Bureau of Reclamation
2005 Salmon Flow Augmentation Program
and
Other Activities Associated
with the
National Marine Fisheries Service
2005 Biological Opinion and Incidental Take Statement
for
Operations and Maintenance of Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir

Annual Progress Report

December 12, 2005

U.S. Department of Interior
Bureau of Reclamation
Pacific Northwest Region
Snake River Area

INTRODUCTION

The Bureau of Reclamation (Reclamation) submitted the *Biological Assessment for Bureau of Reclamation Operations and Maintenance in the Snake River Basin Above Brownlee Reservoir* (Upper Snake BA) to the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) on November 30, 2004 (amended in March 2005.) Reclamation's biological assessment described 12 separate proposed actions in the Snake River basin upstream from Brownlee Reservoir involving 12 Federal projects, including Minidoka, Palisades, Ririe, Michaud Flats, Little Wood River, Boise, Lucky Peak, Mann Creek, Owyhee, Vale, Burnt River, and Baker Projects. The Upper Snake BA described operations and routine maintenance activities at these projects and evaluated the effects of these actions on 12 listed and one proposed salmon and steelhead Evolutionary Significant Units (ESUs), designated critical habitat for three ESUs, and Essential Fish Habitat (EFH).

NMFS issued a biological opinion and incidental take statement on March 31, 2005 (Upper Snake BiOp), concluding that Reclamation's 12 proposed actions would not jeopardize the continued existence of the listed ESUs or adversely modify designated critical habitat. The incidental take statement included reasonable and prudent measures (RPMs) and associated terms and conditions to minimize incidental take to 10 listed ESUs and one proposed ESU. This document reports the status of activities related to the incidental take statement, including Reclamation's flow augmentation program. This report meets Reclamation's responsibility to submit an annual progress report by December 31 of each year.

RECLAMATION'S 2005 SALMON FLOW AUGMENTATION PROGRAM

NMFS's incidental take statement requires that Reclamation submit a progress report annually by December 31, documenting actions that it has taken to implement its salmon flow augmentation program (See Upper Snake BiOp, RPM 10.4.3 and Term and Condition 10.5.3).

> Reclamation must prepare a Progress Report by December 31 of each year to document actions that it has taken to implement its salmon flow augmentation program. In particular, Reclamation shall document and report to NMFS the specific amounts and sources of water provided as part of each year's flow augmentation program, as well as its overall success at procuring up to 487,000 acre-feet of water for salmon flow augmentation during the fish passage season.

NMFS Upper Snake BiOp at page 10-3.

Overview of Salmon Flow Augmentation Program

Reclamation was able to provide about 427,000 acre-feet of water for flow augmentation in 2005 (See Table 1). Extremely low carryover storage from 2004 and continued drought during most of the winter resulted in early spring projections that available water

would fall significantly below the 427,000 acre-foot threshold, similar to 2002 and 2003 when roughly only 285,000 acre-feet was available. However, a very wet pattern beginning in late April and continuing into early June increased the runoff and dramatically reduced the irrigation demand. As a result, reservoirs were able to refill to much higher levels than had been projected, providing more water in Reclamation space and rental pools for augmentation. Nonetheless, Reclamation had to rely on powerhead space to acquire 427,000 acre-feet. The terms of the Nez Perce Water Rights Settlement only allows powerhead space to be used to the extent necessary to provide up to 427,000 acre-feet. This restriction was described in Reclamation's Upper Snake BA at page B-4. Table 1 summarizes the source, amount, and timing of Reclamation 2005 salmon flow augmentation program.

Table 1. Summary of Reclamation's 2005 Salmon Flow Augmentation Program.

SOURCE	AMOUNT (acre-feet)	DATES OF DELIVERY
Upper Snake above Milner Dam		
Reclamation Space (including powerhead)	27,987[1]	June 20- August 10[3]
Rentals – Water District 01	150,000[2]	April 10- August 31
Rentals – Tribes	13,000	
Subtotal	***190,987***	
Payette		
Reclamation Space	80,000	
Rentals	50,000	June 10 – August 30
Subtotal	***130,000***	
Boise		
Reclamation Space	40,293[4]	
Rentals	0	June 20- August 29
Subtotal	***40,293***	
Natural Flows		
IWRB Lease (Idaho)	48,432[5]	April 10 – August 31
Skyline Farms (Oregon)	17,649	April 3 – August 31
Subtotal	***67,089***	
TOTAL	**427,361**[6]	

[1] Comprised of 16,013 acre-feet of uncontracted storage and 11,974 acre-feet of Palisades powerhead.
[2] Comprised of 93,606 acre-feet of storage and 56,394 acre-feet of natural flows below Milner Dam through an exchange agreement.
[3] The stored water was released between June 20 and August 10; natural flows were provided between April 10 and August 31.
[4] Preliminary calculation by IDWR, subject to revision.
[5] See section titled "Timing Consideration for Flow Augmentation Releases."
[6] At the end of August 2005, Reclamation estimated that 427,000 acre-feet were provided for flow augmentation. At the end of the irrigation season in November 2005, the Idaho Department of Water Resources (IDWR) determined that 427,361 acre-feet had been delivered. Additional adjustments may result as final data becomes available.

Uncontracted Space and Space Reacquired for Flow Augmentation

All uncontracted and reacquired space dedicated to flow augmentation was fully evacuated during the water year 2004 and/or previous water years' operations. The below average runoff in 2005 limited the refill of this space to 16,013 acre-feet in the Upper Snake above Milner and 80,000 acre-feet in the Payette system. Reclamation's 40,932 acre-feet of space reacquired for flow augmentation in the Boise system reservoirs fully filled. Reclamation provided all accrual in Reclamation held space in the Upper Snake above Milner Dam and Boise and Payette systems to the 2005 flow augmentation program[1].

The natural flow rights Reclamation has acquired in Oregon (Skyline Farms) were fully available again in 2005.

Space Under Long-Term Lease

The Shoshone-Bannock Tribes have contract space in American Falls Reservoir. They are able to rent water from this space for downstream uses in accordance with the terms of the Fort Hall Water Rights Settlement of 1990. The Tribes and Reclamation have entered into a lease for 38,000 acre-feet of water from this space but Tribal policy requires that on-reservation water needs are served first. The Tribes' space in Palisades Reservoir is usually adequate to meet their irrigation requirements, freeing up the space in American Falls Reservoir for the lease program. However, six consecutive drought years severely limited the amount of water available in their Palisades space, so the Tribes only made available 13,000 acre-feet of American Falls storage water to the flow augmentation program in 2005.

Annual Rentals

In addition to the above long term and permanent sources, Reclamation relies heavily each year on annual rentals from water users to acquire water for its flow augmentation program. The continuing drought once again limited the amount of water assigned to rental pools in 2005. Water availability from the Water District 01 Rental Pool (Upper Snake above Milner Dam) is now determined by a chart (Attachment 1) that considers carryover storage on November 1 and the April 1 runoff forecast for the Snake River at Heise. Use of this chart was enacted after negotiation of the Nez Perce Water Rights Settlement and is fully consistent with Reclamation's description of its flow augmentation program in its Upper Snake BA.

In 2005, the chart specified that no water would be made available for augmentation due to the extremely low carryover from 2004 (November carryover was less than 600,000

[1] In November 2005 when IDWR calculated the water accounting for the Boise Projects, it determined that 40,293 acre-feet was actually provided from Reclamation held storage in the Boise system; total Reclamation held storage in the Boise system is 40,932 acre-feet.

acre-feet) and an April 1 runoff forecast of 2,340,000 acre-feet (66 percent of average) for the April through June period. However, the very wet spring, and resulting low irrigation demand, substantially changed the water supply from what was anticipated on April 1. Reclamation worked with the local Committee of Nine, which represents irrigators in the Snake River basin above Milner Dam, and 150,000 acre-feet was made available for flow augmentation rental in 2005. Of this total, 56,394 acre-feet was exchanged through natural flow rentals below Milner Dam through an agreement between groundwater irrigators and Reclamation.

In the Payette basin, 50,000 acre-feet was made available and rented by Reclamation. No rental water was available from the Boise basin in 2005.

Powerhead Space

As part of the Nez Perce Water Rights Settlement (and described in the Upper Snake BA at page B-4), Reclamation will utilize up to half of the powerhead space in Palisades Reservoir for flow augmentation, but not to exceed a flow augmentation total of 427,000 acre-feet. It is anticipated that this powerhead space will be used infrequently; it was necessary to provide 11,974 acre-feet in 2005. This was used to achieve 427,000 acre-feet after all other sources were exhausted.

Lease of Natural Flow Water Rights below Milner Dam

The Nez Perce Water Rights Settlement authorized the use of up to 60,000 acre-feet of natural flow rights downstream of Milner Dam for the purpose of flow augmentation. In water rich years, this will increase the volume of water available for augmentation. Through a complex series of negotiations, the Idaho Water Resources Board (IWRB) purchased approximately 98,000 acre-feet of water rights from the Bell Rapids Mutual Irrigation Company; this is water that served roughly 25,000 acres via high-lift pumps. Reclamation then entered into a 30-year lease with the State for 60,000 acre-feet of this water for salmon augmentation (IWRB Lease in Table 1). Of the total volume of 60,000 acre-feet, 48,432 acre-feet was determined to occur during the augmentation season (April 10 – August 31). The remaining 11,568 acre-feet occurs before and after and provides an instream benefit although not credited toward Reclamation's flow augmentation program.

Timing Considerations for Flow Augmentation Releases

The timing of flow augmentation releases depended on the individual basin and source of water. Flow augmentation from natural flow rights downstream of Milner Dam occurred during the entire irrigation season (roughly April 1 to October 31) but only that amount occurring between April 10 and August 31 was credited toward the 427,000 acre-foot total. The 56,394 acre-feet of natural flow below Milner Dam provided in exchange for storage water above Milner Dam via an agreement between Reclamation and groundwater irrigators and 48,432 acre-feet from the IWRB Lease provided in accordance with the Nez Perce Water Rights Settlement (up to 60,000 total acre-feet) are totals that reflect water delivered during that flow augmentation period.

Augmentation releases from storage in the Upper Snake above Milner Dam began on June 20 by ramping up roughly 500 cfs a day until 1,500 cfs was reached. A flow of 1,500 cfs was maintained until July 28, when flows were then ramped down at 100 cfs per day until 200 cfs was reached on about August 10.

In the December 2004 Interim Operations Agreement in the negotiations for the Hells Canyon Complex license renewals, Idaho Power Company agreed to shape releases at Brownlee Reservoir under the following conditions.

- Shaping would involve the release of stored water from Brownlee Reservoir before August 31, equal to the volume released from Reclamation's reservoirs above Milner Dam after August 20.
- Maximum volume released by Reclamation from storage would be about 220,000 acre-feet.
- Augmentation would start not earlier than June 20 after maximum reservoir fill has been achieved, and after flood releases past Milner Dam are over.

Because Reclamation released all storage water above Milner Dam for flow augmentation by August 10, no shaping was required.

Augmentation flows began on the Boise system on June 20 and ended by August 29, with an average delivery rate of about 285 cubic feet per second (cfs) above irrigation demand. Augmentation releases from the Payette system began on June 10 and ended by August 30, with an average delivery rate of about 800 cfs above irrigation demand.

To the extent possible, Reclamation will continue striving to benefit local resources when implementing its proposed actions while also meeting its obligations under the biological opinion and incidental take statement.

November 1 Carryover

November 1 carryover was as follows:

Upper Snake above Milner Dam	1,203,940 acre-feet
Boise River system	382,125 acre-feet
Payette River system	432,533 acre-feet

OTHER REASONABLE AND PRUDENT MEASURES

NMFS's incidental take statement contains two other RPMs and associated terms and conditions to ensure that Reclamation implements its salmon flow augmentation program as described in its Upper Snake BA and supporting documents.

New Contracts for Water Stored in Reclamation Projects

RPM 10.4.1 states

> Because Reclamation's salmon flow augmentation program is heavily dependent on annual water rentals from Idaho's water rental pools, which is a variable and insecure source, Reclamation must consult with NMFS whenever a new contract would reduce streamflows or reduce Reclamation's ability to meet salmon flow augmentation commitments, as described in its proposed actions, or whenever Reclamation otherwise determines that listed salmon or steelhead species or critical habitat may be affected.

NMFS Upper Snake BiOp at page 10-2. NMFS's intent is to ensure that any contract actions taken by Reclamation result in "an improvement or 'zero net impact' on Snake River flows and on Reclamation's ability to provide up to 487,000 acre-feet for salmon flow augmentation."

Reclamation committed in its May 2005 Decision Document to consult with NMFS before entering into new, renewed, or supplemental contracts for storage water, if Reclamation determined that it would affect its ability to provide salmon flow augmentation water as described in the Upper Snake BA, or if it determined that listed species or critical habitat may be adversely affected.

In the past year, Reclamation has not entered into any new contracts for uncontracted space in any of the reservoirs covered in the Upper Snake BiOp. Further, Reclamation has not entered into any renewed or supplemental contracts for storage water that would result in reduced streamflows or affect Reclamation's ability to meet its salmon flow augmentation commitments.

Annual Coordination of the Salmon Flow Augmentation Program

RPM 10.4.2 states

> The USBR must continue to coordinate annually with the Technical Management Team (TMT) and Regional Forum when planning and implementing its annual salmon flow augmentation program.

NMFS Upper Snake BiOp at page 10-2.

Reclamation continued to coordinate with the Technical Management Team and Regional Forum when planning and implementing its 2005 annual salmon flow augmentation program. Reclamation staff regularly attended these meetings and provided estimates and updates of the salmon flow augmentation program acquisitions and delivery.

CONSERVATION RECOMMENDATIONS

NMFS included voluntary conservation recommendations in its Upper Snake BiOp at page 9-1, recommending Reclamation's participation in Total Maximum Daily Load (TMDL) planning efforts in the upper Snake River basin. In its May 2005 Decision Document, Reclamation noted that it was generally amenable to implementing the Conservation Recommendations to the extent funding and staffing can be made available within its existing authorities. The following summarizes relevant activities that Reclamation has been involved over the past year.

Reclamation's Snake River Area and/or the Pacific Northwest Region staff continued to participate in all appropriate watershed advisory group and watershed council meetings in the Upper Snake River Basin. These include the Lower Boise River, North Fork Payette River, Lower Payette River, Mid-Snake River, Lake Walcott, and American Falls Reservoir Watershed Advisory Groups, as well as the Henrys Fork and Owyhee/Malheur Watershed Council. The development or continuation of TMDL implementation plans is not a standing agenda item at all meetings. However, when implementation planning is discussed, Reclamation participates on all fronts as funding and staffing allows.

Reclamation continues to provide technical assistance to irrigation system operators and other appropriate entities. Reclamation's participation in the Payette re-use project is on-going. Additionally, Reclamation's Pacific Northwest Region Laboratory provided analytical laboratory services to several entities in 2005. These entities include:

- Idaho Department of Environmental Quality
- Aberdeen Springfield Irrigation District
- Weiser River Watershed Advisory Group
- Lower Boise River Watershed Advisory Group
- A & B Irrigation District
- Minidoka Irrigation District
- Lake Walcott Watershed Advisory Group
- Malheur Soil & Water Conservation District

Upper Snake Temperature Monitoring - Project Summary

Reclamation has developed and implemented a basin-wide temperature monitoring study for the upper Snake River basin. Data collection for a comprehensive water temperature database in the upper Snake River and major tributaries was initiated in 2004 to support efforts to evaluate the origin of water temperature problems downstream of the Hells Canyon complex. This temperature data collection activity will provide a continuous water temperature record at points upstream and downstream of major Reclamation storage reservoirs and blocks of irrigated lands in the upper Snake River, as well as Snake River temperatures entering and leaving the Idaho Power Hells Canyon complex. The monitoring will continue though FY06, and the project culminates in FY07 with a completion report describing temperature conditions in the upper Snake River and relationships to storage, irrigation, and hydropower facilities in the basin.

A total of 52 strategically placed monitoring sites are located throughout the basin (See Table 2). To supplement the existing stations, U.S. Geological Survey installed water temperature sensors at 10 currently active gauging stations. Reclamation installed real-time temperature sensors at 19 Hydromet stations and placed manual temperature sensors at 12 additional locations. The Hydromet data are transmitted hourly to Reclamation's Hydromet database.

Table 2. Upper Snake Temperature Monitoring Locations

USGS INSTALLATION

BOR Code	USGS Station	Station Name
REXI	13056500	Henrys Fork near Rexburg, ID
PALI	13032500	Snake River near Irwin, ID
LORI	13038500	Snake River at Lorenzo, ID
MNNI	13057000	Snake River nr Menan, ID
BRBI	13068500	Blackfoot River nr Blackfoot, ID
SNAI	13069500	Snake River nr Blackfoot, ID
SKHI	13154500	Snake River at King Hill
HOTI	13168500	Bruneau River near Hot Springs, ID
SNYI	13213100	Snake River at Nyssa, OR
WEII	13269000	Snake River at Weiser, ID

RECLAMATION INSTALLATION, HYDROMET

BOR Code	USGS Station	Station Name
ISLI	13042500	Henrys Fork near Island Park, ID
TEAI	13055000	Teton River nr St. Anthony, ID
FLGY	13010065	Snake River ab Jackson Lake at Flagg Ranch, WY
JCK	13011000	Snake River nr Moran, ID
ALPY	13022500	Snake River ab Reservoir nr Alpine, WY
AMFI	13077000	Snake River at Neeley, ID
MINI	13081500	Snake River at Milner, ID
ROMO	13181000	Owyhee River near Rome, OR
OWY	13183000	Lake Owyhee and Owyhee River near Nyssa, OR
WARO	13215000	Malheur River bel Warm Springs Res nr Riverside, OR
MALO	--	Malheur River at 36th St. Bridge near Ontario, OR
PARI	13213000	Boise River near Parma, ID
PAYI	13239000	NF Payette River McCall, ID
CSCI	--	NF Payette River at Cascade, ID
HRSI	13247500	Payette River near Horseshoe Bend, ID
PRPI	13251000	Payette River near Payette, ID
MCII	--	Mann Creek at Mann Creek Guard Station, ID
PHL	--	Mason Dam and Phillips Lake near Sumpter, OR
THF	--	Thief Valley Dam and Reservoir near North Powder, OR

RECLAMATION INSTALLATION, PN REGIONAL LABORATORY

BOR Code	USGS Station	Station Name
THSP	--	Snake River at Niagra Springs
CJST	13171500	Below CJ Strike Dam (above bridge)
BDDI	--	Boise River below Diversion Dam nr Boise, ID
PHBI	--	Payette River at Hartzel Bridge
PRMI	--	Payette River nr Montour, ID
EMM	13249500	Payette River near Plaza Bridge
WEIM	--	Weiser River near Highway 95 Bridge
GAR101	--	NF Payette River below Cascade Dam
MILI	13087995	Snake River at Murtaugh
SWAI	--	Snake River (Swan Falls) nr Murphy, ID
HCDI	13290450	Snake River at Hells Canyon Dam ID-OR State Line
PRRO	--	Powder River near Richland, OR

EXISTING STATIONS WITH TEMPERATURE

BOR Code	USGS Station	Station Name
BTSI	13185000	Boise River near Twin Springs, ID
BRFI	13186000	South Fork Boise River near Featherville, ID
AND	13190500	Anderson Ranch Dam and Reservoir
DEDI	13236500	Deadwood River bl Deadwood Res nr Lowman, ID
PRLI	13235000	SF Payette River at Lowman, ID
MADO	--	Malheur River near Drewsey, OR
BEUO	13217500	North Fork Malheur River at Beulah
MABO	--	NF Malheur River above Beulah Res
UNY	--	Unity Reservoir and Burnt River near Unity, OR
PRHO	--	Powder River at Hudspeth Lane near Sumpter, OR
NPDO	--	Powder River abv Thief Valley Res nr. North Powder

REFERENCES

National Marine Fisheries Service. 2005. *Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation – Consultation for the Operation and Maintenance of 12 U.S. Bureau of Reclamation Projects in the Upper Snake River Basin above Brownlee Reservoir.* F/NWR/2004/01900. March 31, 2005. NMFS, Northwest Region, Portland, OR.

Reclamation. 2004. *Biological Assessment for Bureau of Reclamation operations and Maintenance in the Snake River Basin above Brownlee Reservoir*. November 2004. Reclamation, Pacific Northwest Region, Snake river Area, Boise, ID.

Reclamation. 2005. "Decision Document Concerning the NMFS Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation, Consultation for the Operations and Maintenance of 12 U.S. Bureau of Reclamation Projects in the Upper Snake River Basin above Brownlee Reservoir- March 2005." May 5, 2005. Reclamation, Pacific Northwest Region, Snake River Area, Boise, ID.

Attachment 1
Stipulated Augmentation Rental -Water District 01

Stipulated Augmentation Rental Dist 01

November 1 Carryover 1000s af	<---------- April 1 Heise Forecast (Apr-Sep) 1000s af ---------->						
	< 2,450	< 2,920	< 3,450	< 4,208	< 5,042	< 5,670	> 5,670
0	0	0	0	0	150000	185000	185000
100	0	0	0	0	150000	185000	185000
200	0	0	0	0	150000	185000	185000
300	0	0	0	0	150000	185000	185000
400	0	0	0	0	150000	185000	185000
500	0	0	0	0	150000	185000	185000
600	0	0	0	60000	150000	185000	185000
700	0	0	0	60000	150000	185000	185000
800	0	0	0	60000	150000	185000	185000
900	0	0	60000	60000	150000	185000	185000
1,000	0	0	60000	60000	150000	185000	185000
1,100	0	0	60000	60000	150000	185000	185000
1,200	0	0	60000	60000	150000	185000	185000
1,300	0	0	60000	60000	150000	185000	185000
1,400	0	0	60000	60000	150000	185000	185000
1,500	0	0	100000	150000	185000	185000	185000
1,600	0	0	100000	150000	185000	185000	185000
1,700	0	0	100000	150000	185000	185000	185000
1,800	0	0	100000	150000	185000	185000	185000
1,900	0	0	100000	150000	185000	185000	185000
2,000	0	0	100000	150000	185000	185000	185000
2,100	0	0	100000	150000	205000	205000	205000
2,200	0	0	100000	150000	205000	205000	205000
2,300	0	0	100000	150000	205000	205000	205000
2,400	0	0	100000	150000	205000	205000	205000
2,500	0	0	100000	150000	205000	205000	205000
2,600	0	0	185000	185000	205000	205000	205000
2,700	0	0	185000	185000	205000	205000	205000
2,800	0	0	185000	185000	205000	205000	205000
2,900	0	0	185000	185000	205000	205000	205000
3,000	60000	60000	185000	185000	205000	205000	205000
3,100	60000	60000	185000	185000	205000	205000	205000
3,200	100000	100000	185000	185000	205000	205000	205000
3,300	100000	100000	185000	185000	205000	205000	205000
3,400	100000	100000	185000	185000	205000	205000	205000
3,500	100000	100000	185000	185000	205000	205000	205000
3,600	100000	100000	185000	185000	205000	205000	205000