DECISION DOCUMENT

Concerning

U.S. FISH AND WILDLIFE SERVICE BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

Consultation for the Operations and Maintenance of 12 Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir – March 2005

U.S. Bureau of Reclamation

Pacific Northwest Region

Snake River Area

November 29, 2005

Introduction

Reclamation initiated formal consultation with the U.S. Fish and Wildlife Service (FWS) under Section 7(a)(2) of the Endangered Species Act (ESA) regarding 12 separate Federal actions that occur in the Snake River basin upstream from Brownlee Reservoir. Reclamation submitted a biological assessment[1] to the FWS on November 30, 2004. Reclamation amended the assessment[2] to add another proposed action in March 2005.

Reclamation received a non-jeopardy biological opinion[3] and incidental take statement from the FWS on March 31, 2005. The biological opinion contains the FWS's determinations with respect to the bald eagle, Ute ladies'-tresses (the orchid *Spiranthes diluvialis*), bull trout, and four aquatic snails (Bliss Rapids snail, Idaho springsnail, Snake River physa, and Utah valvata).

The Section 7 ESA implementing regulations at 50 CFR § 402.15(a) state that "following the issuance of a biological opinion, the Federal agency shall determine whether and in what manner to proceed with the action in light of its Section 7 obligations and the FWS's biological opinion." Reclamation is issuing this decision document to indicate how it will carry out the activities identified in the FWS biological opinion and incidental take statement. This document describes Reclamation's approach to addressing the incidental take statement requirements, including reasonable and prudent measures and terms and conditions set forth in the opinion.

Background

Reclamation reinitiated Section 7 ESA consultation with the FWS for future operations and routine maintenance of its upper Snake River basin projects because the existing October 15, 1999, biological opinion and incidental take statement expired on March 31, 2005,[4] and some components of the proposed actions differed from the actions in the

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[1] U.S. Bureau of Reclamation. 2004. Biological Assessment for Bureau of Reclamation Operations and Maintenance in the Snake River Basin above Brownlee Reservoir. Snake River Area, Pacific Northwest Region, Boise, Idaho.

[2] U.S. Bureau of Reclamation. 2005. Future Surveys and Studies for Snake River physa below Minidoka Dam. Transmitted by March 17, 2005 letter from Jerrold Gregg, Area Manager, Reclamation, to Jeff Foss, State Supervisor, FWS. Snake River Area, Pacific Northwest Region, Boise, Idaho.

[3] U.S. Fish and Wildlife Service. 2005. Biological Opinion for Bureau of Reclamation Operations and Maintenance in the Snake River Basin Above Brownlee Reservoir File #1008.0151.05; OALS #1-4-05-F-432. March 31, 2005. Snake River Basin Office, Boise, Idaho.

[4] In an April 17, 2002, memorandum, the FWS extended ESA coverage provide by the October 15, 1999, Biological Opinion and Incidental Take Statement through December 31, 2004. On November 19, 2004,

previous consultation. This consultation addressed potential effects to the following ESA-listed species: gray wolf; bald eagle; *S. diluvialis*; bull trout; and four aquatic snails, the Bliss Rapids snail, Idaho springsnail, Snake River physa, and Utah valvata.

Summary of the Proposed Actions

Reclamation will undertake 12 separate Federal actions involving the management of 12 Federal projects located in the Snake River basin upstream from Brownlee Reservoir. Table 1 lists the Federal projects and major storage and diversion facilities associated with each project and included in the proposed actions. As a matter of administrative convenience, Reclamation addressed all of the proposed actions in a single biological assessment. In turn, Reclamation requested that the FWS, as permitted by 50 CFR § 402.14(c), enter into a single consultation and issue a single biological opinion regarding all 12 proposed actions.

The proposed actions address future operations and routine maintenance (O&M) at features and facilities at the 12 Federal projects over the next 30 years. Reclamation does not coordinate operation among all 12 projects, but rather Reclamation and irrigation district contractors operate divisions, projects, or groups of projects independently of each other. The proposed actions generally encompass:

- Storage and release of water from Federal reservoirs and dams
- Diversion of water at Reclamation facilities
- Power generation at Reclamation hydropower plants
- Routine maintenance at Reclamation project facilities
- Acquisition and provision of salmon flow augmentation water

Specifically the proposed actions include:

- Future O&M in the Snake River system above Milner Dam (Michaud Flats, Minidoka, Palisades, and Ririe Projects)
- Future operations in the Little Wood River system (Little Wood River Project)
- Future O&M in the Owyhee River system (Owyhee Project)
- Future O&M in the Boise River system (Arrowrock Division of the Boise Project and the Lucky Peak Project)
- Future O&M in the Payette River system (Payette Division of the Boise Project)
- Future O&M in the Malheur River system (Vale Project)
- Future O&M in the Mann Creek system (Mann Creek Project)

Reclamation requested extension of this coverage to March 31, 2005, to which the FWS agreed in a November 30, 2004, letter.

- Future O&M in the Burnt River system (Burnt River Project)
- Future O&M in the upper Powder River system (Upper Division of the Baker Project)
- Future O&M in the lower Powder River system (Lower Division of the Baker Project)
- Future provision of water for salmon flow augmentation from the rental or acquisition of natural flow rights
- Surveys and studies for Snake River physa in the Snake River below Minidoka Dam

Table 1. Federal projects and associated storage and diversion facilities included in the proposed actions.

Project	Storage Facilities	Major Diversion Facilities
Minidoka	Jackson Lake Dam and Lake Grassy Lake Dam and Reservoir Island Park Dam and Reservoir American Falls Dam and Reservoir Minidoka Dam and Lake Walcott	Cascade Creek Diversion Dam Minidoka Northside Headworks Minidoka Southside Headworks Unit A Pumping Plant Milner-Gooding Canal Headworks
Palisades	Palisades Dam and Reservoir	
Ririe	Ririe Dam and Reservoir	
Michaud Flats		Falls Irrigation Pumping Plant
Little Wood River	Little Wood River Dam and Reservoir	
Owyhee	Owyhee Dam and Reservoir	Tunnel No. 1 Dead Ox Pumping Plant Ontario-Nyssa Pumping Plant Gem Pumping Plant #1 and #2
Boise	Anderson Ranch Dam and Reservoir Arrowrock Dam and Reservoir Deer Flat Dams and Lake Lowell Deadwood Dam and Reservoir Cascade Dam and Lake Cascade	Boise River Diversion Black Canyon Diversion
Lucky Peak Project	Lucky Peak Dam and Reservoir	
Vale	Warms Springs Dam and Reservoir Agency Valley Dam and Beulah Reservoir Bully Creek Dam and Reservoir	Harper Diversion Dam Bully Creek Diversion Dam
Mann Creek	Mann Creek Dam and Reservoir	Mann Creek Dam outlet
Burnt River	Unity Dam and Reservoir	
Baker	Mason Dam and Phillips Lake Thief Valley Dam and Reservoir	Savely Dam and Lilley Pumping Plant

Reclamation submitted the biological assessment and several supporting documents that supplement or clarify information in the assessment; these comprise the administrative record for the consultation. These documents include the following:

- U.S. Bureau of Reclamation. 2004. *Operations Description for Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir*. Snake River Area, Pacific Northwest Region, Boise, Idaho.
- U.S. Bureau of Reclamation. 2005. Draft Supplemental Analysis to the Biological Assessment for Reclamation Operations above Brownlee Reservoir: Snake River physa (*Physa natricina*). January 21, 2005. Snake River Area, Pacific Northwest Region, Boise, Idaho.
- U.S. Bureau of Reclamation. 2005. Future Surveys and Studies for Snake River physa Below Minidoka Dam. March 17, 2005. Snake River Area, Pacific Northwest Region, Boise, Idaho.
- Wethington, A. 2005. The Physids of the Snake River.

Reclamation also submitted several memoranda to the FWS clarifying the proposed actions and operations, including:

- U.S. Bureau of Reclamation. 2005. Hydrologic Information for Bull Trout Analysis. January 28, 2005. Snake River Area, Pacific Northwest Region, Boise, Idaho.
- U.S. Bureau of Reclamation. 2005. Proposed Action Description for American Falls Dam and Reservoir and Minidoka Dam and Lake Walcott. February 7, 2005. Pacific Northwest Region, Boise, Idaho.
- U.S. Bureau of Reclamation. 2005. Proposed Action Descriptions for Anderson Ranch, Arrowrock, and Deadwood Dams and Reservoirs; Correction to Beulah Reservoir Information. February 7, 2005. Pacific Northwest Region, Boise, Idaho.

March 2005 FWS Biological Opinion

The ESA Section 7 consultation regulations require a Federal agency to consult on actions that it proposes to authorize, fund, or carry out that are within its discretionary authority and that may adversely affect an ESA-listed species or destroy or adversely modify its critical habitat. As a matter of practicality, Reclamation and the FWS did not differentiate between discretionary and non-discretionary components of the proposed actions during this consultation.

The FWS determined that Reclamation's proposed actions were not likely to jeopardize the continued existence of the bald eagle, *S. diluvialis*, Utah valvata, Snake River physa, Bliss Rapids snail, and bull trout. The FWS's biological opinion contains its conclusions for each species in Chapters 4 through 9, respectively. Further, the FWS concurred with

Reclamation's determination that the proposed actions may affect but are not likely to adversely affect the Idaho springsnail. The biological opinion includes an incidental take statement containing non-discretionary reasonable and prudent measures and terms and conditions to minimize incidental take of bull trout and Utah valvata. Consistent with its Section 7(a)(1) authority, the FWS suggested voluntary conservation recommendations for bald eagle, *S. diluvialis*, Utah valvata, Snake River physa, Bliss Rapids snail, and bull trout.

Findings and Commitments

Based upon Reclamation's biological assessment, the FWS's biological opinion, and other relevant materials considered in the consultation, Reclamation concludes that its proposed actions are not likely to jeopardize the continued existence of any ESA-listed species in the action areas. Reclamation similarly concurs with the FWS that implementing the reasonable and prudent measures and associated terms and conditions identified in the incidental take statement for Utah valvata and bull trout (in the biological opinion at Chapters 6 and 9, respectively) will minimize the level of incidental take associated with the proposed actions.

Reclamation has the necessary authority to implement its proposed actions over the next 30 years as described in its biological assessment and referenced supporting documents. Reclamation will implement its proposed actions in accordance with all applicable laws.

Unforeseen power emergencies, safety considerations, emergency/critical maintenance, and natural disasters can occur and may require modifications in operations at Reclamation projects. Reclamation will coordinate any foreseeable deviations in operations with the FWS and other affected parties.

Incidental Take Statement

Reclamation will, subject to appropriations, implement a monitoring program to ensure that it does not exceed the amount and extent of take anticipated and defined in the incidental take statement. The FWS anticipated take based on the frequencies and magnitudes of streamflow and reservoir conditions at specific facilities during critical seasonal time periods in a species' life history. Reclamation's monitoring program will focus on the operational conditions and estimated population effects at these facilities during the critical time periods outlined in the incidental take statement. Reclamation will prepare and submit an annual report to the FWS summarizing these operations and estimated effects. Reclamation will describe the operational thresholds for take, instances of exceedance, and the duration of exceedance for each year's operation. Reclamation will submit to the FWS a draft monitoring plan no later than December 31, 2005, for review, comment, and approval.

In addition, Reclamation chooses to continue its participation in basin-wide population trend data collection, subject to the availability of funding and other agency resources, including weir and redd counts, to monitor population trends of bull trout. Reclamation will include in its annual monitoring reports the status of such work for its various population trend monitoring activities.

Reclamation will, consistent with its authorities, jurisdiction, and funding, implement the reasonable and prudent measures and associated terms and conditions to comply with the incidental take statement. In doing so, Reclamation will comply with the Section 7 ESA regulations at 40 CFR § 402.14(i)(2), which provide that implementation of reasonable and prudent measures will not alter the basic design, location, scope, duration, or timing of the agency's proposed action and may involve only minor changes. Many of the reasonable and prudent measures and associated terms and conditions identified in the FWS's incidental take statement are general in nature and/or involve making more specific decisions in the future following completion of additional studies and investigations. It is our intent to make such future decisions in consultation and collaboration with the FWS and other affected stakeholders, and to ensure that such decisions are both reasonable and prudent as required by regulation.

Reclamation makes its determinations and describes its intent concerning compliance with the incidental take statement's reasonable and prudent measures and terms and conditions for Utah valvata and bull trout below.

Utah Valvata

The FWS anticipates annually recurring incidental take from Reclamation's proposed actions to range from about 5 to 85 percent of the Utah valvata population in American Falls Reservoir due to stranding and desiccation associated with reservoir drawdown. The FWS estimates that incidental take will occur in every year of the 30-year duration of the proposed actions; the amount and extent in any year will depend on the water year and carryover from previous years. Reclamation believes that the analysis in the opinion likely overestimates the take for some reservoir conditions because it assumes that all areas exposed during reservoir drawdown are potential Utah valvata habitat with a consistent snail density. The FWS has acknowledged this in its analysis.

The FWS anticipates incidental take of up to 54 percent of Utah valvata in the Snake River below American Falls Dam (Neeley reach) from stranding and desiccation when winter flows below the dam reach 350 cubic feet per second (cfs). This is predicted to occur in no more than 9 of the next 30 years.

The FWS anticipates incidental take of up to 0.5 percent of Utah valvata in Lake Walcott in each year during the annual reservoir drawdown of 1.5 meters. In those years when Lake Walcott is drawn down to 2.1 meters below full pool, predicted to occur in no more

than 2 of the next 30 years, harm or mortality is estimated to occur to about 10.5 percent of the Utah valvata population in Lake Walcott.

The FWS anticipates incidental take of an undetermined amount below Minidoka Dam from stranding and desiccation when winter flows below Minidoka Dam reach 400 cfs and when flows over the spillway are stopped each fall and the area below the spillway becomes dewatered.

To minimize the incidental take anticipated to Utah valvata the incidental take statement contains the following reasonable and prudent measure (page 137 in the biological opinion):

> *Minimize the amount and the effect of take of Utah valvata from stranding, exposure, and desiccation within American Falls Reservoir and downstream reaches associated with operation of American Falls Dam and Reservoir.*

To implement this reasonable and prudent measure, the FWS has issued the following terms and conditions (page 137 in the biological opinion):

> *1. Within the range of operations defined in the proposed action, minimize the frequency, extent, and duration of drawdown of American Falls Reservoir to levels below 50,000 acre-feet for the period of the proposed action.*
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> *2. When Reclamation drafts American Falls Reservoir to less than 50,000 acre-feet, Reclamation shall report to the Service when the operations occurred, the duration, and the conditions leading to such operation.*

Reclamation's operational objectives at American Falls Reservoir are consistent with the intent of term and condition 1. Although American Falls Reservoir has no administratively designated minimum or conservation pool, Reclamation operates to maintain reservoir storage of at least 50,000 to 60,000 acre-feet to minimize water quality effects that occur downstream when reservoir storage is 100,000 acre-feet or less.

Reclamation anticipates that American Falls Reservoir storage will be less than 50,000 acre-feet in 6 out of the next 30 years for the August through September period and about 2 out of 30 years in July. To comply with term and condition 1, Reclamation will attempt to minimize the frequency and duration of reservoir storage events less than 50,000 acre-feet. However, Reclamation's ability to achieve this is limited by its legal and contractual obligations to deliver irrigation storage water, meet flood control objectives, and provide salmon flow augmentation water during the flow augmentation period. Further, the operational coordination required between the facilities above Milner Dam and the range of conditions described and evaluated in the biological assessment may constrain Reclamation's ability to do this. Reclamation will report to the FWS circumstances when the reservoir is drafted below 50,000 acre-feet in its annual monitoring report.

Bull Trout

The FWS anticipates incidental take of bull trout from Reclamation's proposed actions associated with Arrowrock Dam and Reservoir, Anderson Ranch Dam and Reservoir, Deadwood Dam and Reservoir, and Agency Valley Dam and Beulah Reservoir. Accordingly, the FWS provided reasonable and prudent measures and associated terms and conditions for each facility. The following section describes these reasonable and prudent measures, their associated terms and conditions, and Reclamation's determination with respect to implementation of each.

Reclamation will prepare and periodically update a monitoring and implementation plan containing specific times, dates, and implementation activities for bull trout. In general, and subject to the availability of funding and other agency resources, Reclamation chooses to continue to participate in yearly population monitoring efforts in partnership with other Federal and state agencies, including operating and maintaining weir traps at Anderson Ranch, Arrowrock, and Deadwood facilities. Reclamation will continue to participate in redd surveys in the North Fork Malheur River drainage to monitor population size and trends. Population monitoring results will provide information on population baseline conditions and trends over the long-term life of the opinion. This information will help Reclamation evaluate the effectiveness of its incidental take statement implementation activities.

Arrowrock Dam and Reservoir

The FWS anticipates incidental take of bull trout from Reclamation's proposed actions in the Boise River system when Arrowrock Reservoir elevations are less than 3,100 feet during the September 15 to October 31 migratory period. Incidental take is expected due to increased predation and degraded habitat conditions, affecting no more than 20 percent of the adfluvial bull trout population, as averaged over any 5 consecutive years, in 18 out of the next 30 years. Incidental take is also anticipated for bull trout from entrainment through Arrowrock Dam. The amount and extent of identified entrainment varies depending on the time of year and operational conditions and is described for three conditions:

- When the spillway is used in the spring season (March through June period), with an estimated 4 to 16 percent of bull trout entrained.
- When discharge exceeds 695 cfs and reservoir elevation is near or below 3111 feet during the irrigation season (July through September period), with an estimated 2 percent of bull trout, mostly subadults, entrained.
- When the discharge and elevation conditions described in the preceding bullet occur in the winter season, with an estimated 2 to 7 percent of bull trout present in the reservoir entrained.

The FWS also anticipates incidental take associated with reservoir drawdowns that will reduce reservoir productivity and the bull trout prey base. The FWS estimates that this will occur in 3 of the next 30 years when reservoir volumes fall below 200,000 acre-feet by June 30 or the pool falls below 3,190 feet.

The incidental take statement contains the following reasonable and prudent measure (page 257 in the biological opinion) to minimize incidental take from operations associated with Arrowrock Dam and Reservoir:

> *1. Implement measures to minimize the effect and/or amount of take associated with operation of Arrowrock Dam.*

To implement this reasonable and prudent measure, the FWS has issued five terms and conditions (pages 258-259 in the biological opinion), which are restated along with Reclamation's determination of how it will proceed.

1.a. Within the range of proposed operations, decrease the frequency, duration, and extent of drawdowns below 3,100 feet in Arrowrock Reservoir during the fall migratory period (September 15 to October 31) in order to reduce the level of take of bull trout from habitat loss and death from predation.

Reclamation will evaluate options for using available operational flexibility of the Boise River system facilities (Arrowrock, Anderson Ranch, and Lucky Peak Dams and Reservoirs), including assessing the possibility of maintaining a water surface elevation above 3,190 feet prior to June 30 and ensuring refill of Arrowrock Reservoir to bring the water surface elevation back to 3,100 feet for the period from September 15 to October 31. Future system operating decisions will be based, in part, on the results of such evaluation, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations. Reclamation's ability to maintain surface elevations in Arrowrock Reservoir is limited by its legal and contractual obligations to deliver irrigation storage water, meet flood control rule curves, meet State water law, and provide salmon flow augmentation water within the flow augmentation period. Any operational adjustments need to be consistent with the Water Control Manual, which guides the operational coordination between Boise River facilities as agreed to by Reclamation and the U.S. Army Corps of Engineers (Corps) and must be consistent with any administrative agreements. Reclamation will coordinate this activity with term and condition 1b, 2a, and 2b activities.

1.b. Within the range of proposed operations, decrease the rate and extent of drafting at Arrowrock Reservoir during the summer months (June through September) to minimize harm associated with reduced reservoir productivity and reduced prey abundance that result from extreme drawdown of Arrowrock Reservoir.

The FWS anticipates incidental take from the loss of productivity due to rapid drafting during the operational period from June through September. Reclamation intends to evaluate the Arrowrock Reservoir fish community composition and reservoir productivity related to dam operations. Reclamation will also evaluate options for using available operational flexibility of the Boise River system facilities (Arrowrock, Anderson Ranch, and Lucky Peak Dams and Reservoirs) to minimize effects to productivity and prey abundance, including assessing the possibility of decreasing the rate and extent of drafting at Arrowrock Reservoir from June through September. Future system operating decisions will be based, in part, on the results of such evaluations, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations. Reclamation will coordinate this activity with term and condition 1a, 2a, and 2b activities.

1.c. Minimize conditions that increase the risk of entrainment of bull trout through clamshell outlet conduits in Arrowrock Dam. Within the range of operations described in the proposed action, reduce the frequency and duration of conditions (associated with reservoir elevation and discharge rates) that result in harassment, injury, and death of bull trout entrained through the dam.

Entrainment rates used in the analysis for the biological assessment and opinion were correlated with high volumes of water discharged within close proximity to the old outlet works of the dam. Reclamation anticipates that operations of the new clamshell gates will result in less entrainment. Reclamation intends to reevaluate entrainment thresholds for operations with the clamshell gates. In addition, Reclamation will also evaluate options for using available operational flexibility of the Boise River system facilities (Arrowrock, Anderson Ranch, and Lucky Peak Dams and Reservoirs), including assessing the possibility of reducing the frequency and duration of conditions associated with reservoir elevation and discharge rates that result in bull trout entrainment through Arrowrock Dam. Future system operating decisions will be based, in part, on the results of such evaluations, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations.

1.d. Implement a trap-and-haul program below Arrowrock Dam. Transport to and release all captured or trapped bull trout in Arrowrock Reservoir. Trapping should take place in late spring when bull trout cue to spawn and will likely stage to move upstream below the dam. Trap and haul bull trout in all years when conditions under which entrainment is expected are met. Reclamation and the Service will work together to develop agreed-upon protocol and guidelines for implementing the trap-and-haul program. All injury and death of bull trout associated with trapping and transporting from Lucky Peak Reservoir to Arrowrock Reservoir are covered under a permit issued to Reclamation by the Idaho Department of Fish and Game for purposeful take (permit number F-10-99).

Reclamation will continue to implement a trap-and-haul program. Through activities associated with term and condition 1c, Reclamation will identify current entrainment thresholds and rates with operation of the clamshell gates. If entrainment rates are considerably different than those anticipated in the incidental take statement, Reclamation will coordinate with the FWS to adjust the trap-and-haul program accordingly. Reclamation proposes to work with the FWS to integrate flexibility into the trap-and-haul program and to develop guidelines and protocol to focus efforts when conditions result in the greatest probability of entrainment.

1.e. Minimize the frequency, duration, and extent of discharge of water over the spillway at Arrowrock Dam to avoid and reduce the effects of entraining bull trout.

Reclamation will continue to operate Arrowrock Dam, as it has in recent history, in a manner that minimizes the use of the surface spillway when feasible.

Anderson Ranch Dam and Reservoir

The FWS anticipates incidental take of bull trout in Anderson Ranch Reservoir and downstream from the dam in the form of harassment when low streamflows occur due to drought, when spillway use is necessary during flood control or for maintenance, and when large changes in discharge velocities are made. The FWS anticipates incidental take of adfluvial bull trout in the form of harassment and harm from altered migration cues, metabolic rates, and prey availability caused by fluctuating or low flows downstream from Anderson Ranch Dam. These effects are anticipated in all years but are predicted to be most severe when the spillway is used, which is estimated to occur in 6 of the next 30 years. The FWS anticipates this will affect all adult bull trout in the South Fork Boise River below Anderson Ranch Dam and about 50 percent of the spawning bull trout population from the North and Middle Fork Boise Rivers.

The FWS also estimates incidental take of no more than 10 percent of the adfluvial bull trout population in Anderson Ranch Reservoir through entrainment when the spillway is used in 6 out of 30 years. The FWS acknowledges that this estimate is not based on quantitative data, and entrainment has not been documented. The intake for the Anderson Ranch Dam outlet works and turbines is nearly 200 feet below the spillway crest. Reclamation believes that the depth of the intake, operations that gradually release water from the dam, the reservoir's relatively large residual pool, and the gradual fluctuation of reservoir content result in a low potential for entrainment of bull trout[5] [6] and other aquatic fauna. Further, Reclamation proposes to use the spillway less than it has historically,

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[5] Partridge, F. 2000. Southwest Idaho Bull Trout Restoration (South Fork Boise River) Completion Report. Idaho Department of Fish and Game.

[6] Salow, T. 2002. Anderson Ranch Reservoir - Annual Scientific Collection Report to Idaho Department of Fish and Game. Unpublished. Snake River Area, Boise, Idaho

about 29 percent of years in the future compared to 50 percent of years previously, for the purpose of minimizing or preventing bull trout entrainment.

The FWS also expects incidental take in the form of harm of up to 4 percent of the adfluvial population in Anderson Ranch Reservoir in 2 of the next 30 years when reservoir content is below the conservation pool volume of 62,000 acre-feet.

The incidental take statement contains the following reasonable and prudent measure (page 257 in the biological opinion) to minimize incidental take from operations associated with Anderson Ranch Dam and Reservoir:

> *2. Implement measures to minimize the effect and/or amount of take associated with operation of Anderson Ranch Dam.*

To implement this reasonable and prudent measure, the FWS has issued two terms and conditions (page 259 in the biological opinion), which are restated along with Reclamation's determination of how it will proceed.

2.a. Determine and implement ramping rates for both increases and decreases of flows that reduce harassment and harm of bull trout in the South Fork Boise River below Anderson Ranch Dam. Cooperate with the Service to develop a strategy for ramping rates associated with the action as proposed. This term and condition shall be implemented no later than March 31, 2012.

Reclamation will evaluate options for using available operational flexibility of the Boise River system facilities (Arrowrock, Anderson Ranch, and Lucky Peak Dams and Reservoirs), including the potential to modify ramping rates at Anderson Ranch Dam that will minimize operational impacts to bull trout. Future system operating decisions will be based, in part, on the results of such evaluation, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations. Reclamation's ability to implement ramping rates is limited by its legal and contractual obligations to deliver irrigation storage water, meet flood control rule curves, generate power, meet State water law, and provide salmon flow augmentation water within the flow augmentation period. Any operational adjustments need to be consistent with the Water Control Manual, which guides the operational coordination between Boise River facilities as agreed to by Reclamation and the Corps and must be consistent with any administrative agreements. Reclamation will coordinate this activity with term and condition 1a, 1b, and 2b activities.

2.b. Determine whether there is flexibility within the action as proposed to manage flows from Anderson Ranch Reservoir, particularly during the spring, to minimize harassment associated with disruption of bull trout biological processes, particularly migratory cues. Cooperate with the Service to identify and implement any actions that can be taken to

associate with this term and condition. Efforts associated with this term and condition shall be completed by March 31, 2012.

Reclamation will evaluate options for using available operational flexibility of the Boise River system facilities (Arrowrock, Anderson Ranch, and Lucky Peak Dams and Reservoirs), including options for managing releases from Anderson Ranch Dam for the purpose of minimizing disruption of bull trout biological processes (particularly migratory cues) under a range of water availability conditions (*e.g.*, ramping rates, peak discharges, and flow durations). Future system operating decisions will be based, in part, on the results of such evaluation, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations. Reclamation's ability to provide biologically optimal releases is limited by its legal and contractual obligations to deliver irrigation storage water, meet State water law, meet flood control rule curves, generate power, and provide salmon flow augmentation water within the flow augmentation period. Any operational adjustments need to be consistent with the Water Control Manual, which guides the operational coordination between Boise River facilities as agreed to by Reclamation and the Corps and must be consistent with any administrative agreements. Reclamation will coordinate this activity with term and condition 1a, 1b, and 2a activities.

Deadwood Dam and Reservoir

The FWS anticipates that Reclamation's proposed actions in the Payette River system will result in death, harm, and harassment of bull trout downstream from and in Deadwood Reservoir from an altered natural flow regime resulting in low winter flows and from spillway use. The FWS also anticipates incidental take in the form of death or harm from stranding and dewatered habitat from the lack of downramping rates. The proposed actions are predicted to limit bull trout movement and migration, reduce available habitat for overwintering bull trout, alter metabolic rates, and cause early or late migration to spawning areas leading to reduced overall fitness of the population. The FWS expects effects to bull trout that inhabit the Deadwood River downstream from the dam in all years. Incidental take associated with spillway use is estimated to occur in 11 of the next 30 years.

The FWS also expects incidental take in the form of harm affecting 2 to 4 percent of the adfluvial population in Deadwood Reservoir in 2 of the next 30 years due to degraded water quality conditions when the reservoir is below the conservation pool volume of 50,000 acre-feet. The FWS also anticipates that 2 to 4 percent of the adfluvial population present in the reservoir in June and July will be entrained when the spillway is used in 11 of the next 30 years.

The incidental take statement contains the following reasonable and prudent measure (page 257 in the biological opinion) to minimize incidental take from operations associated with Deadwood Dam and Reservoir:

> *3. Implement measures to minimize the effect and/or amount of take associated with operation of Deadwood Dam.*

To implement this reasonable and prudent measure, the FWS provided five terms and conditions (pages 259-260 in the biological opinion), which are restated along with Reclamation's determination of how to proceed. Because operations at Reclamation's Payette River system facilities are interrelated and integrated, Reclamation proposes to evaluate options for using the available operational flexibility at Deadwood, Cascade, and Black Canyon Diversion Dams and associated reservoirs with the goal of developing an operations scenario to meet the objectives of all five terms and conditions. Future system operating decisions will be based, in part, on the results of such evaluation, the biological benefits expected, the costs and other tradeoffs involved, and legal, contractual, and other applicable considerations. Reclamation's ability to implement any operations scenario is limited by its legal and contractual obligations to deliver irrigation storage water, meet State water law, meet flood control objectives, and provide salmon flow augmentation water within the flow augmentation period.

3.a. Determine whether there is flexibility within the action as proposed to operate Deadwood Dam to reduce the effects to bull trout when winter streamflows in the Deadwood River below Deadwood Dam are less than inflows to Deadwood Reservoir upstream. Cooperate with the Service to identify and implement any actions that can be taken to facilitate winter flows that more closely approximate reservoir inflows to reduce effects to bull trout. This term and condition shall be implemented no later than March 31, 2014.

This term and condition illustrates a number of scientific and procedural concerns expressed by Reclamation, but not resolved, during the consultation. The FWS seeks to restore more normative winter flows below Deadwood Dam through the implementation of this term and condition. While the stated purpose of the term and condition is to reduce adverse effects to bull trout from the future operation of Deadwood Dam and Reservoir, some of the adverse effects anticipated by the biological opinion (*e.g.*, gill plugging from frazzle ice) have not been demonstrated to occur in the target reach (below Deadwood Dam) or to result in take. FWS made the determination that take could occur on the basis of studies of river systems that are located in different hydrologic and climatic settings than the Deadwood River. Therefore, Reclamation believes that the determination of take of bull trout in the Deadwood River below the dam is not supported by the information used.

Given the scientific and procedural questions associated with this and other terms and conditions, Reclamation will exercise particular care in ensuring that future, more

specific management decisions implementing these terms and conditions are both reasonable and prudent, fully accounting for both the nature and magnitude of expected biological benefits, implementation and operational costs, other tradeoffs involved, and legal, contractual, and other applicable considerations.

Reclamation has chosen to begin an evaluation of instream habitat conditions and operational effects on movement patterns of fish and stream productivity (see Koetsier 2005[7] and Rose and Dare 2005[8]). Reclamation will consider these findings in its evaluation of operational flexibility to determine if it is appropriate and reasonable to adjust operations to reduce anticipated harm and harassment to bull trout resulting from low winter flows downstream from the dam. Reclamation will coordinate this with term and condition 3b, 3c, 3d, and 3e activities.

3.b. Determine whether there is flexibility within the action as proposed to operate Deadwood Dam to reduce harm and harassment of bull trout associated with extreme low temperatures in the river below the dam. Cooperate with the Service to identify and implement any actions that can be taken to increase water temperatures from their present range of 3 to 7 °C to a range that better supports an adequate and diverse prey base for bull trout. Efforts associated with this term and condition shall be completed by March 31, 2014.

Reclamation primarily uses the spillway for flood control releases but also uses it to split hypolimnetic and epilimnetic releases to minimize extreme temperature swings downstream from the dam. Reclamation will continue to split releases when possible to alleviate some temperature effects unless an appropriate and more effective alternative solution can be developed through a feasible design or operational change.

Reclamation has chosen to partner with Boise State University, the Idaho Department of Fish and Game, and the Boise National Forest to investigate the effects of discharge from Deadwood Dam on the aquatic community downstream from the dam (as described under term and condition 3a). Reclamation will incorporate these findings in its evaluation of operational flexibility to determine if adjustments can be made to reduce anticipated harm or harassment to bull trout associated with extreme low water temperatures downstream from the dam. Reclamation will coordinate this activity with term and condition 3a, 3c, 3d, and 3e activities.

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[7] Koetsier, P. 2005. Macroinvertebrate, periphyton, and organic material collections of the deadwood Reservoir system: a work plan. Contract report submitted to U.S. Bureau of Reclamation, Snake River Area Office West. Reference no. 051S1200060

[8] Rose, S.M. and M. Dare. 2005. Bull trout habitat investigation in the Deadwood River. Interim report submitted to U.S. Bureau of Reclamation, Snake River Area Office West, August 2005.

3.c. Determine and implement ramping rates for both increases and decreases of flows that reduce harassment and harm of bull trout in the Deadwood River below Deadwood Dam. Cooperate with the Service to develop a strategy for ramping rates associated with the action as proposed. This term and condition shall be implemented no later than March 31, 2014.

Reclamation will investigate the operational flexibility of Payette River system facilities to identify appropriate ramping rates at Deadwood Dam that reduce harm and harassment to bull trout. Reclamation's ability to implement these ramping rates is limited by its authority and legal jurisdiction. Reclamation will coordinate this activity with term and condition 3a, 3b, 3d, and 3e activities.

3.d. Determine whether there is flexibility within the action as proposed to manage flows from Deadwood Dam, particularly during the spring, to minimize take (harassment) associated with disruption of bull trout biological processes, particularly migratory cues. Cooperate with the Service to identify and implement any actions that can be taken to associate with this term and condition. Efforts associated with this term and condition shall be completed by March 31, 2014.

As described earlier, Reclamation will examine operational flexibility in the Payette River system facilities to determine if it is possible to implement biologically appropriate release regimen(s) for a range of water availability conditions to minimize anticipated harassment of bull trout. Reclamation's ability to make adjustments to its operations is limited by its authority and legal jurisdiction. Reclamation will coordinate this activity with term and condition 3a, 3b, 3c, and 3e activities.

3.e. Minimize the frequency, duration, and extent of discharge of water over the spillway at Deadwood Dam to avoid and reduce the effects of entraining bull trout. If, in implementing actions for terms and conditions 3a through 3d, the risk of entrainment changes, coordinate with the Service to determine the feasibility of this term and condition.

The level of take identified from entrainment at Deadwood Dam is extrapolated from entrainment levels in the Boise River system; no entrainment has been determined or documented at Deadwood Dam. Reclamation's proposed actions minimize future use of the spillway from its frequency of use under historical operations. We will continue to minimize use of the spillway for future operations. Any actions Reclamation may take to implement this term and condition may limit its ability or available options to implement term and condition 3b.

Agency Valley Dam and Beulah Reservoir

The incidental take statement predicts incidental take in the form of harassment, harm, and death from reservoir drawdown, which is predicted to reduce prey availability when

bull trout return to the reservoir in late October and November. Reclamation acknowledges that reservoir operations may be an important factor limiting prey availability; however, we question whether future operation of the reservoir will "reduce" prey availability from present levels. Although adfluvial migratory bull trout in the North Fork Malheur River are not present in the reservoir during the summer, they are believed by FWS to experience incidental take from altered metabolic energy expenditures and a decreased probability in survivability and fitness in years when reservoir volume is drawn to less than 2,000 acre-feet at the end of the previous irrigation season. These conditions are anticipated to occur in 10 of the next 30 years; a greater percentage of take caused by reduction of the prey base is expected when the reservoir is emptied to run-of-the-river conditions, which is anticipated to occur in 8 of the next 30 years. There are no data to show that 2,000 acre-feet is a biologically significant volume; Reclamation will evaluate prey availability at various levels to determine whether there is a biologically significant reservoir volume.

The FWS estimates incidental take of up to 10 percent of the adfluvial bull trout population in Beulah Reservoir through entrainment when the spillway is used in about 3 of the next 30 years.

The incidental take statement contains the following reasonable and prudent measure (page 257 in the biological opinion) to minimize incidental take from operations associated with Agency Valley Dam and Beulah Reservoir:

> *4. Implement measures to minimize the effect and/or amount of take associated with operation of Agency Valley Dam.*

To implement this reasonable and prudent measure, the FWS has issued four terms and conditions (page 260 in the biological opinion), which are restated along with Reclamation's determination of how it will proceed.

4.a. Reduce the frequency and extent of drawdown of Beulah Reservoir to reduce harm and harassment associated with reduced or eliminated prey. Coordinate with the Service annually in implementing this Term and Condition until the parties reach agreement on a specific pool volume that would be a target level to minimize take effects from reservoir drawdown. Work to identify that target reservoir elevation should be completed by March 31, 2010.

Reclamation will evaluate the impact of specific reservoir volumes on the fishery to identify the threshold at which bull trout and their prey are demonstrably harmed. Reclamation will collaborate with the FWS and others to use this information to determine if there is an appropriate reservoir target elevation that will reduce incidental take of bull trout and its prey, or Reclamation will explore options to minimize the frequency of drawdown of Beulah Reservoir to run-of-river conditions from that anticipated in the incidental take statement. Reclamation's ability to implement a target

reservoir elevation is limited by its legal and contractual obligations to deliver irrigation storage water, meet State water law, and meet flood control rule curves.

4.b. When conditions preclude maintaining water levels that will support a viable bull trout prey base, Reclamation shall work with the Service and other parties to explore opportunities to reduce take by supplementing the food base by stocking Beulah Reservoir with fish species suitable as prey for bull trout. Stocking of additional fish to supplement the bull trout prey base shall be done in every year that Beulah Reservoir is reduced below the level identified as part of Term and Condition 4.a.

Reclamation will initiate discussions with the FWS and the Oregon Department of Fish and Wildlife to identify and explore stocking options that are within Reclamation's authorities. If feasible options are identified and agreed upon by all parties, Reclamation shall develop and implement a contingency plan for supplemental stocking in years when a target reservoir elevation as identified in term and condition 4a cannot be maintained.

4.c. Work with the Service and other willing participants to identify and implement any potential mechanism available to reduce the effects of anticipated take of bull trout from reservoir drawdown for the duration of the action. The mechanism shall be consistent with Reclamation authorities and capabilities, shall be carried out in cooperation with interested parties and willing participants, and should ensure that reservoir drawdown does not go below a level sufficient to maintain some habitat for bull trout prey. Efforts associated with this term and condition shall be completed by March 31, 2010.

Reclamation will work with the FWS and others to identify options to maintain a target reservoir elevation as identified through activities associated with term and condition 4a. Reclamation will consider options that are within its current authorities and legal jurisdiction and do not violate contractual obligations or State water rights or its ability to operate to meet authorized project purposes and flood control rule curves.

4.d. For the term of the proposed action, continue all existing efforts to trap and return bull trout that are entrained at Agency Valley Dam back to Beulah Reservoir or the North Fork Malheur River upstream from the dam. Maintain all protocols aimed at minimizing the likelihood of injury during this effort and maintain the existing scale and scope of the effort. Efforts to move bull trout shall take place in all years when the spillway is used at Agency Valley Dam.

Reclamation instituted operational changes at Agency Valley Dam beginning in 2000 to pass less water over the spillway. This has reduced, but not eliminated, bull trout entrainment at the dam. Reclamation will continue to operate the Agency Valley Dam to reduce spillway use when feasible. In addition, Reclamation will continue to provide for trap and transport operations below Agency Valley Dam in years when entrainment is expected.

Conservation Recommendations

The FWS biological opinion contains discretionary conservation recommendations for bald eagle, *S. diluvialis*, Utah valvata, Snake River physa, Bliss Rapids snail, and bull trout. Reclamation has sufficient authority to implement the 12 proposed actions in the manner described in its biological assessment; however, Reclamation has limited authority to conduct work outside of authorized Reclamation projects. Reclamation will annually consider implementing conservation recommendations that are within its existing authorities and to the extent staff and funding are available. Reclamation will notify the FWS of the status of its activities with respect to these conservation recommendations. Attachment A addresses specific conservation recommendations by species and Reclamation's capability and intent in implementing them.

Reporting

Reclamation will provide an annual report to the FWS no later than December 31 of each year for the 30-year duration of incidental take coverage. The annual report, covering the previous fiscal year activities, will include three components:

- Monitoring report summarizing operational conditions, study results, and/or estimated take at American Falls, Minidoka, Anderson Ranch, Arrowrock, Deadwood, and Agency Valley Dams, associated reservoirs, and downstream river reaches.
- Results and progress on implementation efforts related to reasonable and prudent measures and associated terms and conditions.
- Status of any work related to conservation recommendations.

Reinitiation of Consultation

Reinitiation of consultation is governed by regulations set forth at 50 CFR § 402.16 and is required based on the following criteria:

> (a) If the amount or extent of take specified in the incidental take statement is exceeded;
>
> (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
>
> (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or

(d) If a new species is listed or critical habitat designated that may be affected by the identified action.

Reclamation will comply with these requirements of the law.

Approval

Reclamation has reviewed the consultation record including Reclamation's biological assessment, the FWS biological opinion, and other relevant materials considered in this consultation. Reclamation is committed, subject to authorities and appropriations, to implementing the reasonable and prudent measures and associated terms and conditions contained in the biological opinion's incidental take statement. Reclamation has determined that these actions will meet Reclamation's responsibilities under the ESA to avoid jeopardy to the bald eagle, bull trout, Utah valvata, Bliss Rapids snail, Snake River physa, and *S. diluvialis* and will minimize incidental take of Utah valvata and bull trout. Reclamation will proceed with implementation of its proposed actions consistent with the findings and commitments identified in the preceding sections.

Signed: _____ Date: 11/29/2005

Jerrold D. Gregg
Snake River Area Manager
U.S. Bureau of Reclamation

I concur:

Signed: J. William McDonald Date: Dec. 7, 2005

J. William McDonald
Regional Director
U.S. Bureau of Reclamation

ATTACHMENT A

Conservation Recommendations

Table A-1. Bald Eagle Conservation Recommendations *(page 87 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
1. Monitor and study bald eagle habitat use and populations at Reclamation facilities to obtain adequate knowledge for developing nest management plans and evaluating management activities.	Reclamation has completed and will implement nest site management plans for nearly all territories located on its lands and has assisted in developing management plans for nests located near Reclamation reservoirs on land managed by others. As new territories are discovered or human use increases to the extent current management is out of date, Reclamation will prepare new or updated bald eagle management plans.
2. In cooperation with others, including Tribes, Forest Service, Bureau of Land Management, Idaho Department of Fish and Game, and others, work to maintain a dynamic floodplain, and provide for cottonwood recruitment below Palisades Dam to protect and maintain eagle nesting and wintering habitat. Hauer *et al*. (2004) recommended allowing orthofluvial flows that approach 30,000 cfs to occur, and maintaining flows above 25,000 cfs for 12 to 15 days every 11 years. Consider this, recommendations by Merigliano (1996), and other mechanisms to achieve this conservation recommendation.	The suggested flows exceed bank full stage on the river, violate flood control rule curves, and would result in property damage. Reclamation cannot agree to intentionally exceed flood control rule curves and cause property damage. This is outside our legal jurisdiction or authority to implement. Reclamation is implementing the concepts of Ecological-Based System Management (EBSM) flows as a "pilot" project as described in Reclamation's operations description[9] and referenced in the biological assessment. Reclamation believes that EBSM flows would be more beneficial to the ecosystem than meeting specific flow targets as indicated here. We will continue to attempt to implement and evaluate EBSM flows contingent on weather, hydrologic conditions, and other considerations. We are currently monitoring EBSM flows to evaluate the effectiveness of these flows from an ecological and Yellowstone cutthroat fishery perspective. Reclamation will use these monitoring findings to adjust flows, if needed, to the extent possible given legal, contractual, and authority constraints.
3. In cooperation with others, including Tribes, the Corps, the State of Idaho, the City of Boise, and others, work to maintain a dynamic floodplain, and provide potential for cottonwood recruitment below Lucky Peak Dam to maintain and protect wintering bald eagle habitat.	As stated above, Reclamation cannot intentionally release flows for potential ecological benefits that cause flooding and property damage. However, within the operational constraints of the proposed actions, Reclamation will cooperate in efforts to protect and restore cottonwood perches and other aspects of wintering bald eagle habitat on the lower Boise River.

[9] U.S. Bureau of Reclamation. 2004. Operations Description for Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir. Snake River Area, Pacific Northwest Region, Boise, Idaho.

Table A-1. Bald Eagle Conservation Recommendations *(page 87 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
4. Maintain potential nesting, roosting, and perching habitat at and around Reclamation facilities.	Reclamation has prepared and will implement Resource Management Plans (RMPs) for most facilities where Reclamation manages the land. Protection and enhancement of bald eagle habitat, including perching and roosting areas, are high priorities in these plans. Where appropriate, Reclamation will continue to protect and maintain perching and roosting areas as specified in the plans.
5. Cooperate with others, including the Service, Tribes, the State of Idaho, Environmental Protection Agency, and others to implement investigations to evaluate contaminant concentrations, including concentrations of DDT metabolites and mercury, in bald eagle prey at Reclamation facilities, particularly Lake Lowell. Monitor bald eagle behavior to provide necessary protections to avoid disturbance to the extent possible.	Reclamation will continue to cooperate with the FWS and the Deer Flat National Wildlife Refuge to address contaminant concerns at Lake Lowell.
6. Cooperate with others, including the Service, Tribes, the States of Idaho and Oregon, Forest Service, and others, to assess effects of recreation-associated disturbance of bald eagles. Identify and implement management actions to avoid or reduce impacts of recreation activities where they affect wintering and nesting eagles. For example, consider limiting boat and jet ski use and speed during critical nesting periods where bald eagles nest near Reclamation facilities.	Reclamation will take a lead role in cooperation with the FWS, other applicable agencies, and Tribes in assessing recreation impacts when updating current nest site management plans for bald eagle territories on Reclamation lands. Instances where recreation or other human use is increasing and bald eagle production is decreasing will receive particular attention. Updates to RMPs will accomplish much of this. For territories not located on Reclamation lands, Reclamation will cooperate with the FWS, Tribes, and applicable agencies in assessing recreation disturbance and implementing actions to reduce disturbance to the extent staff and funding are available. Reclamation does not have authority to regulate recreation activities on the water.

Table A-2. *S. diluvialis* Conservation Recommendations *(pages 106-107 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
1. In cooperation with others, including Tribes, Forest Service, Bureau of Land Management, Idaho Department of Fish and Game, and others, work to maintain a dynamic floodplain and early to mid-seral habitats below Palisades Dam. Hauer *et al*. (2004) recommended allowing orthofluvial flows that approach 30,000 cfs to occur and maintaining flows above 25,000 cfs for 12 to 15 days every 11 years. Consider this, recommendations by Merigliano (1996), and other mechanisms to achieve this conservation recommendation.	The suggested flows exceed bank full stage on the river and would result in property damage. Reclamation cannot agree to an operation for potential ecological benefit that would cause property damage. This is outside our legal jurisdiction or authority to implement. Reclamation is attempting to implement the concepts of Ecological-Based System Management (EBSM) flows as a "pilot" project as described in Reclamation's operations description[10] for the projects and referenced in the biological assessment. Reclamation believes that implementation of EBSM flows would be more beneficial to the ecosystem than meeting specific flow targets as indicated here. We will continue to attempt to implement EBSM flows contingent on weather, hydrologic conditions, and other considerations. We are currently monitoring EBSM flows to evaluate the effectiveness of these flows from an ecological and Yellowstone cutthroat fishery perspective. Reclamation will use these monitoring findings to adjust flows, if needed, to the extent possible given legal, contractual and authority constraints.
2. Maintain minimum flows of at least 7,300 cfs during the *S. diluvialis* growing season (July through September).	Reclamation does not have the legal jurisdiction or authority to commit to a minimum flow below Palisades Dam. All storage water is contracted or assigned to others uses. During the *S. diluvialis* primary growing season (July through August) irrigation releases are anticipated to equal or exceed 7,300 cfs below Palisades Dam most of the time. In September, flows of at least 7,300 cfs are expected only about 25 percent of the time. Unregulated flows below Palisades Dam averaged 4,170 cfs for the month of September, and the highest flow on record for this month was 6,130 cfs in 1997. Releases in excess of irrigation demand in August and September reduce the opportunity for subsequent winter flows.
3. Conduct research on the effects of altered flow regimes on non-native plant populations within *S. diluvialis* habitat along the South Fork of the Snake River.	Reclamation's EBSM project monitoring will include ecological and fisheries components. This entails monitoring any changing riparian habitat conditions, including non-native species. Reclamation will provide this information to the FWS when available.

[10] U.S. Bureau of Reclamation. 2004. Operations Description for Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir. Snake River Area, Pacific Northwest Region, Boise, Idaho.

Table A-2. *S. diluvialis* Conservation Recommendations *(pages 106-107 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
4. Cooperate with other agencies and groups, including the Forest Service and the Bureau of Land Management, to assist (through funding and staff time) with weed control efforts within *S. diluvialis* occurrences in the action area.	Reclamation does not have the authority to spray, treat, provide funds, or otherwise control noxious weeds on non-Reclamation administered lands. In accordance with the Noxious Weed Control Act, Reclamation does actively control noxious weeds on all Reclamation-administered lands. In addition, Reclamation actively participates in and will continue to be involved with local Cooperative Weed Management Areas. These entities combine the efforts of all local jurisdictions (*i.e.*, Federal, state, county, municipal, private) to provide a comprehensive noxious weed control strategy that works across administrative boundaries. Noxious weed control strategies include public education, biological control agent release, active weed control (spraying, chopping, etc.), and cooperative weed control events at significant problem areas.
5. Cooperate with other agencies and groups, including Tribes, the Forest Service, and the Bureau of Land Management, to assist (through funding and staff time) in *S. diluvialis* monitoring efforts within the action area.	Reclamation will continue to cooperate with other agencies (primarily Idaho Department of Fish and Game, the Forest Service, and Bureau of Land Management) in *S. diluvialis* monitoring efforts within the action areas by providing funds and personnel time toward ongoing monitoring efforts as funding and staff resources permit.
6. Where possible, work with other interested parties to develop alternatives to construction of dikes, levees, canals and other structures that may affect fluvial processes within *S. diluvialis* habitat.	Reclamation does not engage in any construction activities in *S. diluvialis* habitat. Construction of levees, diversions, and other structures are all activities engaged in by other entities. The Army Corps of Engineers and the State of Idaho are responsible for the permitting necessary to complete projects of this nature.
7. Cooperate with other agencies and groups, including the Forest Service and the Bureau of Land Management, to work toward gaining a better understanding of *S. diluvialis* biology through research studying genetics, life history and demographics, propagation and transplanting protocols, ecology studies, etc.	Reclamation's EBSM project monitoring will include ecologically and fisheries components. Information derived from these efforts may contribute to a better understanding of the *S. diluvialis* ecology. Reclamation will provide this information to the FWS when available.

Table A-3. Utah Valvata Conservation Recommendations *(page 138-139 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
1. Coordinate survey strategies for the Utah valvata with other efforts to evaluate status, distribution, and conservation needs of the species. Cooperate with the Service, other State and Federal agencies, Tribes, and others to ensure compatibility of survey methods and information standards to ensure that data collected in multiple efforts are compatible and comparable. Share results of field work and consider information collected by others in developing and implementing management actions to conserve and protect the species.	Reclamation will continue to work openly and cooperatively with other State and Federal agencies and Tribes to ensure survey compatibility and data sharing.
2. Work with the Service, other State and Federal agencies, Tribes, and other interested parties to assess the status of the Utah valvata throughout its range. Participate actively with the Service's 5-year status review for the species, particularly with respect to developing new information on the distribution, habitat, life history requirements, and conservation needs of the species.	Reclamation has conducted multiple surveys, funded a genetics study, and is currently funding a *Valvata utahensis* colony dynamics model. In addition, Reclamation will continue to collect Utah valvata data as part of monitoring requirements. All information collected will be made available to the FWS as part of its 5-year status review.
3. Cooperate with the Service, other State and Federal agencies, Tribes, and other interested parties in efforts to recover the Utah valvata. Implement or contribute to actions that address and reduce threats to the species, including working to improve water quality and quantity and securing and improving habitats critical to the survival and recovery the Utah valvata.	Reclamation will use the existing Watershed Advisory Group and Watershed Council networks within the State of Idaho to work with the Idaho Department of Environmental Quality, other appropriate designated management agencies, water users, and other interested entities to participate in Total Maximum Daily Load implementation planning efforts for watersheds or reaches with a Reclamation presence. If other cooperative opportunities arise, Reclamation will evaluate its capability to participate based on authorities and funding. Examples of the type of participation Reclamation may provide include laboratory support, technical advice, and engineering assistance. Reclamation also intends to continue implementing a basin-wide temperature monitoring network for reaches in the upper Snake River basin associated with its projects as funding allows. This effort will collect information through FY 2006, with a report expected in FY 2007. Finally, Reclamation will continue to work within existing authorities to assist water users (*e.g.*, irrigation districts) with water conservation efforts.

Table A-4. Snake River Physa Conservation Recommendations *(pages 162-163 in the biological opinion).*

FWS Conservation Recommendations	Reclamation Response
1. Coordinate survey strategies for Snake River physa with other efforts to evaluate status, distribution, and conservation needs of the species. Cooperate with the Service, Idaho Power, the State of Idaho, Tribes, and others to ensure compatibility of survey methods and information standards to ensure that data collected in multiple efforts are compatible and comparable. Share results of field work and consider information collected by others in developing and implementing management actions to conserve and protect the species.	Reclamation will establish a Technical Team that will be charged with reviewing the scientific merit of Snake River physa surveys. The Technical Team will help coordinate and review study methods, time lines, and results. The FWS will be part of the Technical Team; Reclamation will rely on the FWS to ensure that survey strategies are appropriately coordinated with surveys being conducted by others. All information collected will be made available to all interested parties. Any new management actions or adjustments to the proposed actions from those described in the biological assessment will be based in part on consideration of relevant Snake River physa information. Such actions will also be consistent with Reclamation's authority, contracts, and regulatory framework, including ESA compliance.
2. Work with the Service, Tribes, Idaho Power, the State of Idaho, and other interested parties to assess the status of Snake River physa range-wide. Participate actively in the Service's 5-year status review for the species, particularly with respect to developing critical new information about distribution, habitat condition, life history requirements, and conservation needs.	Reclamation will make available all data collected for the Snake River physa. Reclamation will participate actively in the FWS's 5-year status review through coordination with the Technical Team and through other normal agency channels.

Table A-4. Snake River Physa Conservation Recommendations *(pages 162-163 in the biological opinion).*

3. Cooperate with the Service, Tribes, Idaho Power, the State of Idaho, and others in efforts to recover Snake River physa. Implement or contribute to actions that address and reduce threats to the species, including working to improve water quality, addressing effects of reduced water quantity, and securing and improving habitat critical to survival and recovery of Snake River physa.	Reclamation will implement or contribute to actions that address and reduce threats to Snake River physa to the extent consistent with Reclamation's authorities, contractual obligations, and capability. Reclamation will use the existing Watershed Advisory Group and Watershed Council networks within the State of Idaho to work with the Idaho Department of Environmental Quality, other appropriate designated management agencies, water users, and other interested entities to participate in Total Maximum Daily Load implementation planning efforts for watersheds or reaches with a Reclamation presence. If other cooperative opportunities arise, Reclamation will evaluate its capability to participate based on authorities and funding. Examples of the type of participation Reclamation may provide include laboratory support, technical advice, and engineering assistance. Reclamation also intends to continue implementing a basin-wide temperature monitoring network for reaches in the upper Snake River basin associated with its projects as funding allows. This effort will collect information through FY 2006, with a report expected in FY 2007. Finally, Reclamation will continue to work within existing authorities to assist water users (*e.g.*, irrigation districts) with water conservation efforts.

Table A-5. Bliss Rapids Snail Conservation Recommendations *(pages 186-187 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
1. Participate actively in efforts to recover the Bliss Rapids snail. Cooperate with the Service, Tribes, Idaho Power, the State of Idaho, and others to improve conditions and remove threats to the species in the Snake River and tributary streams and springs.	Reclamation will work with other pertinent entities in an effort to recover the Bliss Rapids snail. Efforts will primarily include technical assistance when funding and staff are available. Any efforts undertaken must be within Reclamation's authority.
2. Contribute to efforts to address threats associated with reduced water quantity in the Snake River below Milner Dam. Seek a long-term strategy for release and delivery of salmon augmentation flows that improves conditions for aquatic species in the reach from Milner Dam to the middle Snake River. Identify and facilitate water conservation measures that result in year-round flows that support Bliss Rapids snails and other native aquatic species in the Snake River and its tributaries.	Reclamation will continue to work with water users (*e.g.*, irrigation districts) to implement drainwater management plans and continue water conservation efforts. Regarding augmentation flow releases, Reclamation will coordinate with the FWS, National Marine Fisheries Service, State of Idaho, and Idaho Power. Reclamation does not have the authority to alter water release scenarios in such a manner so as to provide year-round flows past Milner Dam. (See also response to #4.)
3. Work with the Service, Tribes, Idaho Power, the State of Idaho, and others to address impaired water quality in the range of the Bliss Rapids snail. Evaluate the relationship between efforts to increase water quantity and associated improvements in water quality, and cooperate to implement actions that increase flows and improve water quality in mainstem reaches of the Snake River where the species occurs or could be recovered. Participate in interagency efforts, such as implementation of measures called for under section 303(d) of the Clean Water Act, to improve water quality in the species range. Facilitate efforts to improve the quality of agricultural water returned to the Snake River and tributaries.	Reclamation will use the existing Watershed Advisory Group and Watershed Council networks within the State of Idaho to work with the Idaho Department of Environmental Quality, other appropriate designated management agencies, water users, and other interested entities to participate in Total Maximum Daily Load implementation planning efforts for watersheds or reaches with a Reclamation presence. If other cooperative opportunities arise, Reclamation will evaluate its capability to participate based on authorities and funding. Examples of the type of participation Reclamation may provide include laboratory support, technical advice, and engineering assistance. Reclamation also intends to continue implementing a basin-wide temperature monitoring network for reaches in the upper Snake River basin associated with its projects as funding allows. Finally, Reclamation will continue to work within existing authorities to assist water users (*e.g.*, irrigation districts) with water conservation efforts. (See also responses to #2 and #4.)

Table A-5. Bliss Rapids Snail Conservation Recommendations *(pages 186-187 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
4. Cooperate with the Service, Tribes, Idaho Power, the State of Idaho, and others to address threats to Bliss Rapids snail related to declining quality and quantity of water in spring habitats. Participate actively in efforts to characterize and assess factors contributing to the reduced quality of springs in the range of the species. Evaluate opportunities associated with water conservation and groundwater recharge, and contribute to actions that conserve or increase spring flows. Assist in efforts to reduce the introduction of pollutants into groundwater. Work with others to secure and protect springs critical to the survival and recovery of Bliss Rapids snail.	Reclamation will continue to work actively with various groups to improve groundwater quality and quantity. In addition, Reclamation's ongoing water conservation program is designed to reduce the quantity of water required for irrigation purposes. Projects implemented typically benefit water quality, reduce water quantity required, and reduce or eliminate the seepage of drainwater to the aquifer. Projects primarily include the replacement of open, earthen ditches with buried PVC pipe, thereby eliminating evaporative and seepage loss, bank erosion, herbicide and pesticide input, and contaminant threats via spills, and reducing delivery quantities. Reclamation will also continue the implementation of the Northside Drainwater Management Plan. This plan identifies ways to eliminate drainwater and improve water quality. Projects typically include the construction of large, closed wetlands to serve as collection points for drainwater rather than discharging the drainwater into the river.
5. Participate actively in work to update information on the status, distribution, and population trends for the Bliss Rapids snail. Work with the Service, Tribes, Idaho Power, the State of Idaho, and others to ensure survey and habitat assessment methods are compatible and data collected are comparable. Cooperate in efforts to identify conservation and recovery needs of the species.	Reclamation will continue to work with the State, Tribes, Idaho Power, and the FWS, as well as various universities, to coordinate efforts and share data.

Table A-6. Bull Trout Conservation Recommendations *(pages 262-263 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
1. Cooperate with others to develop and assess scientific information about status, distribution, population ecology, and threats to bull trout.	Actions associated with implementation of the bull trout terms and conditions are consistent with this conservation recommendation. Reclamation has maintained and intends to continue collaborative relationships with the Forest Service (Boise National Forest, the Rocky Mountain Research Station, and Malheur National Forest), the FWS, the Burns Paiute Tribe, the Idaho Department of Fish and Game, and the Oregon Department of Fish and Wildlife on a variety of status and population ecology investigations.
2. Cooperate with the Service, Tribes, Forest Service, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, and others to conduct conservation assessments for bull trout in the Boise, Payette, and Malheur River basins. Tasks in this effort should include: evaluating status and distribution over time, assessing local and broader threats to the species, and phylogeographic/genetic research to evaluate the relative contribution of bull trout to regional diversity. For example, participate in funding and conducting appropriate studies to obtain genetic and evolutionary lineage information on bull trout in the Deadwood River basin, and assess the relationship between fish there, in the South Fork Payette River, and throughout the action area. Use this information to identify and prioritize recovery actions.	Reclamation has participated in the development, funding, and completion of genetic work and continues to collect samples from all captured bull trout. Reclamation and the Boise National Forest have collected over 200 genetic samples within the Deadwood River drainage. Reclamation is working with the FWS and the Boise National Forest to develop an agreement to analyze the samples. The Burns Paiute Tribe has already conducted genetic analyses on North Fork Malheur River bull trout; these samples are archived with the FWS in Abernathy, Washington. Reclamation will work to archive all samples collected with the FWS lab in Abernathy,Washington. In addition, Reclamation intends to complete the Deadwood genetic analysis and will provide samples and assistance for this project.

Table A-6. Bull Trout Conservation Recommendations *(pages 262-263 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
3. In the Boise, Payette, and Malheur River basins, cooperate with the Service, Tribes, Forest Service, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, and others to monitor and increase knowledge of habitat use, movements, and mortality of each life history stage of bull trout. For example, continue to contribute to efforts to evaluate bull trout movement between reservoirs and spawning and rearing habitats.	Reclamation has completed or is currently working on a variety of projects designed to document movement and habitat use related to the operations of Reclamation facilities.
4. Work with the Service, Tribes, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, Forest Service, and others to evaluate bull trout food web interactions in drainages affected by non-native species and the loss of anadromous species (prey base/ nutrients). For example, evaluate the potential influence of introduced white crappie in Beulah Reservoir on bull trout and the potential beneficial effects of salmon carcass implants in the North Fork and upper Malheur River basins.	The Oregon Department of Fish and Wildlife has indicated that there are no issues with white crappie in Beulah Reservoir. Given this, Reclamation does not intend to commit resources to investigating potential influence of this species on bull trout. It is outside Reclamation's authority to investigate the potential beneficial effects of salmon carcass implants in the North Fork and upper Malheur River basins. However, we understand that the Burns Paiute Tribe has requested funding from the Bonneville Power Administration to investigate this.
5. Cooperate with others to develop and implement recovery actions for bull trout in areas where Reclamation projects affect the species.	Reclamation will cooperate with other agencies in statewide population monitoring and life history investigations for the conservation of bull trout. Reclamation anticipates continued collaboration and coordination as staff and funding resources allow. For example: • Reclamation will work closely with the Idaho Department of Fish and Game to identify poaching, when poaching may occur, and when bull trout are most vulnerable. • Reclamation may assist with the installation and monitoring of the South Fork Boise River weir trap for kokanee (prey) and bull trout population monitoring. • Reclamation will work with Boise State University to determine the effects of dam discharge on invertebrate communities and native fishes in the Deadwood River basin. • Reclamation is working through the Water 2025 program to aid irrigation districts with water conservation projects in the Malheur River drainage with the goal of providing more water for fish in Beulah Reservoir.

Table A-6. Bull Trout Conservation Recommendations *(pages 262-263 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
6. Coordinate with the Service, Corps, the State of Idaho, Forest Service, recreation interests, and others to operate the Lucky Peak, Arrowrock, and Anderson Ranch facilities in the Boise River basin to optimize habitat for bull trout, particularly in Arrowrock Reservoir, in balance with recreation and other uses.	Activities associated with reasonable and prudent measures 1 and 2 related terms and conditions are consistent with this conservation recommendation.
7. Coordinate operation of Reclamation projects in the Payette River basin to improve habitat for native fish species, including bull trout.	Activities associated with reasonable and prudent measure 3 and related terms and conditions are consistent with this conservation recommendation.
8. Cooperate with others, including the Service, Tribes, the States of Idaho and Oregon, Forest Service, and others to take actions to improve or maintain high quality migratory corridors between Reclamation facilities and higher elevation habitats and spawning areas.	Reclamation works and intends to continue work with the Idaho Department of Fish and Game to identify poaching, when poaching may occur, and when bull trout are most vulnerable. Reclamation works with the Boise National Forest to identify man-made barriers and to facilitate removal in the Boise and Deadwood River watersheds. Future work proposed includes evaluation of the efficacy of the barrier removals within the forest. Reclamation is providing technical assistance to the Oregon Department of Fish and Wildlife for an Oregon Watershed Enhancement Board project that includes screening, ditch consolidation, gaging, and the piping of canals associated with three diversions upstream from Beulah Reservoir.
9. Work with others, including the Service, Tribes, Corps, water users, municipalities, and land managers to identify and implement water management measures, including water conservation projects, to improve conditions for bull trout in Reclamation reservoirs and downstream river reaches.	Reclamation will continue to coordinate with the Malheur Watershed Council on water conservation projects in the Malheur River basin as staff and funding are available. Reclamation, through its Water 2025 program, will coordinate with the Vale Irrigation District, beginning in 2005, to pipe 6 miles of unlined irrigation canals. Conserved water may improve overwintering habitat for bull trout in Beulah Reservoir.

Table A-6. Bull Trout Conservation Recommendations *(pages 262-263 in the biological opinion)***.**

FWS Conservation Recommendations	Reclamation Response
10. Work with the Service, Tribes, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, Forest Service, and others to develop, implement, and support public and angler education programs in the Boise, Payette, and Malheur River basins for species identification, fishing regulations, and fish handling practices to increase protection of bull trout and reduce poaching.	Reclamation has partially funded the installation of signs to identify bull trout within the Boise, Payette, and North Fork Malheur River drainages and will continue to work with the states to educate anglers. Reclamation has and will continue to participate in various public education efforts in Boise, Idaho, including Salmon and Steelhead Days, Trout in the Classroom, as well as providing native fishes and staff assistance to the MK Nature Center Native Fishes exhibit. Reclamation staff will continue to work with the Idaho Department of Fish and Game to assist with angler education and identification efforts.
11. Coordinate with Service, Tribes, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, Forest Service, and others to evaluate methods and implement actions to reduce the abundance of brook trout and reduce competition of bull trout and brook trout where the two overlap, particularly in spawning and rearing habitats.	Reclamation will continue to participate in efforts with the Boise National Forest and the Idaho Department of Fish and Game, when feasible, to reduce the impact of brook trout on bull trout populations within the Boise River system. Brook trout are not found in the North Fork Malheur River upstream from Beulah Reservoir or Deadwood River systems.