scientific information over the 20-year duration of the HCP; allow flexibility in implementing measures to protect covered species; avoid, minimize, and mitigate adverse impacts; and address uncertainty and changing conditions in Arroyo Grande Creek. The role of adaptive management and the Technical Committee in the Arroyo Grande Creek HCP is described below.

6.3.1 Adaptive Management

The HCP will be adaptively managed to reflect new scientific, engineering and technical information that becomes available over the 20-year period of this HCP. The HCP can also be adaptively managed to reflect changing priorities for State and federal funding and availability of funds to augment financial resources committed by the District under this plan (Section 7). The proposed actions in this HCP were designed to be flexible for modification as new information becomes available. In addition, the program incorporates an annual review of priorities and activities to reflect new information from scientific investigations by CDFG, USFWS, NOAA Fisheries, or others.

6.3.2 Technical Committee

General Responsibility/Composition

The HCP Technical Committee (TC) will address implementation and performance evaluations of actions developed through this HCP. Participants in the Technical Committee will include representatives of the U.S. Fish and Wildlife Service, National Marine Fisheries Service (Southwest Region), California Department of Fish and Game, and the District.

The Technical Committee will evaluate, on an annual basis, performance in achieving biological goals and objectives of the HCP. The District will prepare an annual technical report (Section 6.4) to provide input to the Technical Committee for performance evaluation and recommended modifications to the HCP program, including identification of priority actions for

funding. The Technical Committee will provide technical review of pertinent information and identification and evaluation of environmental restoration activities. The Technical Committee will review scientific information from monitoring programs, recommend actions to be implemented under the HCP, recommend funding priorities, and assist in securing additional State and federal funds for habitat enhancement. At the discretion of the Technical Committee, reports, data, or recommendations for actions may be provided to technical experts in State and federal agencies, academia, or private industry for independent peer review and comment. Recommendations for specific HCP actions will be based on the best available scientific information at the time, and will be by consensus among Technical Committee participants. In evaluating alternative actions the Technical Committee must consider the biological benefits, capital, operating and maintenance costs, and schedule for implementing specific projects.

Dispute Resolution

The Technical Committee will consider projects implemented under the HCP based on engineering feasibility, operational reliability, cost, biological benefit, and potential adverse impacts to District facilities and their safe and reliable operations. If disagreements among Technical Committee members on projects to be implemented or funding allocations cannot be resolved at the technical level, Technical Committee members may request review of recommendations at a policy-level (Regional Manager/Director) by each participating agency. Each resource agency shall retain authority for recommendations regarding those species the agency is charged with protecting. Implementation of recommendations will be at the discretion of the District, as described below.

Specific Tasks/Review Process

The Technical Committee will meet yearly to review HCP implementation and new scientific information, and consider actions to be funded by the program. The Technical Committee will also meet, as needed, to address concerns such as take of a covered or non-covered species, changed or unforeseen circumstances or other events warranting immediate attention. The District will implement Technical Committee recommendations provided (1) the modification does not adversely impact operations or water deliveries; (2) the cost of improvements, operation, and maintenance does not exceed the cumulative total of \$1,000,000 over the life of the HCP; and (3) the cost does not exceed the District's annual conservation funding obligation described in Section 7.2 below.

The Technical Committee will also review refinements to the HCP in response to (1) listing of new species in the geographic area of the HCP that are vulnerable to incidental take from activities covered under the HCP, (2) formal recovery plans adopted for covered species, or (3) substantial population declines (related to activities covered under this HCP) by a species not covered by the HCP. The Technical Committee will use the best available scientific and commercial information to evaluate alternatives, refinements, and recommended amendments to the HCP.

The Technical Committee shall, based on the best available scientific and commercial information, recommend measures to accomplish conservation and enhancement objectives of

the HCP. Consideration of actions recommended by the Technical Committee would be based on new scientific information that becomes available during the period of the HCP, results of monitoring and evaluation of the effectiveness of various actions, response to changed and unforeseen circumstances, and consistency with established engineering practices and safe, reliable operation of District facilities.

Selection of actions for implementation will be based on: (1) impacts of modifications to Lopez Project operations and maintenance, (2) biological benefits to covered species, and (3) availability of state, federal, and local funds. Identification, evaluation, and funding of actions to be implemented will be a cooperative effort involving State and federal agencies and the District. Priorities for actions will be evaluated annually based on current funding, advancements in technology and biological knowledge, coordination with other actions, and HCP priorities.

Under adaptive management, mitigation activities under this HCP will be monitored to determine if they are producing the desired results. If monitoring results suggest changes or modifications to the conservation strategy are required, the modifications can be implemented as part of the HCP. In addition, uncertainty currently exists regarding design and implementation of several actions considered as part of this HCP, including design and location of habitat enhancement sites. Results of monitoring and additional engineering and biological analyses regarding elements of the conservation strategy will be evaluated as part of the adaptive management of this HCP. The adaptive management process in the conservation strategy for the HCP is consistent with guidelines in the Endangered Species Habitat Conservation Planning Handbook (USFWS and NMFS 1996).

6.4 MONITORING AND REPORTS

Monitoring is essential to an HCP, providing information on achieving biological goals and objectives, and information for adaptive management to adjust and refine conservation measures. Monitoring will be performed throughout the HCP, to document compliance with operating constraints included in the conservation measures. If deemed appropriate by the Technical Committee, funds in the Conservation Account may be used for specific monitoring projects associated with this HCP. The information will support adaptive management of conservation measures implemented under the HCP and assessment of the relative contribution of the measures in achieving HCP biological goals and objectives.

6.4.1 Monitoring and Acquisition of Scientific Information

Monitoring will provide information on performance of management actions and scientific information to identify future management actions. Monitoring will also evaluate performance of the HCP in meeting overall biological goals and objectives.

Fish and wildlife surveys have been conducted in San Luis Obispo County and surrounding areas by California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and other private and public entities. Data from these studies provide information on regional status of the covered species, for use in developing recovery plans.

Monitoring in Arroyo Grande Creek for this HCP will provide data on environmental conditions in the creek, and the status of covered species and their habitat. HCP monitoring will include (1) baseline monitoring of the creek, and (2) project-specific monitoring of flow and non-flow actions implemented under the HCP. Baseline monitoring includes continued collection of data on releases from Lopez Reservoir, and information on water quality (e.g., temperature) in Lopez Reservoir and Arroyo Grande Creek.

Project-specific performance monitoring will be based on objectives and characteristics of each individual project. This might involve evaluating the performance of instream structures to improve juvenile steelhead cover habitat and provide additional pools, and quality and use of spawning gravel enhancements. Site-specific monitoring will be identified for individual HCP activities, specifying biological objectives and design characteristics of each individual project, data collection methods, experimental design and statistical analysis to evaluate project performance, and permitting requirements for data collection. A brief example of elements of monitoring for red-legged frog and performance of habitat enhancement projects is presented in Section 6.4.2.

Information from regional monitoring programs and monitoring conducted specifically for the HCP will be used by the Technical Committee to evaluate priorities for actions under the adaptive management element of the HCP, and overall performance of the HCP. Monitoring in Arroyo Grande Creek will provide information on incidental take and the performance of the program for avoiding and minimizing adverse effects on steelhead and red-legged frogs. Monitoring results will be used by the Technical Committee to modify the HCP in response to changed or unforeseen circumstances.

6.4.2 California Red-Legged Frog Monitoring Program and Adaptive Management

This monitoring program was designed 1) to evaluate the effectiveness of the HCP actions in improving and perpetuating red-legged frog populations within the HCP area; and 2) to identify changes to the HCP program that may be needed. An analysis of the effectiveness of the habitat enhancement measures will be conducted throughout HCP implementation, in consultation with the USFWS and other participants in the Technical Committee.

The red-legged frog monitoring program has been designed to:

- Determine red-legged frog occurrence, relative abundance, and habitat conditions within the HCP area,
- Identify relationships that may exist between habitat conditions and population status, and
- Determine occupancy of nonnative red-legged frog predators and efficacy of predator control measures.

Focused field surveys should include the following actions:

- Conduct red-legged frog breeding assessments at all newly created and modified pools and ponds. These assessments should consist of field surveys in late February to early March for breeding adults at night and egg masses during the day, and field

surveys in May for larvae. Timing of the surveys should be adjusted to reflect rainfall patterns;

- Record water levels at new or modified pools and ponds during the field surveys, and periodically during June, July, and August. This would provide a record of water depth in breeding ponds to evaluate the potential for reproductive success;
- Collect occurrence and abundance data on bullfrogs and other nonnative predators at all newly created and modified pools and ponds;
- Conduct surveys at existing ponds to establish baseline conditions prior to modifications;
- Monitor water velocity in pools developed as red-legged frog habitat within Arroyo Grande Creek; and
- Monitor the composition and abundance of riparian and aquatic vegetation at each new and modified site.

The effectiveness of the conservation measures would be evaluated against the performance criteria. Results would be evaluated as part of the adaptive management process.

One of the overall goals of this HCP is to enhance, restore, and create habitat for red-legged frog to ensure that self-sustaining populations are maintained. Performance criteria provide a benchmark for measuring compliance with and effectiveness of approved habitat conservation plans. In general, performance criteria may include elements such as:

- Ponded water depth should be at least 3 feet in at least one part of each pool or pond; ponded water should remain until mid-August;
- No more than 50 percent of the pond perimeter should support woody plant species (e.g., willows);
- At least 10 percent of the pond shoreline should be maintained as open habitat and free of emergent vegetation; and
- Predatory species, including bullfrogs and crayfish, collected at the managed ponds will be permanently removed.

6.4.3 Reports

The District will prepare an annual letter report documenting the annual review and recommendations by the Technical Committee on funding priorities and allocations from the HCP account, and the current status of HCP account contributions and expenditures (Section 7.0). The annual report, submitted to each participating State and federal resource agency, will include:

- Biological monitoring results obtained as part of this HCP and relevant results from other organizations describing changes in population abundance or geographic distribution of covered species, or other scientific information relevant to adaptive management of the HCP;

- A summary of key issues, conclusions, and recommendations of the Technical Committee on funding allocations, including discussion of agreement and disagreement on funding priorities among Technical Committee members;
- Status of design, construction, and performance monitoring of projects implemented under the HCP;
- Recommended modifications or refinements to the HCP based on performance monitoring, compliance with operational criteria, incidental take, or changed or unforeseen circumstances;
- Summary of District contributions to the HCP account and expenditures including allocations for approved projects, services-in-kind, commitments and expenditures of grant funds secured from cost-sharing programs, and annual and cumulative contributions and expenditures; and
- A status report on grant applications and proposals for funding augmentation.

A draft annual report will be submitted to the Technical Committee for review and comment by February 15 each year. The Technical Committee will have three weeks to review the draft and provide written comments. The District will distribute the final annual report to State and federal resource agencies, and other interested parties, by March 15 of each year.

6.5 PERMIT DURATION

A variety of factors affect the permit duration, including the duration of proposed activities, and expected effects on covered species and their habitat. Additional considerations include the extent of scientific and commercial data available for developing the HCP; the time needed to implement and achieve benefits of the conservation program; the extent that the HCP incorporates adaptive management; and the uncertainty about the ability of the conservation program to achieve biological goals and objectives. Adaptive management of the HCP allows flexibility to refine the program to respond to new information and circumstances arising during the program.

Based on these factors, a permit duration of 20 years was selected for this HCP. The 20-year permit period will not begin until final approval of the HCP, but it is anticipated that the period would extend from approximately 2005 to 2025.

6.6 PUBLIC PARTICIPATION

Public participation in review and comment on the draft HCP, and associated environmental documentation prepared in compliance with NEPA and CEQA, is necessary. Public review provides valuable input for revision of the HCP prior to formal approval. In developing the HCP, technical assistance was provided by federal resource agencies (USFWS and NOAA Fisheries) and by the California Department of Fish and Game (a non-federal resource agency). The draft HCP has been made available for public review and comment. Local landowners and other interested parties in the geographic area of the HCP have been contacted with an announcement of availability of the draft HCP for review. In compliance with NEPA and CEQA, draft environmental documentation was also made available for public review and comment. All public and agency comments on the HCP must be submitted in writing.