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Proposed Amendments to Section 3.7.2

3.7.2 Adaptive Management Decision Making Process

This section describes the process by which adaptive management decisions will be made, including those that result in adjustments to conservation measures, operational criteria, biological objectives, metrics and targets, the monitoring program including monitoring methods, and analytical tools, as warranted by new information. This section describes the relationships among, and coordination between, the entities that comprise the governance structure (Chapter 7, Implementation Structure) in the context of the adaptive management decision-making process (Figure 3-64).

3.7.2.1 Roles and Responsibilities

3.7.2.1.1 Science Manager

The BDCP Program Manager, is responsible for Plan implementation, including the monitoring, research, and adaptive management programs. The BDCP Science Manager, under the direction of the Program Manager, is the primary Implementation Office staff responsible for ensuring the proper implementation of these programs. The Science Manager will ensure that information that will inform management decisions has undergone independent scientific review before decisions are made. The Science Manager is also responsible for ensuring that adaptive management decisions are not implemented if they have not been approved by either the Agency-Stakeholder Review and Coordination Team or the Five Agency Group (comprised of DFG, USFWS, NOAA, DWR and USBR). The Science Manager is responsible for ensuring that any adaptive management decisions are coordinated with other science activities being conducted in the Delta by entities such as the Delta Science Program, Independent Science Board and Interagency Ecological Program. In addition to the above duties, the Science Manager will be a member of the IEP Coordinator Group.

3.7.2.1.2 Adaptive Management Group

The Science Manager will chair an "Adaptive Management Group.". The Adaptive Management Group will consist of an Adaptive Management Supervisory Team (AMST) and staff representing the entities expected to participate in the AMG. The AMST will consist of management-level representatives appointed by the Five Agencies, the Implementation Office, and the other Authorized Entities. With concurrence by the AMST, the following may be invited as ex officio members of the AMST:

- BDCP Science Manager (chair);

- IEP Lead Scientist;

Staff will be appointed by the AMST agencies to participate in activities of the AMG and may, by concurrence of the AMST, also include the following:

Senior scientists from IEP member agencies;

- SFWCA scientists;
- Other scientists; and
- Scientists from the Stakeholder Committee..

Adaptive Management Group members may change as necessary depending on the specific technical issues that need to be addressed (e.g., fisheries, terrestrial wildlife, habitat restoration, water operations).

The Science Manager will utilize the Adaptive Management Group to support the conduct of annual and multi-year reviews, in coordination with, at a minimum, the Delta Science Program and the Interagency Ecological Program, including efforts to identify issues that may benefit from independent science advice; consider potential adaptive management actions that may be indicated by the results of monitoring and research efforts; and identify research that may be useful to effectively address uncertainties. The Adaptive Management Group will make recommendations to the Program Manager for adaptive management changes to the BDCP Conservation Strategy.

The Science Manager may utilize the Adaptive Management Group and/or the IEP Management, Analysis, and Synthesis Team (MAST) to support the synthesis and presentation of current scientific knowledge on relevant Delta resources to the Program Manager and the Agency-Stakeholder Review and Coordination Team.

3.7.2.2 Adaptive Management Decisions and Responses (Not Related to Water Operations)

The Program Manager will manage the BDCP adaptive management program through the Science Manager. The Program Manager will facilitate and coordinate discussion and consideration of adaptive management issues among the various participating entities by presenting such issues for consideration to the Agency-Stakeholder Review and Coordination Team to facilitate decision making regarding changes in the implementation of the Plan. Adaptive management decisions to take new actions within the BDCP Plan Area will take into account and be coordinated with changes that may be made to upstream operations, which may result from changes made pursuant to existing or future biological opinions for the CVP/SWP project operations outside the Delta. The decision-making process described in this section does not apply to changes or modifications to water operations that may be made by DWR and USBR.

The process for adaptive management decisions affecting water operations is set out in Section 3.7.3.2, Decision Process for Adjusting Water Operations within the Adaptive Range. The approach depicted in Figure 3-64 will be used to make adaptive management decisions relating to BDCP actions that are not related to water operations.

1. Monitoring and targeted research (Figure 3-64, box 1) will be conducted under the direction of the Science Manager in coordination with the IEP Coordinators and the MAST.

2. The BDCP Science Manager, in coordination with the IEP and in collaboration with theAdaptive Management Group will assemble, synthesize, and analyze the results of BDCP monitoring and targeted research (Figure 3-64, box 2) efforts and integrate the results of new and relevant scientific research and studies conducted by other parties (Figure 3-64, box 3).

3. Based on this information and independent scientific reviews by the Delta Science Program, as appropriate (Figure 3-64, boxes 5 and 6), the Adaptive Management Group, through the Science Manager, will provide recommended program changes to the Program Manager (Figure 3-64, Box 4), either as part of the annual and five year workplan development process or on an ad hoc basis, where an adaptive change should occur on a shorter than annual timeframe. The Program Manager will ensure that the proposed adaptive management actions and underlying scientific information have been the subject of independent scientific review (facilitated by the Delta Science Program) before adaptive management decisions are made.

4. The Program Manager will provide the Agency-Stakeholder Review and Coordination Team (Figure 3-64, Box 4) with a written proposal that describes its recommended adaptive management actions, including input from the Adaptive Management Group, and attach a written report from the independent panel that evaluated the proposed change. The Program Manager will ensure that there is an opportunity for stakeholders to provide input on any suggested adaptive management actions. (Figure 3-64, box 7). The Agency-Stakeholder Review and Coordination Team will review the Program Manager's recommendation and make final acceptance of the proposed adaptive management actions, including the scientific research plans (Figure 3-64, Box 8). If the Agency-Stakeholder Review and Coordination Team cannot achieve consensus on the proposal, the Five Agency Group shall review and make final acceptance of the proposed adaptive management action.

The Agency-Stakeholder Review and Coordination Team will review and attempt to achieve consensus on the major aspects of the adaptive management program described in the Annual Workplan. If adaptive management actions are accepted by the Agency-Stakeholder Review and Coordination Team, they will be implemented by the Implementation Office under the accepted timetable. If consensus cannot be achieved by the Coordination Team, the Five Agency Group shall review and make final acceptance of the proposals. Members of the Five Agency Group will have the right to object to adaptive management proposals made by the Program Manager

on the basis that the proposed change, a) will not adequately contribute to achievement of the goals and objectives of the BDCP, or, b) is inconsistent with the learning function of the adaptive management process, or c) is inconsistent with the requirements of the Plan or the permits/authorizations.

If adaptive management actions are accepted by the Five Agencies, they will be implemented by the Implementation Office under the accepted timetable. If agreement cannot be reached by the Five Agencies on an adaptive management change, the dispute resolution process described in Chapter 3, Section 7.3.3,, will be used.

As the BDCP is being implemented, it is expected that some changes in implementation actions and some adaptive management decisions will be considered to be minor. On unanimous consent of the Five Agencies, these minor decisions will not be subject to the formal adaptive management decision process as described above. Once such a type or category of change is accepted as minor by the Five Agencies, the Program Manager will be able to undertake such minor adjustments to conservation measures, without the need for extensive coordination with the other entities, thereby encouraging efficiency and timeliness in the implementation process. Such changes to the manner in which actions are implemented under the Plan might include, for example, refinements to techniques used to restore habitat or to remove invasive species.

Plan implementation and adaptive management responses that will require full review as part of the adaptive management process include, but are not limited to:

- Any change in the water operating criteria within the adaptive range;
- Discontinuation of a conservation measure;
- Substantial expansion of a conservation measure;
- Addition of a new conservation measure;
- Decisions to reallocate available funding or resources away from ineffective conservation measures and toward more promising ones; or
- Any change to BDCP goals and objectives.

The Program Manager will consult with the Real Time Operations Response Team and Adaptive Management Group regarding ongoing implementation issues which may require changes to broad elements of the Plan or specific actions to determine if such changes should be considered through the adaptive management process. Changes to the Plan would be subject to the limits, boundaries, parameters and sideboards established for adaptive management actions, including funding caps established to implement the BDCP Conservation Strategy.

In some instances, a significant change in population trends for a covered species may occur, necessitating responsive actions (Figure 3-65). Efforts to respond to such circumstances would be conducted within the framework of the adaptive management program, as appropriate.

3.7.2.3 Internal Scientific Review

The Program Manager will use the Adaptive Management Group to provide scientific review on specific technical issues of immediate importance to the success of the adaptive management program and the Conservation Strategy implementation. The Adaptive Management Group will also assess on a regular basis the overall efficacy of the adaptive management program, including the results of effectiveness monitoring, of the process by which research and adaptive management experiments are selected, and relevance of new scientific information developed by others (e.g., universities) to determine whether changes in the implementation of the conservation measures and the monitoring program would improve the effectiveness of the BDCP in achieving its biological goals and objectives.

Recommendations made by the Adaptive Management Group and by other scientists and experts, through the process described above, will be memorialized in a standardized format. The report will include a description of the recommended change(s) in implementation; a description of the justification for the recommended change(s); an assessment of effects the change(s) may have on other elements of BDCP implementation, if any; an assessment of the scientific uncertainties associated with the proposed change(s) and how they will be reduced; and any other relevant information in support of the recommendation. Likewise, the rationale for rejection of adaptive management recommendations made by the AMG will also be documented in the report.

3.7.2.4 External Independent Scientific Review

The Program Manager will ensure that any proposed adaptive management change is subject to independent scientific input and /or review prior to being approved and implemented. Working in coordination with the Delta Science Program, the Interagency Ecological Program and the Adaptive Management Group, the Program Manager will from time to time seek science input on specific implementation and adaptive management-related issues. The Program Manager may convene, at its discretion, experts that are not affiliated with the Implementation Office, permit holders, or fish and wildlife agencies to provide the Implementation Office with advice. This is not intended to be, and will not serve as a substitute for, the independent science review process described above. When an independent peer review is determined to be appropriate, the Five Agencies will reach agreement on the charge to reviewers and the initial package of information to be provided to the Delta Science Program as review convenor..

The Program Manager will consult the Five Agencies regarding the selection of scientists to

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provide advice on such topics, outside and in addition to the independent scientific review process facilitated by the Delta Science Program.

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Proposed Amendments to Section 3.7.3

3.7.3 Concept of a "Defined Adaptive Range" and Water Operations Adaptive Management

[Note to Reviewers: The process for making adjustments to water operations within the adaptive range needs to be consistent with the process in Section 3.7.2.2, with recognition that these kinds of changes will likely be made more frequently.]

To allow for flexible and responsive implementation of the BDCP, several conservation measures include a defined "adaptive range" that establishes the parameters within which a conservation measure may be adjusted to improve its effectiveness or respond to changing biological conditions. For example CM6 Channel Margin Habitat Enhancement identifies a target of 20 linear miles of enhancement of channel margins in areas important to salmonid outmigration and identifies an adaptive range that allows for an additional 20 miles of margin enhancement through the adaptive management program should this measure prove to be highly effective.

3.7.3.1 Water Operations Adaptive Range

Defined adaptive ranges are included in the BDCP Conservation Strategy for a number of operational criteria established for water operations (see CM1 Water Facilities and Operations in Section 3.4 Conservation Measures). For example, initial operational criteria (to be implemented once new facilities become operational) are identified in CM1 for Sacramento River bypass flows at the north Delta diversions, along with a defined adaptive range. This adaptive range includes allowance for increasing the bypass flows, through the adaptive management process, should an initial flow criterion prove to be less effective than expected (as defined by the Plan; e.g., objectives established to protect covered fish species). Similarly, a lower limit to the defined adaptive range includes an allowance for narrowing the bypass criteria (allowing increased diversions) should flows or other conservation measures prove more effective in meeting objectives than expected, as defined by a standard or measure set out in the biological objectives and monitoring program.

3.7.3.2 Decision Process for Adjusting Water Operations within the Adaptive Range

SWP and CVP water operations are under the authority and are the responsibility of DWR and Reclamation, not the Implementation Office. Accordingly, DWR and Reclamation will implement the BDCP water operations conservation measures, under CM1 Water Facilities and Operations. Adjustments of the water operations criteria within the adaptive range for water operations, established at the time of BDCP authorization and described in CM1 Water Facilities and Operations, may only be conducted through the following process.

1. Proposals to change operating criteria within the adaptive range provided to Program Manager - All proposals related to changes in the water operations criteria will be submitted to the Program Manager. A proposal to change the real-time operational range within the adaptive range will be identified in the draft Annual Water Operations Strategy and the draft Annual Workplan and Budget. Out-of-cycle proposals for changes may be requested, if necessary, to address biological objectives in situations that are time sensitive.

2. Review of proposed change - The Program Manager, through the Science Manager, will solicit independent scientific review on proposed changes from panels convened by the Delta Science Program, and, if appropriate, from the Independent Science Board. When an independent peer review is determined to be appropriate, the Five Agencies will reach agreement on the charge to reviewers and the initial package of information to be provided to the Delta Science Program as review convenor. The Science Manager shall request that the entity providing independent scientific input provide it a comprehensive written review of the proposed change.

3. Submittal of proposals for change and independent science written review by Program Manager to Five Agencies – The Program Manager will submit the proposed change and the independent science written review to the Five Agency Group for review as part of the draft Annual Workplan and Budget. Out-of-cycle proposals for changes may be submitted, if necessary, in situations that are time sensitive.

4. Review of proposal for change by Five Agencies - The Program Manager will facilitate a review by the Five Agency Group. The Five Agency Group will review the proposed operational change and determine if it is acceptable.

5. Resolutions of disputes among Five Agencies – If the Five Agencies cannot reach agreement, then the decision on the proposed change will be elevated to the "Higher Level Decision Body" for resolution as described below.

6. Implement the changed criteria - Once changes are agreed to by the Five Agency Group or through the dispute resolution process described below, they will be incorporated into the Annual Water Operations Strategy by DWR and Reclamation and implemented under the accepted timetable. These changed criteria will become the new operational criteria for the conservation measure within which the Real Time Operations Response Team may make real time operational decisions.

The process described above applies only to changes in operational criteria that are within the bounds of the operational adaptive range established at the time of BDCP authorization and described in CM1 Water Facilities and Operations.

3.7.3.3: Five Agency Dispute Resolution Process

With respect to matters that are considered by the Five Agencies, all reasonable efforts will be made to obtain consensus regarding all proposals. Any agency, however, will have the right to object to any proposal that requires Five Agency consensus, including adaptive management actions and approval of annual strategies and plans, including scientific research plans. Any objections will be made on the basis that the proposal (i) will not adequately contribute to achievement of the goals and objectives of the BDCP or (ii) is inconsistent with the requirements of the Plan, its Implementing Agreement, or associated regulatory authorizations.

The Five Agencies will work together in good faith to resolve any objections. Any unresolved objections may be elevated to the agencies' appropriate delegated officials. These officials will meet at their earliest opportunity and attempt to achieve consensus on the matter at issue. The specific procedures for resolving disputes will be explained in more detail in the Implementing Agreement.

Decision Process for Adjusting Real-Time Water Operations within the Adaptive Range

Designated management level representatives of DFG, FWS and NMFS shall comprise the Real-Time Operations Response Team (Response Team). The Response Team shall continuously monitor conditions in the Delta and upstream tributaries and, with input from DWR and Reclamation, provide real-time operating criteria to DWR and Reclamation within the discretionary boundaries established by the BDCP water operation conservation measures (see Chapter 3 *Conservation Strategy*), for the primary purpose of maximizing benefits to covered fish species and their habitat. The Response Team shall utilize fisheries and operation technical teams described in the 2008 FWS and 2009 NMFS Biological Opinions for the Long-Term Coordinated Operation of the CVP and SWP to obtain current information regarding covered species, and shall consider any recommendations for operation changes submitted by the teams. Real-time water operations criteria shall be primarily designed to increase benefits to covered fish species while recognizing the importance of meeting the water supply target identified in the Annual Water Operations Strategy, and revised in the Seasonal Water Operations Strategies. The Response Team shall make a good faith effort to achieve consensus with DWR and Reclamation prior to providing modifications to water project operations. However, if consensus among all five agencies cannot be reached, the Response Team has sole authority to provide DWR and Reclamation the operations criteria it deems necessary to provide benefit to covered fish species and/or their habitat.

The Program Manager will coordinate with the Response Team and retain responsibility for overseeing, tracking, and monitoring the implementation of the water operation conservation measures. The Program Manager will also establish processes to ensure that decisions made by the Response Team regarding the implementation of water operations conservations measures are transparent and communicated to the Implementation Board, Agency-Stakeholder Review and Coordination Team, Stakeholder Council and other interested parties.

Proposed Amendments to Section 3.7.4

3.7.4 Concept of Management Triggers

Management triggers for specific parameters and metrics during Plan implementation will be used in conjunction with the adaptive management program, and shall be developed and identified prior to plan approval. Management triggers are quantified thresholds established for objectives or conservation measures that, if exceeded, would identify the need for an analysis of cause and effect and development of alternative actions to improve effectiveness of the conservation measure. Management triggers related to effectiveness identify specific conditions in which targets are not likely to be achieved and therefore changes should be considered and undertaken. If any party seeks to modify a Management trigger after plan approval, the proposal must be presented to USFWS, NOAA and DFG for review and approval.

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Proposed Amendments to Section 6.2

6.2 COMPLIANCE AND PROGRESS REPORTING

The BDCP Implementation Office, with participation from the Agency-Stakeholder Review and Coordination Team, will prepare, on a regular basis, planning documents and implementation reports to demonstrate compliance with the BDCP and its associated authorizations and to facilitate interagency coordination, scientific exchange, and public outreach. Under ESA, habitat conservation plans are required to establish monitoring programs to assess the effects of plan implementation on covered species. In addition, the USFWS/ National Marine Fisheries Service (NMFS) Five-Point Policy recommends that such plans provide for annual reporting on matters related to compliance with permit terms and conditions. Similarly, the NCCPA requires that implementation agreements include "provisions for periodic reporting to wildlife agencies and the public for purposes of information and evaluation of plan progress." The Implementation Office will, over the term of the BDCP, submit various reports and plans to the fish and wildlife agencies that serve the following purposes:

- Provide the necessary data and information to demonstrate that the BDCP is being properly implemented;
- Identify the effect of BDCP implementation on covered species and on the effectiveness of the Conservation Strategy at advancing the BDCP biological goals and objectives;
- Document actions taken under the adaptive management program (e.g., process, decisions, changes, results, corrective actions);
- Disclose issues and challenges concerning BDCP implementation, and identify potential modifications or amendments to the BDCP that would increase the likelihood of success;
- Describe schedule and cost related to the implementation of actions over one-year and five-year timeframes.

Throughout the course of BDCP implementation, the Implementation Office will prepare and submit for review to the Agency-Stakeholder Review and Coordination Team the following documents, as described in this chapter:

- Annual Workplan and Budget;
- Annual Implementation Report;
- Five-Year Comprehensive Review; and

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- Five-Year Implementation Plan.

The Implementation Office will work in partnership with the Agency-Stakeholder Review and Coordination Team, the Delta Stewardship Council, and the Delta Science Program in the development of the planning and reporting documents listed above. The totality of these documents will enable the range of interested public and private stakeholders, and the general public, to assess on an ongoing basis the progress and performance of the BDCP toward meeting the biological goals and objectives of the BDCP and make informed recommendations to the Implementation Office regarding matters relating to plan implementation. To accommodate access to this information, these reports will be available to the public and posted on the BDCP website.

The Annual Water Operations Strategy shall be developed by the Five Agency Group as described in section 6.2.2 below. The Annual Water Operations Report shall be developed by DWR and Reclamation, with participation from DFG, USFWS and NMFS by DWR as described in section 6.2.4 below. Both the Strategy and the Report will be the subject of independent scientific review and will be made publicly available, along with their related independent scientific review reports, upon final approval.

6.2.1 Annual Workplan and Budget

On an annual basis and in collaboration with the AMST (described in 3.7.2.1.2), the Implementation Office will prepare a workplan and budget for the upcoming implementation year. The workplan will consist of two elements. The first element will address planned actions for the coming year regarding the implementation of the conservation measures. The second element of the workplan will address actions and studies identified by the AMST for the implementation of the monitoring, research, and adaptive management programs for the coming year. The budget will set out the anticipated expenditures and identify the sources of funding for those expenditures. A final Annual Workplan and Budget will be completed no later than one month prior to the beginning of the implementation year. A draft of the Annual Workplan and Budget will be provided to the Agency-Stakeholder Review and Coordination Team for review no later than one month prior to the due date for the final plan. The Annual Water Operations Strategy shall be incorporated into the Annual Workplan if it is approved by all relevant parties as described in section 6.2.2 below, and that portion of the Annual Workplan shall automatically be deemed final.

At a minimum, the Annual Workplan and Budget will contain the following information:

- A description of the planned actions (including anticipated adaptive management actions) to implement conservation measures (for water operations conservation measures, see Section 6.2.2 Annual Water Operations Strategy) and the entities that will carry out the actions;

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- A description of the planned monitoring actions and the entities that will implement those actions;
- A description of the anticipated research studies to be undertaken, and the entities that will conduct the studies;
- A budget reflecting the costs of implementing the planned actions, including a line item for each specific action; and
- A description of the sources of funding to support the budget.

6.2.2 Annual Water Operations Strategy

The Program Manager will work closely with CVP and SWP operation managers to ensure the proper implementation of operations conservation measures. DWR and Reclamation will retain their authority and obligation to determine overall water project operations consistent with their various permit terms and conditions and other applicable requirements. DWR and Reclamation will conduct Delta operations in close coordination with DFG, USFWS, and NMFS and in accordance with permitted operating criteria, and consistent with the following planning processes.

No later than December 15 each year, the Five Agency Group will develop a Water Operations Strategy, including provisions for seasonal variations, that identifies operations priorities for both fishery and water supply for the coming year and expected operations or "most likely" criteria that will guide operations within the real-time operations ranges established in the water operations conservation measures. The water operations strategy will incorporate monitoring, data collection, research, and adaptive management actions associated with that water year's water operations.

The Five Agency Group will use prior years' Annual Water Operations Reports to inform development of the Annual Water Operations Strategy. The Science Manager will ensure that the initial draft of the Annual Water Operations Strategy developed by the Five Agency Group is submitted for review by an independent science panel convened by the Delta Science Program in an open, public forum. The Five Agency Group will reach agreement on the charge to reviewers and the initial package of information to be provided to the Delta Science Program. The independent science panel will review the draft plan and provide a comprehensive written review of the draft plan to the Program Manager and the Five Agencies.

The Annual Water Operations Strategy will include the first of three Seasonal Operations Strategies. No later than December 31, March 31, and July 31 of each year, DFG, USFWS, and NMFS will seasonally evaluate then current hydrologic and fishery information and will update the expected operating criteria within the real-time operations range, as necessary and consistent

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with regulatory requirements. Based on this information, DWR and Reclamation, with input from DFG, USFWS and NMFS, will prepare Seasonal Operations Strategies that update their operating forecasts and expected water supply projections. The Seasonal Operations Strategies documents will be completed no later than January 15, April 15, and August 15.

6.2.3 Annual Implementation Report

At the end of each implementation year, the Implementation Office will prepare an Annual Implementation Report. These reports will provide a summary of the activities carried out during the previous implementation years. The Annual Report will include, but not be limited to, a description and accounting of land acquisitions and habitat restoration activities, and an update on the status and information being generated by the adaptive management program.. Annual reports will be completed within three months of the close of the reporting year, which will provide sufficient time to compile data and complete analyses.

The annual reports will include the following elements:

1. Documentation of the implementation of habitat conservation measures (i.e., protection/ enhancement/ creation/ restoration) in relationship to the implementation schedule set out in Section 6.1, Plan Implementation Schedule, including:

    a) A summary of the completed or in-progress habitat conservation actions, including information related to type, extent, and location of restored, enhanced, and existing protected habitats and natural communities. This summary will identify the habitat lands acquired and the restoration and enhancements actions undertaken over the year, and a description of the covered species that are expected to benefit from each action. The report will document, on an annual and cumulative basis, the habitat conservation actions that have been carried out.

    b) A summary of all land management activities undertaken on BDCP conservation lands, including a description of the management issues facing the Implementation Office at each preserve unit.

    c) Identification of habitat protection, restoration, or enhancement actions that have not been implemented in accordance the implementation schedule (i.e., actions that are either behind or ahead of the implementation schedule) and an explanation for the deviation from the schedule.

2. A summary of the water operations conservation measures implemented during the prior year (a detailed description of water operations will be included in the Annual Water Operations Report [Section 6.2.4]), including:

    a) Documentation of compliance with the water operation criteria in effect during

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the reporting period.

b) Documentation and rationale for any deviations from the water operation criteria in effect during the reporting period.

c) Documentation of "real time" operational decisions.

d) Documentation of Fremont Weir operations, including:

i) Periods of operation.

ii) Flow volume by operation period.

iii) Documentation and rationale for any deviations from the Fremont Weir operation ranges in effect during the reporting period.

3. A description of the status of natural communities and covered species and their habitats, including:

a) An assessment of nature and extent of the impacts of covered activities on covered natural communities and covered species. The report will also contain:

i) The entity that carried out the covered activity.

ii) The location of habitat permanently or temporarily disturbed.

iii) A description of the covered activity that disturbed natural communities and covered species habitats.

b) A description of the type, extent, and location of measures implemented to avoid and minimize the potential impacts of Covered Activities on covered species during the reporting period.

c) A summary of the overall level of impacts in the current year and a summation of impacts of all prior years of BDCP Covered Activities on covered natural communities and covered species habitats and a description of how implementation of conservation measures is roughly proportional in time and extent to the impacts on covered species and their habitat.

d) The status of the BDCP conservation lands system assembly with respect to authorized take/habitat loss, and an assessment of the progress toward all acquisition goals, including those related to land-cover types, landscape linkages, covered plant populations, and wetland protection. This assessment will include evaluation of compliance with the reserve design and assembly principles as described in Chapter 3, Conservation Strategy.

4. A description of the activities of the Adaptive Management Group, including:

a) A description of the ecosystem/landscape-level, natural-community level and species level monitoring activities (as described in Section 3.6, Monitoring and Research Program or in monitoring plans subsequently developed during implementation) undertaken during the reporting period and a summary of monitoring results with appropriate assessment of population trends and status of covered species.

b) A description of all BDCP directed research conducted during the reporting period, a summary of research results to date.

5. A description of adaptive management activities to be provided by the Adaptive Management Group, including:

a) A description of the adaptive management decisions made during the reporting period, including how existing information was used to guide these decisions and the rationale for the action.

b) A description of the use of review processes employed in the adaptive management process during the preceding year.

6. A financial report describing funds provided to the Implementation Office by source; annual and cumulative expenditures by cost category; deviations in expenditures from the annual budget; and other relevant information as appropriate.

7. A description of actions implemented or pending to respond to changed circumstances, as defined at <placeholder for the definition section***>, including:

a) A description of the changed circumstance and its effects on covered species and natural communities.

b) A description of the actions taken to address the changed circumstances.

The effectiveness of those actions taken to address changed circumstances as evaluated by the Adaptive Management Group.

8. A summary of any administrative changes, minor modifications, or major amendments to the Plan proposed or approved during the reporting period.

6.2.4 Annual Water Operations Report

No later than November 15 of each year, DWR and Reclamation, with participation from DFG, USFWS and NMFS, will prepare a Water Operations Report on the prior water year's (October 1 to September 30) operational effects on covered species. The report shall include a review of

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both in-Delta and upstream operations. The report will include:

- A summary of the prior year's operations, including a comparison of the actual operations with planned operations and including an analysis of the effects of the prior water year's operations on covered species;
- A discussion of new data collected and information from new scientific research;
- Evaluation of the effectiveness of actions for covered fish species and ecological processes, including the responses to real-time operational changes;
- Description of the extent to which water supply projections in the prior year's Annual and Seasonal Operations Strategies were met, and if not, identification of factors affecting the ability to meet projections;
- Consideration of whether any protective actions should be altered in light of new information from the Adaptive Management Group...

The Science Manager will submit a draft of this report, along with the Annual Water Operations Strategy, to an independent science panel for review. The Five Agencies will reach agreement on the charge to reviewers and the initial package of information to be provided to the Delta Science Program as review convenor., The panel will conduct a public workshop as part of its review. The independent science panel will provide a comprehensive written review of the report and draft strategy with a focus on how well the system was managed to meet both fishery protection and water supply needs.

6.2.5 Five Year Comprehensive Review

The implementation of the BDCP will be subject to a comprehensive review every five years throughout the term of the Plan. As part of this review, the Program Manager will prepare a report, with input from the Adaptive Management Group, which will be known as the Five-Year Comprehensive Review.

The objectives of the Five-Year Comprehensive Review are as follows:

- To provide an overview of the status of BDCP implementation, including implementation of conservation measures and the progress made toward meeting biological goals and objectives;
- To assess covered species trends and habitat conditions associated with BDCP implementation relative to overall trends and conditions for covered species and natural communities based on all relevant information (i.e., not limited to BDCP data and reports);

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- To evaluate the relevance of the various monitoring actions and research projects to the implementation of conservation measures; and
- To evaluate changes that have been made in the implementation of the BDCP and set out potential modifications that may be advisable in the future based on new information and lessons learned.

The primary purpose of the Five-Year Comprehensive Review is to provide a periodic, program-level assessment of the progress made under the BDCP toward achieving the biological goals and objectives. As such, the Review will be focused on identifying and evaluating broad ecological trends within the Delta, including covered species abundance, variability, distribution, and population growth rate; ecological processes and stressors such as hydrodynamics, foodwebs, and contaminants; natural community distribution, function, and diversity; habitat restoration extent and functionality; and other relevant measures.

In contrast to the annual reports, the Five-Year Comprehensive Reviews will require significant analysis and synthesis of data collected over time, utilizing data and information compiled from various sources. Five-Year Comprehensive Reviews will include critical evaluations of the assumptions and model outputs upon which the BDCP has been based and of the efficacy of the conservation measures in light of monitoring data and the analysis and synthesis of information through the adaptive management process.

The Five-Year Comprehensive Review will also include an evaluation of the BDCP monitoring program, assessing such issues as the program's capacity to adequately measure the BDCP's progress toward achieving biological goals and objectives. The Review will discuss the lessons that have been learned during the course of implementation and reach conclusions regarding how best to approach monitoring into the future. The Review will also afford an opportunity to evaluate the BDCP biological goals and objectives and assess their continued relevance in light of new information that has become available.

The Five-Year Comprehensive Review will be developed in close coordination with the Interagency Ecological Program (IEP), Delta Science Program, and Independent Science Board. The Program Manager will work with the IEP Lead Scientist and Lead Scientist for the Delta Science Program to consolidate data and information from a range of sources. A draft of the review will be provided to the Agency-Stakeholder Coordination and Review Team for comment and input prior to finalization. The Review shall be presented to the Delta Science Program as part of the basis for an independent science panel. The Five Agencies will reach agreement on the charge to reviewers and the initial package of information to be provided to the Delta Science Program as review convenor. The independent science panel will prepare a comprehensive written report of the Review. The Review may be scheduled to coincide with the Delta Science Conference to capitalize on the gathering of the community of scientists engaged in Delta issues.

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The Implementation Office will post the Five-Year Comprehensive Review and the independent science panel written report on the BDCP website and include a summary of the Review to assist stakeholders and the public in their review of the report.

6.2.6 Five Year Implementation Plan

Based on the Five-Year Comprehensive Review, the Program Manager, with concurrence from the Five Agencies, and in collaboration with the Adaptive Management Group and the Agency-Stakeholder Coordination Team, will prepare a Five-Year Implementation Plan. In contrast to the Annual Workplan and Budget, the Five-Year Implementation Plan will focus more broadly on potential future conservation actions and adaptive management actions, other potential modifications to the BDCP, and on the significance of ecological trends. At a minimum, the Five-Year Implementation Plan will contain the following information:

- Description of adaptive management changes to BDCP implementation of conservation measures, monitoring, research, and program administration;
- Modifications, if necessary, to biological objectives;
- Identification of any changes to the BDCP that may require amendments to the permits or other authorizations;
- Summary of the planned actions and schedule to implement conservation measures;
- Description of the long-term and system-wide monitoring actions and anticipated research studies; and
- Summary budget projection reflecting the costs of implementing the planned actions.

In years when Five-Year Plans are prepared, the Annual Workplan and Budget may be included within or prepared separately from the Five-Year Plan.

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