Response to Comments Received on the Draft Biological Opinion Titled:
ABureau of Reclamation Operations and Maintenance of its Projects
in the upper Snake River Basin Above Lower Granite Dam.@

U.S. BUREAU OF RECLAMATION

1. The definition of abbreviations and acronyms states that Aupper Snake River@ means AThe Snake River upstream of Hells Canyon Dam.@ For the purposes of this consultation, the upper Snake River should correspond to the Snake River Basin above Lower Granite Dam because water acquired in the Snake River tributaries below Brownlee Dam would be credited toward meeting the 427 kaf requirement. The USBR also retains an operational or administrative presence in this area.

We note your distinction and agree that any water provided by USBR projects in the Snake River basin upstream of Lower Granite Dam would be credited to the 427 kaf requirement. This definition is consistent with USBR=s 1995 Record of Decision. However, from the perspective of anadromous fish, it is useful to define the lower Snake River as the habitat currently available to anadromous fish. Therefore, for the purpose of this Biological Opinion, the definitions of Alower Snake River@ and Aupper Snake River@ are appropriate.

2. The provision of the 427 kaf has been a cooperative effort between State and Federal agencies and in the future will require the continued cooperation of the states of Idaho and Wyoming. The objectives of the Biological Opinion must make clear what the base conditions are and clarify the purpose of the 427 kaf salmon flow augmentation.

The National Marine Fisheries Service recognizes the efforts of all parties, especially the states of Idaho and Wyoming, which have cooperated to provide of 427 kaf of water for salmon flow augmentation. The objectives of this Biological Opinion are clearly stated in the Objectives Section. The base conditions evaluated in this Biological Opinion are defined in the 1995 and 1998 Federal Columbia River Power System (FCRPS) BiOps, with additional details described in this Biological Opinion. The purpose of the 427 kaf is to augment flows to improve the survival of summer migrants through the FCRPS (Reasonable and Prudent Measure 1(b) of the 1995 FCRPS BiOp). The USBR Record of Decision concurred that these actions would avoid jeopardy, that the RPA components of the 1995 BiOp were in fact reasonable and prudent in accordance with 50 CFR Section 402.02, and that the USBR would take action to implement the pertinent measures of the RPA.

3. Table III-1 of the Draft Biological Opinion misreports the active capacity of two projects. The active capacity of Island Park Reservoir is 135,205 acre-feet. The active capacity of Ririe Reservoir is 80,500 acre-feet.

We have corrected Table III-1 as advised.

4. The Draft Biological Opinion=s generalized statements regarding Congressional authorization of USBR=s projects in the Snake River basin upstream from Lower Granite Reservoir are misleading. Not all of USBR=s projects are authorized for fish and wildlife purposes. The purposes of the projects are dictated by their own Congressional authorizations.

We agree. The text has been revised.

5. The Draft Biological Opinion reports that the irrigation storage drawdown season typically begins in mid- to late-July. This should be corrected to Amid-June to mid-July.@

We agree. The text has been revised.

6. The statement is made that the 1 Maf Analysis and SR3 Aare representative of the fact that additional changes in water management are being considered for the year 2000 and beyond.@ These studies only look at the Aimpacts@ of such changes in water management, and are not considering major changes for the future.

We agree that the 1 Maf Analysis and SR3 are primarily impact assessments and do not present proposed actions or preferred alternatives. However, the1 Maf Analysis provides some of the information needed for the upcoming 1999 Decision on the long-term configuration of the FCRPS. Similarly, the stated goal of the SR3 process is to Adevelop a decision support system... that will enhance, refine, and improve the ability to make sound resource decisions related to the operation and management of the Snake River system.@ Thus, the statement is correct.

7. The USBR believes it is pre-mature to make conclusions (regarding the relationship between environmental variables and juvenile fall chinook survival - see Biological Opinion, Figures VI-2 and VI-3) based on limited data collected for three, above average water years (1995, 1996, and 1997) with unusually cool, spring weather patterns. Numerous factors must be considered, i.e.; drought, timing of releases from Dworshak, spring weather, etc. that must be evaluated before conclusions are made. Careful analysis of such data is essential, given the consequences of providing augmentation flows solely for the benefit of salmon.

We agree that many complicating factors make analysis of the benefits of flow augmentation difficult to ascertain. However, the four years of data you refer to (1995 to 1998) represents average flow exposures from 40,000 cfs to 180,000 cfs and average temperature exposures of 13 to 21E C for released groups of PIT- tagged fall chinook smolts. The correlations of these variables with juvenile fall chinook survival is remarkable, given the confounding variables you describe. It is reasonable to expect, on the basis of these relationships, that reduced flows and higher temperatures, that would occur in lower water years, would result in decreased survival to Lower Granite Dam. Connor (1998) evaluated PIT-tag data from 1992 through 1995, of which 1992 and 1994 were low to medium flow years, and arrived at a similar conclusion. The NMFS will continue to evaluate these relationships using the best scientific methods available.

8. Instead of referring to Idaho state law as an Aimpediment@ to the delivery of salmon flow augmentation water, NMFS should recognize the extraordinary level of cooperation that has been volunteered by the State of Idaho and Idaho irrigators since the salmon were listed under ESA.

Comment noted. The text has been revised. See response to State of Idaho General Comments below.

9. The Biological Opinion should recognize that any proposed changes made by NMFS regarding the flow regime below Milner will require careful evaluation because of other ESA-listed species (or those proposed for listing) might be impacted.

We agree. However, careful reading of the referenced text would reveal that we recommend that AUSBR should make alternative recommendations to NMFS, as well as all interested Federal, state, and private organizations.@ We do not propose that USBR engage in negotiations with IPC to revise the Milner Agreement absent consultation with all interested parties, including USFWS.

10. The NMFS must realize that a conservative approach must be taken to insure that flooding does not occur. Our limited ability to forecast runoff requires a Aconservative@ amount of space to be reserved in flood control reservoirs. In addition, spaceholder contracts allow for flood control, however, carryover storage belongs to the spaceholders. Changes in flood control operations might also negatively effect other species, especially endangered snails.

Comment noted.

11. The discussion of water level targets in the Draft Biological Opinion is somewhat incorrect. Some projects upstream of Milner Dam are operated to reach desired flood control elevations prior to October 1, at Jackson Lake and November 1, at Ririe and Minidoka Dams. The USBR is not authorized to unilaterally release any spaceholder=s water past Milner Dam. In addition, the Palisades authorization requires approval of the advisory committee (Committee of Nine) and the State Watermaster to modify reservoir operations above Milner Dam.

We have revised this discussion in the text.

12. Elimination or reduction of conservation pools in reservoirs is counter to state and Federal efforts to protect populations of resident fish and wildlife as well as endangered species that reside in and around reservoirs. Due consideration should be given to the environmental, economic, and social impacts of such releases from conservation pools. Some of this water has already been proposed to meet augmentation needs during severe droughts. Its use on a regular basis undermines USBR=s ability to meet its obligations in the most critical of conditions.

The intent of Conservation Recommendation A.2.c. is to properly identify the actual needs of species residing in and around USBR=s projects and to improve the ability of managing agencies to operate these reservoirs to benefit multiple interests. These investigations might indicate that the conservation pools can be smaller, or should be larger to meet their intended goals.

13. Carryover storage is not subject to involuntary reallocation and use for salmon flow augmentation. It is contracted to the spaceholders and must be acquired only from willing sellers or lessors as discussed in USBR=s 1995 ROD.

Comment noted. We do not propose involuntary reallocation of carryover storage for salmon flow augmentation. We note however, that some water held in carryover storage may be subsequently lost to provide flood storage space. Release of the water occupying this flood storage space earlier in the year (August and September) would benefit salmon without injuring spaceholders or other project purposes.

14. Conservation Recommendation B.4. advises USBR to reduce diversion and use of water in excess of authorized rights. Conservation recommendations C(1,2, and 3) requests that USBR provide oversight of IDWR and Watermaster records and determinations of unauthorized and wasteful uses. These occurrences are not examples of Awater spreading@ (i.e. contract violation) over which the USBR may have authority. The distribution of water is controlled by state law, as clearly set forth in Section 8 of the Reclamation Act. USBR is working with the states of Oregon and Idaho through HB 3111 and Snake River Basin Adjudication processes= to reconcile project water rights and USBR contracts with present day conditions.

The purpose of these recommendations is to encourage USBR to continue identifying and reducing water spreading and water use in excess of established water rights at its projects throughout the Snake River basin. We also encourage USBR to work with the State of Idaho to identify opportunities to conserve as much water as practical for instream flows to benefit salmon.

15. The Draft Biological Opinion=s discussion of Aundocumented diversions@ of Abase flows@ from the Payette River based on the Koch Report (1999) is incorrect. Currently, natural flows are still available for appropriation by water right holders on the Payette River, and these water rights are not Aundocumented@ depletions as suggested.

We have removed the discussion of Koch=s (1999) [1] findings from the Biological Opinion. The streamflow verification study (Koch 1999) is principally a critique of the Idaho Water Accounting Model=s ability to verify delivery of salmon flow augmentation water from USBR=s projects. The principal finding of this report is that Idaho=s Water Accounting Model is the best currently available method for verifying delivery of salmon flow augmentation water. It is, however, not perfectly suited to the task. We note that this model attributes streamflow depletions in excess of natural flow water rights to the stored-water component of total streamflow. This causes the modeled stored-water component of total streamflow to be diminished when diversions of available natural flows exceed established natural flow water

[1] Koch, Roy W. 1999. Verification of Snake River Streamflow Augmentation: a case study of the Payette River. A report to the National Marine Fisheries Service. March 1999. 35 pp. + Appendix.

rights. Given that withdrawals of natural flows at rates in excess of established water rights is common practice when such withdrawals would not injure other water users, it is difficult to track stored-water releases for salmon flow augmentation at each node in the system using Idaho=s Water Accounting Model. That is, the stored-water component of total flow may be diminished when in fact it is the natural flow component of streamflow that should be decreased. We have recommended that USBR take measures to minimize this limitation (Conservation Recommendation E).

16. NMFS sets forth Aa policy of no net loss of streamflow during the juvenile salmon outmigration season when seasonal flow objectives are not being met (Draft Biological Opinion Section VI.3.c.). Given the summer target flow at Lower Granite (50-55 kcfs), this virtually guarantees no further development with water from USBR reservoirs. This policy manifests itself in the mandatory AReasonable and Prudent Measure@ and ATerm and Condition@ set forth on page IX-1. These provisions require USBR to refrain from issuing new storage contracts, or renewing existing contracts, without first consulting with NMFS. The Draft Biological Opinion notes that the number of irrigated acres in Idaho has decreased by 215,000 (6.2%) since 1978 and the amount of land receiving water from USBR projects has decreased by 26,000 acres (1.6%) (page VII-1). How will these changes be factored into the Ano net loss policy?@ If irrigated agriculture has an impact on salmon runs, why haven=t salmon runs increased since 1978? The correlation appears weak and does not justify NMFS= policy.

The NMFS= no net loss policy is intended to protect flow-dependent salmon habitat from further diminishment. These fish continued to decline and were listed well after the above-described reduction in irrigated acreage occurred. Thus, the reduction in irrigated acreage in Idaho since 1978 has no effect on this policy. Due to the myriad man-made and natural factors affecting salmon populations it is risky to attribute changes in salmon populations to any one factor. No assertion is made in this Biological Opinion regarding the relative contribution of irrigated agriculture to the status of listed species.

17. The Draft Biological Opinion suggests that existing, consumptive use natural flow water rights may be transferred to instream flow uses. This is a highly questionable conclusion. Under Idaho state law, only the Idaho Water Resource Board is allowed to appropriate water for instream flow, Chapter 15, Title 42, Idaho Code.

We reach no such conclusion. We believe the text accurately describes the legal obstacles to acquisition of natural flow water rights and conversion to instream flow for use in salmon flow augmentation.

18. Several characterizations of Idaho State law are made in the water conservation section of the Draft Biological Opinion are inaccurate. Recent decisions on partial forfeiture and actual beneficial use should be cited rather than AHydrosphere 1991.@ In addition, Idaho Code Sections 42-1416(1) and (2) (the Apresumption statutes@) have been repealed by the Idaho State Legislature and should not be cited. This entire section should make clear

that Aconserved water@ may be used by the next junior water user, in the case of natural flow water rights, or is simply stored as carryover for the next irrigation season. The water may not become available for flow augmentation.

We agree and have revised the discussion to focus on the actual and potential value of water conservation as a tool to increase instream flows and the role of the water rental pools in managing conserved water.

19. The heading ASalmon Flow as a Beneficial Use@ is surprising. Beneficial use is defined by state law. To date, neither the state legislature nor the Idaho Department of Water Resources has concluded that salmon flow augmentation is a beneficial use of water. Instead the question has been set aside in favor of temporary legislation to authorize the use of water for flow augmentation. Also, Idaho=s State Water Plan was first adopted in the 1970s, not the 1960s as stated in the Draft Biological Opinion. More importantly, beneficial uses recognized for fish and wildlife only allow instream flow rights to be held by the Idaho Water Resources Board, pursuant to Chapter 15, Title 42, Idaho Code.

We have corrected the date of Idaho=s Water Plan. The other facts you state were included in the original text.

20. The Draft Biological Opinion refers to the 1,500 cfs release of water at Milner Dam as a Amodest release.@ Historically releases below Milner Dam have been non-existent during the irrigation season. The Federal Energy Regulatory Commission=s bypass flow for the Milner Hydroelectric plant is only 200 cfs. In short, 1,500 cfs is a substantial release, not a modest release. This should be understood as the Milner Agreement is renewed after 1999, as contemplated in conservation recommendation B.2. Again, NMFS must recognize that other listed and proposed for listing species reside in the river above and below Milner Dam. Consideration must also be given to the needs of these species when making changes in flow releases for salmon.

We understand the historical context of flow releases below Milner Dam and agree that the release of 1,500 cfs constitutes a significant departure from the recent past. We have therefore rephrased this discussion However, although post-water development summertime flows downstream from Milner Dam were often at or near zero, pre-water development flows (natural flows) were much larger than 1,500 cfs, averaging 16,870 cfs in July and 10,721 cfs in August (USBR 1999). Thus, the question of whether to characterize a 1,500 cfs maximum flow as Amodest@ is a matter of the historical context in which it is considered. Conservation Recommendation B.2. anticipates that studies being conducted in this reach of the Snake River will provide additional information to assist managers in protecting the biological and ecological processes in the Snake River. At that time it would be appropriate to reevaluate the Milner Agreement.

21. Conservation recommendation B.3. advises USBR to evaluate the impact of its policy of following the Idaho rental pools= Alast to fill rule@ especially as it applies to uncontracted

water. This is an invitation for USBR to intrude upon state law which runs counter to the 1995 FCRPS BiOp=s conclusion that water should be acquired Ain a manner that is consistent with applicable state law.@ Idaho Code section 42-1763B requires compliance with local rental pool rules. The local rental pools have cooperated with USBR to accommodate requests for water, however, some protections cannot be sacrificed, including the requirement that water released for salmon flow augmentation must be the Alast to fill@ during the next storage season. In Water District 1 the Alast to fill@ rule was implemented to allow rentals below Milner. The Alast to fill@ was intended to avoid questions of project authorities and state water rights.

We are not requesting an immediate change in USBR policy. Rather we request that USBR evaluate the rule=s impacts on the surety that 427 kaf can be timely delivered; and the propriety of allowing application of this rule to USBR-owned space dedicated to salmon flow augmentation. We believe that this issue deserves further discussion and careful consideration.

22. Conservation recommendation B.4. of the Draft Biological Opinion states that Aunauthorized water use reduces the base flow to which augmentation water is added, diminishing its potential benefits to salmon.@ If a water right holder reduces their diversion rate of natural flows, then those natural flows are made available to the water right next in line.

Comment noted.

23. Conservation recommendation E requests an annual accounting from the USBR on salmon water deliveries. Idaho law already requires a report from the USBR. I.C.Sec. 42-1763B. Therefore this recommendation is duplicative and unnecessary. Also, USBR is not sure what is meant by Aremedial actions@ that it may propose to make sure that Aactual operations conform with the Salmon Flow Augmentation Plan.@

The text has been revised to more clearly describe the need underlying this request. At present, USBR, BPA, and Idaho Power Company separately account for USBR=s releases and downstream deliveries. These separate accounts have led to unnecessary confusion among stakeholders. Conservation Recommendation E is a request for USBR to lead an effort to work with these other parties to produce a single, agreed upon account of the 427 kaf as it passes Brownlee Reservoir and to provide this account annually to NMFS.

STATE OF IDAHO

1. General Comments

The State of Idaho presents three basic issues:

1. There is little or no scientific justification for current levels of flow augmentation provided in the Biological Opinion.

2. The hydrologic baseline presented is inappropriate because it inherently contemplates an undeveloped river which could not reasonably be achieved and because it uses simulation modeling to estimate that pre-development hydrology rather than actual measured flows.

3. The Biological Opinion misrepresents and misinterprets Idaho state law and encourages USBR to take actions that directly conflict with those laws.

NMFS Responses:

1. A detailed justification of the relative benefits of a specific Reasonable and Prudent Measure from the 1995 and 1998 FCRPS biological opinions is not the objective of this Biological Opinion. Justification for the 95 BiOp=s flow objectives was presented in Appendix B of that opinion (Basis for Flow Objectives for Operation of the Federal Columbia River Power System). The NMFS Northwest Fisheries Science Center has recently developed a white paper on the biological effects of flow management to provide a synthesis of the best available scientific information for use in the upcoming re-initiation of consultation. This paper was released for comment on October 7, 1999 and will be finalized in conjunction with reinitiation of consultation on the FCRPS and the projects that are the subject of this consultation.

2. The pre-development hydrology presented in the Draft Biological Opinion is intended to portray the conditions to which listed species are best adapted and to provide a basis for comparison to current conditions. Actual hydrologic records are inadequate for this purpose. This is discussed at length below.

3. To the best of our ability, we have corrected instances where the Draft Biological Opinion may have misrepresented and/or misinterpreted state law and policies. We have also revised the text to present state law as part of the legal context in which our efforts to provide streamflows beneficial for salmon are conducted. That is, to define what is doable. One of the purposes of this section of the Biological Opinion is to inform an array of stakeholders of the nature of the legal and institutional boundaries influencing how the program is conducted. We appreciate the state=s and other=s efforts to improve this information.

1. The State=s Procedural Concerns

1. *<u>Page 3.</u> The Draft Biological Opinion does not adequately assess the relative and absolute roles of the flow augmentation measures in meeting interim biological standards. AThe final USBR Biological Opinion should: 1) identify what biologically-based attributes of flow NMFS is trying to provide from flow augmentation; 2) quantify what level these flow attributes must be in order to meet interim biological needs of the fish; and 3) address how, and how well, the 427 thousand acre feet (kaf) flow augmentation is meeting these interim biological needs.@ In addition, Athe final Biological Opinion should also assess the relative ability and role of flow augmentation*

in meeting the biological needs of the fish compared to other measures. Simply lumping actions together and concluding that the net effect is adequate fails to provide a reasonable basis for assessing biological benefits relative to societal burdens.@

We disagree that this Biological Opinion is the appropriate venue for these evaluations. The 1995 and 1998 FCRPS BiOps developed a suite of actions that, in their entirety, were determined to avoid jeopardizing the continued existence of ESA listed chinook, sockeye, and steelhead in the Snake River basin through 1999. This Biological Opinion is supplemental to the FCRPS BiOps, and is not a reinitiation of consultation on the FCRPS. The development and evaluation of a package of modified measures to avoid jeopardizing ESA listed salmon and steelhead will occur in the upcoming reinitiation of consultation on the FCRPS. We expect this consultation process to be completed in 2000.

2. The State=s Policy Concerns

1. Pages 3-4. The state is concerned about the conclusion that this Draft Biological Opinion will provide a basis for future decision-making under the Endangered Species Act. Specifically, the state disagrees that the Draft Biological Opinion can serve to meet its stated objective Ato review the operation of USBR=s projects in the Snake River system above Lower Granite Dam and highlight issues, if any, that will be taken up in future consultations on these projects in conjunction with decisions on long term measures to improve the survival of listed salmon@ (Draft Biological Opinion at I-2 through I-3), or that it can illuminate the issues for future consultation on USBR project operations.

We agree that this objective (USBR Draft Biological Opinion at I.2-3) was somewhat vague and could be misconstrued. We have more clearly defined this objective.

2. Page 4. Because the 427 kaf makes up such a small proportion of the average volume of water (21 million acre-feet) leaving Idaho during the flow augmentation period (April 3 - August 31), the intense scrutiny paid by the Draft Biological Opinion to the timing and measurement of this small percentage of water is a misallocation of analytical resources.

We disagree. The vast majority of the runoff occurs during the spring migration period (roughly April 3 - June 20). A much smaller proportion of water leaves Idaho during the summer migration period (roughly June 21 - August 31). Water released for flow augmentation makes up a substantial proportion of total flows during the summer outmigration period (up to half of the total flow entering Lower Granite Reservoir in some weeks). Snake River fall chinook smolts currently outmigrate during the summer period, and are therefore directly benefitted by these operations.

3. Pages 4-5. The proper inquiry is not whether higher flows benefit salmon, but rather what is the specific effect of the release of 427 kaf? How will 427 kaf of clear and relatively warm water released from Brownlee Reservoir affect fall chinook survival?

See discussion above at I.A.1. In addition, NMFS and other salmon managers carefully monitor the water quality characteristics, especially temperature, of the flow augmentation water provided from Dworshak and Brownlee Dams. In-season management typically attempts to use water from above Brownlee Dam as early as possible in July, before high summer water temperatures occur. This operation allows the cooler water from Dworshak Dam to be held in reserve to reduce maximum temperatures in late July and August.

4. Page 5. The NMFS has the tools to evaluate the effects of particular flow augmentation volumes. These include, without limitation:

$ Estimating the change in adult escapement resulting from particular flow augmentation volumes using existing models;

$ Quantifying how the release of 427 kaf alters environmental factors in the lower Snake River that are biologically significant to fall chinook, such as temperature, turbidity and velocity, under typical conditions;

$ Discussing the relative contribution of the flow volumes relative to the magnitude of the change in survival needed to avoid jeopardy throughout the entire life cycle of the fish; and

$ Analyzing the correlation of lower Snake River temperature and velocity on overall life-cycle survival, not just smolt survival.

The State of Idaho specifically requests that the final Biological Opinion include life cycle model estimates of fall chinook returns with no flow augmentation from Bureau of Reclamation reservoirs and with 427 kaf. Similar model runs should be conducted with regard to any other flow augmentation volumes sought in the future from Bureau of Reclamation reservoirs in the Snake River Basin.

See comments to Idaho comments I.A.1. Flow augmentation volumes from USBR projects in the Snake River of 0, 427, and 1,427 kaf are being considered as part of the 1999 Decision. We are conducting life-cycle analysis as part of this decision-making process. Estimates of juvenile survival will be an integral component of any such analysis. This analysis will not be included in this interim biological opinion.

9. Pages 5-6. The approach used in the Draft Biological Opinion is not legally sustainable in the event that NMFS seeks to require additional flow augmentation volumes in the future. Failure to analyze the specific biological and economic consequences of such volumes violates the ESA=s provision that biological opinions must be based on Abest available scientific and commercial data available.@ 16 U.S.C. ' 1536(a)(2).

Increased flow augmentation is not a proposed action being considered in this Biological Opinion.

10. Page 6. The impact of the Rice Island Caspian tern colony greatly exceeds any demonstrated benefits from flows released from USBR reservoirs. Yet rather than act aggressively to move terns out of the estuary, NMFS endorsed a series of small steps that

are expected to reduce this predation by only 20%. The NMFS could accomplish far more for the salmon, with much less expense, by calling for greater reduction in existing bird predation levels.

The effects of Caspian terns on salmon survival is not a subject being treated in this biological opinion. We are however, very concerned with Caspian tern predation on salmon and steelhead smolts and have supported efforts to relocate the Rice Island tern colony to East Sand Island where there is a broader prey base. However, Caspian terns are afforded protection under the Migratory Bird Act. Therefore, NMFS, USFWS, and other parties are working to develop plans to reduce the number of Caspian terns in the Columbia River estuary to an acceptable number, with the least possible impact to the terns.

11. Pages 6-7. The Draft Biological Opinion fails to evaluate effects on resident fish and wildlife and water quality. The State of Idaho requests that, prior to releasing any new biological opinions on flow augmentation, that NMFS work with the Idaho Department of Fish and Game and other state and federal agencies to develop a disciplined analysis of the impacts on resident fish and wildlife, water quality, and other aspects of the Snake River ecosystem.

We routinely confer with state and fish and wildlife agencies to evaluate the effects of prospective protection measures and will consider the effects of proposed changes in operations on resident fish and wildlife in the upcoming 1999 Decision. Since the 1995 FCRPS BiOp NMFS, in coordination with USFWS and state fish and wildlife agencies, has attempted to minimize the adverse impacts of the flow augmentation program on resident fish and wildlife. The needs of resident fish and wildlife will be similarly considered in any subsequent modifications to the flow augmentation program.

12. The steady release of 1,500 cubic feet per second (cfs) under the current Milner Agreement between the Bureau and Idaho Power Company has water quality and fisheries benefits. The NMFS should examine these issues before it calls for a change in the pattern of releases below Milner Dam.

We would invite the participation of interested state and federal agencies in the review of any proposed change to the Milner Agreement. We assume that such review would include the effects on non-anadromous fisheries and water quality. (See Conservation Recommendation B.2.)

II Specific Comments

1. Part IV - Biological Information

1. Page 7. The State of Idaho agrees with the Draft Biological Opinion=s recognition of A-run and B-run steelhead. In addition to timing differences, the Draft Biological Opinion should accentuate the size distinction between A-run and B-run steelhead.

We agree, the text has been revised.

2. Page 8. The Draft Biological Opinion should recognize that the decline in Snake River spring/summer chinook numbers leveled off in the 1950s and 1960s. This period is generally accepted as the appropriate template for recovery (IDFG 1998). Since this period stocks have declined by approximately 90 percent.

We agree that this period is generally accepted as an appropriate goal for recovery efforts, and that these stocks have declined by approximately 90 percent since the 1960s. However, estimated spring/summer chinook returns to the Snake River had already declined to less than 8 percent of their historic numbers by the 1950s (from 1,500,000 down to 125,000). Based on dam counts at Ice Harbor (an estimate of fish escaping river fisheries below McNary Dam) from 1962 through 1970, an average of approximately 59,000 spring/summer chinook actually returned to the Snake River, a further decline of 47 percent (Matthews and Waples, 1991, NOAA Technical Memorandum NMFS F/NWC-200). This indicates that the absolute number of spawners continued to decline during this period, albeit at a decreased rate.

3. Page 8. The Draft Biological Opinion perpetuates the theory that the hydrograph must be further manipulated to accommodate an already unnatural migration condition for juvenile Snake River fall chinook. The Draft Biological Opinion should emphasize returning the fish to their historical migration timing which coincided with the declining hydrograph following spring snowmelt.

We are familiar with data suggesting that juvenile fall chinook migration downstream from Hells Canyon has been delayed up to four weeks since development of the Hells Canyon Complex and agree that returning these fish to their historical migration timing would likely result in increased survival for this population. Releasing water from the Hells Canyon Complex more closely approximating the thermal regime found upstream of the project (in historical spawning areas) would likely result in earlier migration. We are currently working with Idaho Power Company and other Federal, state, and tribal entities, to evaluate the potential for discharge temperature control to accomplish this objective through the relicensing process for the Hells Canyon Complex (FERC No. 1971). However, this work is just beginning and construction of a selective withdrawal structural, should this option prove feasible, is likely years away. This issue will be more fully described in a future consultation with FERC on the interim operation of the Hells Canyon Complex.

B. Part V - Environmental Baseline

1. Page 8. General Concerns

1. The study (USBR=s Cumulative Effects Study) results for Case 1 - Natural Flows, when compared with the present flow regime, are technically sufficient for providing a generalized estimate of the cumulative effects of water use in the Columbia Basin. The

figures derived from that data are at best Ageneralized estimates; at worst, they are misleading.@ Dreher=s (1998) time-series analysis is a better illustration of the effects of water development than USBR=s study.

We disagree. The referenced figures illustrate the extent of man-caused hydrologic manipulation in the basin. We do not agree that Dreher (1998) better illustrates these effects.

Dreher (1998) presents actual juvenile salmon outmigration season average discharge for the years 1916 through 1997. The report then uses these data and changes in average velocities caused by dam construction to calculate annual seasonal water particle travel times for this period of record, demonstrating that major dam construction in the migration corridor has had a much greater effect on water particle travel time than has consumptive water use.

While we agree with Dreher=s principal findings we do not consider the report=s use of historical hydrologic data to provide a very good estimate of water consumption=s effects on streamflow. This method places events in their point-in-time and compares conditions before and after that time. There certainly is a value to such approaches and we frequently use them to examine the value of the recovery measures we request.

Unfortunately, when applied to a highly variable parameter such as streamflow, time-series analysis can be a poor indicator of the effects of a point-in-time action. Such events as prolonged drought and severe floods can confound before and after comparisons. As an example consider a flood immediately following dam construction. Did the dam cause the flood? Probably not, but by placing it in a time-series of streamflow one could erroneously reach that conclusion. To a certain extent, this problem is manifest in Dreher (1998). The period from 1928 through 1941 contains 11 of the 17 lowest estimated mean annual flows on record for the Snake River near Milner, Idaho (USBR 1999). This was a period of prolonged drought including the ADust Bowl@ years of the early 30s. By including this low flow period in the pre-development record, the report tends to underestimate the effect of irrigation development on streamflow.

Establishing the pre-development conditions upon which to measure change is also problematic. The earliest data point in the report=s listing of irrigated acreage is 1929 and the earliest point of hydrologic data is 1916. Unfortunately, by 1929 70 percent of the currently irrigated acreage was already developed and water use was such that the Snake River was occasionally totally dewatered (USBR 1998). Thus 1929 is a poor beginning point for defining trends in irrigated agriculture. One would not expect to capture the effect of consumptive water development in this time series. To provide a reasonable snapshot of conditions Abefore@ development a record several decades earlier would be required. (A record that simply does not exist.)

Because hydrologic conditions are highly variable, comparison of conditions before and after given events is a risky form of analysis. To avoid the biases such events as prolonged drought can have on the results of such comparisons, scientists frequently use one common hydrologic record and impose the conditions that would exist if a given action were taken on that one record. For example, the anticipated operation of a proposed dam can be imposed on a hydrologic

record to estimate the likely hydrologic effect of the dam. Such simulations impose proposed operations throughout the hydrologic record: a kind of Awhat if this dam was in place at the beginning of the record@ approach. Then one can compare the hydrologic record with and without the project in place and operating as proposed.

At our request, USBR conducted just such a simulation and comparison for the Snake River (USBR 1999). In this analysis a series of Awhat if@ scenarios were developed. For our purposes, the two scenarios of Anatural flow@ (estimated streamflow without irrigation withdrawals or dams) and Acurrent flows@, including all of the effects of water development and current dam operations, were presented. These data were carefully developed and thoroughly peer reviewed. We consider these data to provide a better estimate of the effects of water development on streamflow than the historical time-series approach presented in Dreher (1998).

2. Unless the goal of steelhead and salmon recovery is to re-establish populations that existed prior to water development the pre-development hydrologic baseline is the wrong baseline.

The purpose of presenting the pre-development baseline is simply to illustrate the effects of water development on streamflow timing and magnitude. This illustration is not intended to imply that recovery requires a return to pre-development hydrologic conditions.

2. Page 9. Specific Concerns

*a. Draft Biological Opinion, page V-1. Footnote 8 should state A... upper limit to salmon migrations on the **mainstem** Snake River.@*

We agree. The text has been revised.

b. Draft Biological Opinion, pages V-1 to V-8. The baseline fails to present biologically based attributes of smolt survival and wrongly focuses on flow as a surrogate for these biological effects.

We agree that streamflow does not directly affect smolt survival. Rather streamflow affects other physical and biological attributes that directly and indirectly affect smolt survival. These elements were thoroughly discussed in NMFS (1995). The relationship between flow and reach survival using the most recent PIT-tag information is briefly presented in Section VI of the Biological Opinion.

C. Part VI - Effects of Proposed Action

1. General Concerns

1. Page 10. Several recommended actions are inconsistent with Idaho law and sovereignty. Idaho argues against the use of the word impediments to characterize aspects of state law.

The text has been revised to replace Aimpediments@ with Afactors affecting.@

1. Heavy Reliance on Rental Pool Water

> Page 10. Assertion that the amount of water from Idaho=s water rental pools should be firmed up is unsupported.

The amount of water consigned to the rental pools varies widely. The fact that USBR had to draft water from powerhead space in 1993 and 1994 to supply salmon flow augmentation water clearly demonstrates the need to improve the surety of supply from USBR=s reservoirs.

2. Last to Fill Rule

> Page 11. Water management strategies such as the Alast to fill rule@ are solely the responsibility of the State of Idaho, not NMFS or the USBR.

We acknowledge that the allocation and administration of water resources within states is primarily the responsibility of the individual states From NMFS perspective, it is the responsibility of the action agencies to take every reasonable effort to take appropriate actions under their authorities to meet recovery and survival goals of listed species. We leave to USBR the task of defining its authority to comply with the Alast to fill rule@ and other characteristics of Idaho Code in their efforts to comply with ESA.

3. Potential Additional Water Supplies Through Modification of Flood Control Regulation

> Page 11. Idaho argues that Idaho, the U.S. Army Corps of Engineers, and USBR are better prepared to balance the need for flood protection and the subsequent probability of refill than is NMFS.

We agree. The NMFS seeks to have the action agencies carefully evaluate opportunities to further salmon recovery. Recognizing that drafting for flood protection is a reasonable and necessary operation at some USBR projects, we are seeking to have USBR, in consultation with USACE and other interested parties, evaluate planning and management of those drafts to maximize fish benefits.

4. Management of Uncontracted Space

> Page 12. Idaho argues that NMFS should not direct USBR to dedicate all uncontracted space to salmon recovery.

The NMFS does not seek the dedication of all uncontracted space in USBR reservoirs to salmon recovery. Rather, we want USBR to consult with us prior to making decisions which might preclude such use.

5. Carryover Storage

> Page 12. Idaho argues that carryover storage belongs to the spaceholders and cannot be managed by USBR without the owners= permission.

To the extent that spaceholders have a property interest that may be affected by USBR=s reservoir management, we anticipate that USBR would consult with the spaceholders prior to releasing any carryover storage to benefit salmon.

6. Water Spreading

> Page 12. The NMFS misuses the term Awater spreading@. Water spreading refers to diverting water to irrigate more acreage than authorized under a water right or USBR contract. Diverting water in excess of established water rights is not water spreading and does not have the same effect on streamflows as water spreading.

We have revised the definition of water spreading in the text.

> *Page 12. The NMFS misuses, and/or misinterprets the Koch (1999) report in characterizing the effects of unauthorized water use on the ability to accurately track salmon flow augmentation*.

We have removed the reference to Koch (1999). See response to USBR item 15.

> *Page 12. The NMFS misquotes an IDWR memo on this subject.*

See response to USBR item 15.

7. Groundwater Recharge

> Page 13. The listing of groundwater recharge as an impediment to NMFS= flow *augmentation goals is unsupported.*

Please note that we have changed the title of this section. It is in fact possible that groundwater recharge could work to increase the surface expression of groundwater, particularly in the Thousand Springs area, and could thus benefit all aquatic biota in the river, including outmigrating fall chinook. However, it is much more likely that groundwater recharge would be used to support existing and possibly increased future groundwater withdrawals (groundwater pumping is the fastest growing segment of irrigated agriculture in Idaho), and little or no measurable increase in surface expression of the groundwater would occur. As stated in the text, this program is being conducted to reduce conflicts between junior groundwater pumpers and senior water right holders. We anticipate that most, if not all, of the water would be used for this purpose and thus the diminishment of springtime flows would be the most likely effect on Snake River flows.

8. Water Right Transfers

> Page 13. Idaho law does not currently provide for transferring natural flow water rights to instream flow water rights that could be used for flow augmentation.

We believe that the text accurately describes the legal obstacles to acquisition of natural flow water rights and conversion to instream flow for use in salmon flow augmentation. This section of the Biological Opinion is intended to present the obstacles inherent in such transfers and therefore is pertinent. While conversion of natural flow water rights to salmon flow augmentation is not current practice, USBR has reacquired over 63,000 acre-feet of storage at its projects for use in the salmon flow augmentation program. We encourage further reacquisition of storage space for the program.

9. Water Conservation

> Page 13. The narrative on pages VI-12 and VI-13 of the Draft Biological Opinion is flawed.

We have revised the discussion to focus on the actual and potential value of water conservation as a tool to increase instream flows and the role of the water rental pools in managing conserved water.

10. Milner Agreement

> Page 14. It is inappropriate for NMFS to make recommendations to the USBR that would revise the 1,500 cfs limitation on flows below Milner absent consultation with the U. S. Fish and Wildlife Service.

Careful reading of the referenced text would reveal that we recommended that AUSBR should make alternative recommendations to NMFS, as well as all interested Federal, state, and private organizations.@ We do not propose that USBR engage in negotiations with IPC to revise the Milner Agreement absent consultation with all interested parties, including the U. S. Fish and Wildlife Service.

11. Use of Powerhead Space

> Page 14. Idaho state water law limits filling of powerhead space at most of the USBR storage projects in the upper Snake River Basin to one time.

Comment noted. See page II-20 USBR (1998).

12. Water Distribution and Accounting

Page 15. The NMFS request that USBR become more active in the allocation, distribution, and accounting of both natural flow and storage water is an unacceptable intrusion into the State of Idaho=s authorities and is unacceptable. The right to receive delivery of a specified amount of water for flow augmentation does not create the right or the authority to manage all of Idaho=s water in the Snake River Basin.

Our recommendations dealing with improving the documentation of water use both within the irrigation districts served by USBR projects and outside those boundaries is intended to better define and control project water use, particularly the water released for salmon flow augmentation, not to interfere with the state=s administration of water resources in Idaho.

2. The Draft Biological Opinion Fails to Provide Sufficient Scientific Analysis for Concluding that USBR Flow Augmentation Benefits Survival and Recovery

See previous discussion at 1. General Comments and at 1.A. and 1.B.

3. Basin Specific Operations to Provide 427 kaf of Augmentation Water

1. Payette River Releases

Page 17. The IDFG has identified the non-irrigation season as the preferred time for the flow augmentation releases from the Payette basin from a strictly resident fish perspective.

The USBR has worked with the Payette Watershed Council and others to manage salmon flow augmentation releases in a beneficial manner. We believe the current process of determining the distribution of these releases has worked fairly well but would be willing to consider other proposals which provide equal benefits to salmon.

ii. Boise River Releases

Page 18. Winter releases of the salmon flow augmentation water would provide greater benefits to the highly valued resident fishery.

Release of salmon flow augmentation water outside of the migration season requires subsequent downstream storage and in-season release. We currently employ this approach for water released in the Payette basin and would be willing to consider such an approach on the Boise River if equal benefits for outmigrating salmon could be provided. The State of Idaho should contact USBR, NMFS, BPA, and IPC to arrange a discussion of modifying the release schedules to provide higher mutual benefit.

iii. Upper Snake Releases

Page 18. Salmon flow releases provide unquantified benefits to resident fish and wildlife downstream from American Falls dam.

Comment noted.

2. Specific Concerns

> Page 18 and 19. The Draft Biological Opinion fails to evaluate how flow augmentation restores the biological requirements of fish (water velocity, temperature, turbidity, or depth).

See response to Idaho General Comments and 1.A. and 1.B.

> *Page 19. The Draft Biological Opinion also fails to examine these attributes relative to the 1950s and 1960s when biological needs of the fish were being met to determine biologically-based requirements of flow result in flow itself being used as a measure of success.*

We disagree with your assertion that the needs of Snake River fall chinook were being met during the 1950s and 1960s. As noted in Section IV - Biological Information of this Biological Opinion, the estimated average number of returning adults declined precipitously from 29,000 during the 1950s to only 3,416 from 1969 to 1974. Because fall chinook spend the entire freshwater portion of their life cycle in the mainstem portions of large rivers, the construction of dams during this period is most likely the primary cause of their decline. The Hells Canyon Complex (completed from 1958-1967) blocked access to the remaining prime spawning habitat between Huntington and Swan Falls Dam. In addition, The Dalles (1957), John Day (1968), McNary (1953), Ice Harbor (1961), Lower Monumental (1969), and Little Goose (1970) dams were constructed downstream in the lower Snake and Columbia Rivers during this period.

> *Page 19. The State of Idaho also does not agree with the practice of further curtailing spring runoff to provide flow augmentation during summer. The Draft Biological Opinion appears critical of water development that reduced the spring freshet, but then the draft prioritizes flow augmentation for summer migrants at the expense of spring migrants. This is illogical reasoning.*

Although we place high priority on filling the reservoirs by June 30, we do not pursue this objective to the exclusion of meeting the spring flow objectives. This rationale is fully described in the 1998 BiOp (NMFS 1998, page III-5). We invite the State of Idaho to pursue these concerns within the Technical Management Team through development of the annual Water Management Plan and in-season management.

> *Page 19. The Draft Biological Opinion relies on a suite of actions coupled with flow augmentation to produce an acceptable interim survival of fall chinook. Although it may be difficult to assess the contribution of individual measures, the draft does not adequately address this need. This assessment would be more logical if flow*

augmentation was examined in the context of biologically-based attributes such as water velocity, temperature and turbidity.

See responses to Idaho General Comments and 1.A. and 1.B.

4. Part IX - Incidental Take Statement

1. The reasonable and prudent measure and the term and condition in the Draft Biological Opinion may prevent the establishment of conservation pools in USBR reservoirs and stream channel maintenance flows in the upper Snake Basin.

This measure does not preclude water stored at USBR reservoirs from being used to establish conservation pools or to maintain minimum winter flows. Rather, this measure requires USBR to consult with NMFS prior to issuing new contracts for storage space or committing uncontracted space to other uses.

2. This non-discretionary measure is in direct conflict with the Draft Biological Opinion issued by the U.S. Fish and Wildlife Service on USBR=s operations and maintenance in the same system. Reasonable and Prudent Measure number 2 of USFWS= Biological Opinion directs the USBR to Aensure reservoir operations do not result in de-watering of Reclamation reservoirs to the extent that adfluvial bull trout resident there during part of their life history are stressed or killed.@ The associated terms and conditions are aimed at evaluating the minimum pools needs of bull trout, and implementing operations to meet those needs by 2004.

We disagree. Any future consultation on the disposition of uncontracted space would include other interested agencies, including USFWS. There is no conflict with bull trout recovery inherent in this incidental take statement.

5. Part X - Conservation Recommendations

1. Specific Concerns

a. Page 20. A1. Failure to carefully plan and closely consult on acquired reservoir storage space operation could result in serious negative impacts to stream and reservoir dwelling resident fish as well as the water rights of private individuals.

While our primary concern in managing the salmon flow augmentation program is to maximize the benefits to salmon, we would consider modifications to the program that do not substantially reduce the salmon benefit where adverse impacts to other uses and values supported by this stored water are identified. The Regional Forum and its attendant Technical Management Team routinely work to minimize such conflicts. Such concerns can be addressed either in the TMT=s pre-season Water Management Plan or during the season in the form of System Operating Requests.

2. Page 20. A.2.a, b. The maximum benefits of re-evaluating flood control operations would be achieved by thoroughly re-evaluating flood control operations for the entire Columbia River basin, not just the Snake River basin.

We agree. It is our intent to have USBR and COE investigate both local and system flood control planning and operations in an attempt to provide adequate flood protection while improving spring flows and the probability of refill at system reservoirs.

3. Page 20. A.2.c. NMFS= recommendation to use uncontracted storage for additional flow augmentation water poses a significant risk to resident fish in those reservoirs.

The NMFS routinely consults with USFWS and other interested parties in defining reservoir operations beneficial to salmon as well as other fish and wildlife, especially listed species.

4. Page 21. B.1. The state supports USBR=s Snake River Resources Review efforts.

No response required.

e. Page 21. E. The present accounting and tracking of the flow augmentation releases for salmon is adequate.

We disagree. The NMFS currently receives only summary data on water delivered under the salmon flow augmentation program. More detailed information is needed both to document delivery and to understand the program=s hydrologic effects. We agree with the conclusion in Koch (1999), however, that Idaho=s Water Accounting Model is the best currently available tool for tracking water released for salmon flow augmentation.

6. IV. Conclusion

1. Page 21. The NMFS failed to adequately set forth an appropriate scientific foundation for meeting the long-term biological needs of the subject species.

See previous discussion at 1. General Comments and at 1.A. and 1.B.

2. Page 21. The NMFS has recommended that USBR trespass into several areas in which Idaho maintains state sovereignty over water management.

To the contrary, several of the Conservation Recommendations encourage USBR to work cooperatively with the State of Idaho to manage USBR=s reservoirs in Idaho to benefit salmon. We see no direct conflict between these recommendations and Idaho law and authorities.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

1. *We agree with NMFS= conclusions regarding the benefits of flow augmentation for summer migrants in the Snake River. However, the data indicates that NMFS= summer seasonal flow objectives (50-55 kcfs at Lower Granite Dam) are at the low end of the range of flows where subyearling chinook demonstrate improved survival. This increases the importance of providing the 427 kaf from the upper basin, especially in below-average flow years.*

We agree.

2. Because USBR is dependent on obtaining water from other parties on a willing-seller basis, it will only be able to deliver a portion of the 427 kaf in years when water supplies are low. The Draft Biological Opinion does not adequately address what might happen in below-average runoff years when the 427 kaf is most needed and least likely to be provided.

The 1995 FCRPS BiOp acknowledged that in low water years, summer flow objectives are unlikely to be met, resulting in lower survivals for fall chinook smolts outmigrating through the FCRPS. In the event that USBR is unable to provide the entire 427 kaf from uncontracted space, rental pools, etc., they will release water from powerhead space to meet this obligation (see Biological Opinion, Section III. E. Delivery of Water).

3. The Draft Biological Opinion contains only one Reasonable and Prudent Measure, aimed at ensuring that NMFS is consulted before any uncontracted storage space is committed to other uses. While this is a good measure, it falls short of what is needed to provide reasonable assurance that USBR can provide the specified volume. There is no discussion of, or provisions for, what would happen if USBR is prevented from providing the 427 kaf by legal and institutional complications. It would seem this situation would warrant a re-initiation of consultation.

We have no reason to believe that such an outcome is likely. In the event that USBR is unable to comply with the terms of this Biological Opinion (due to factors other than prolonged low water availability) it would be obligated to reinitiate consultations (see Biological Opinion, Section XI. Reinitiation of Consultation (1) and (3)).

4. Conservation Recommendations are not binding on USBR. The Conservation Recommendations should be re-evaluated for possible inclusion as Reasonable and Prudent Measures.

The USBR has committed to providing 427 kaf of water, on demand, for salmon flow augmentation and has committed to taking extraordinary steps to ensure delivery of such water in all but the most adverse hydrologic conditions. Thus, we have focused our incidental take statement on USBR activities that could diminish their ability to meet this obligation and have

addressed measures to improve this surety and document successful delivery in our conservation recommendations.

5. Based on the Draft Biological Opinions, estimate of the effects of water use on stream flows during the spring and summer outmigration periods, NMFS= finding that Areinitiation of consultation is not warranted@ is questionable unless NMFS can substantiate that it had essentially this same information available to it during the earlier 1995 FCRPS consultation.

In 1991, a report commissioned by NMFS[2] estimated that the total annual runoff in the Snake River basin was decreased by approximately 8.2 million acre-feet to 35.3 million acre-feet. The NMFS= current estimate of consumptive water use in the Snake River basin upstream of Brownlee Reservoir is 6.85 million acre-feet. It does not appear that any significant increase in consumptive water use has occurred since 1991.

6. The Draft Biological Opinion does not discuss the effects of the USBR=s operations on water quality, especially temperature. Because one of the problems with delivery of the 427 kaf is elevated water temperatures, this omission is a serious one that needs to be addressed.

Although we routinely manage the salmon flow augmentation program to avoid adverse water quality impacts, the purposes of this Biological Opinion do not extend to examining the water quality effects of USBR project operations. The USBR is actively participating in efforts to improve water quality in the basin.

7. The Draft Biological Opinion fails to adequately address the artificial flow cap (the 1,500 cfs AMilner Agreement@) at the Milner Project, a serious impediment in providing the 427 kaf from the upper Snake River basin. Because this flow limit is often exceeded when other conditions warrant, its validity is questionable.

We have determined that the 1,500 cfs flow limit at Milner Dam does not significantly impede USBR=s water deliveries for flow augmentation. However, Conservation Recommendation B.2. encourages USBR to re-evaluate this agreement as new information becomes available.

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[2] Hydrosphere Resource Consultants, January 1991. Water Supplies to Promote Juvenile Anadromous Fish Migration in the Snake River Basin: A Report to the National Marine Fisheries Service.

8. The Draft Biological Opinion does not address the need for USBR to retain its control over resources and facilities at least until the actual measures for recovery of listed Snake River salmon are in place. In light of the arguments recently put forth by NMFS[3] for an additional delay of 5 to 10 (or more) years in order to further study uncertainties, NMFS needs to do everything it can to strengthen USBR=s ability to deliver this water to the listed fish.

Any action by USBR to divest itself of project works and water rights necessary to fulfill the 1995 BiOp=s Reasonable and Prudent Alternative measures would require consultation. Further, while in consultation, action agencies are precluded from making any irreversible or irretrievable commitments of resources that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measure (ESA section 7 (d)). Consultation on the configuration and operation of the Federal Columbia River Power System is imminent and the projects covered under this BiOp would be subject to the 7(d) rule during that consultation. We have directed USBR to take actions to protect and enhance its ability to deliver water to benefit listed salmon.

9. Flood control operations are addressed in the Conservation Recommendations, but again are not binding on USBR. In 1997 significant storage space had to be evacuated in the upper basin. A portion of this water could have been released to benefit juvenile migrants in late August, but the releases did not occur until early September.

See Response to WDFW Comment 4.

10. *Conservation Recommendation A.2. appears to be identical to RPA 1.c. in the 1995 BiOp (pg 100), which would be a serious inconsistency, requiring that this change in status be addressed.*

There is no intent to reduce the status of the 1995 BiOp=s RPA 1.c. The USBR and COE have committed to fully evaluating flood control operations with the intent of accelerating the dates of reservoir refill, improving the probability of refill, and increasing the portion of the spring freshet that reaches the Columbia River estuary.[4]

11. Although it is included in the Conservation Recommendations, the issue of improved accounting needs to be addressed more directly. We find it encouraging that some water districts are using the revenues from Water Pool rentals for flow augmentation to improve their ability to monitor flows, but more needs to be done in this area. The recently-released Koch report indicates that there may be significant problems with water

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[3] This refers to the Anadromous Fish Appendix to the Lower Snake River Salmon Feasibility Study Draft Environmental Impact Statement.

[4] Several studies have already been conducted but a detailed feasibility analysis of modifying system flood control targets and procedures has not been conducted.

accounting in the basin.

See response to USBR comments 15.

OREGON DEPARTMENT OF FISH AND WILDLIFE

1. *The Draft Biological Opinion should not solely base its determination that the USBR=s proposed action Ais consistent with the operations envisioned in the 1995 and 1998 FCRPS Biological Opinions@ on whether USBR releases the required amount of water from storage reservoirs. The Biological Opinion should also consider whether released water actually reaches the lower Snake River to benefit the listed fish species. The recently released Koch report on water accounting in the Payette River suggests that similar accounting problems may be occurring in other rivers as well.*

Conservation Recommendation E. encourages USBR to provide an accounting that tracks stored water releases to downstream from Hells Canyon Dam. We agree with Koch=s (1999) conclusion that Idaho=s Water Accounting Model is the best currently available tool for tracking water released for salmon flow augmentation. However, we also recognize that water diversions in excess of natural flow water rights reduce the ability of Idaho=s Water Accounting Model to precisely track stored water releases through every segment of the Snake River and its tributaries and recommend that USBR work with IDWR to monitor such withdrawals to provide a better accounting.

2. The Biological Opinion should require USBR to establish a reliable accounting system to determine if water released from its projects is reaching the lower Snake River. This requirement should include all elements specified in Conservation Recommendation E and development of an accounting system to determine actual amount of water released from reservoirs and delivered downstream of Hells Canyon Dam (ODFW)

See response to ODFW comment 1.

3. *The Biological Opinion should require USBR to redistribute uncontracted space in its reservoirs for salmon flow augmentation. This requirement should include all elements in Conservation Recommendation A.2.c. and a report to NMFS by Fall 1999 on the potential to acquire additional uncontracted storage in Cascade, Deadwood, and Lucky Peak reservoirs.*

We disagree. We are obligated to consider the effects of prospective protection measures on other listed species and generally attempt to avoid unnecessary adverse environmental impacts in the measures we adopt. Uncontracted space in Cascade, Deadwood, and Lucky Peak Reservoirs is used to provide conservation pools and winter instream flows which provide environmental benefits such as resident fish (including listed bull trout) and water quality protections. We have requested that USBR carefully evaluate these commitments to ensure that the greatest possible consideration is given to improving the salmon flow augmentation program (See Conservation Recommendation A. 2. b.)

4. The Draft Biological Opinion should not encourage USBR to adopt policies that conflict with state rules. Instead, the Biological Opinion should encourage USBR to work with

state water managers to modify rules to reduce impediments to leasing and enhancing surety of USBR-owned water.

We agree. See response to Idaho comment II.F.2.

5. The Draft Biological Opinion should not assume unauthorized use of water is a significant problem. It should require USBR to work with state water managers to evaluate the extent of the problem, and if significant, develop solutions.

We agree. See response to the State of Idaho comment II.C.1.a.vi. regarding the Koch report.

6. The Draft Biological Opinion should require USBR to re-evaluate the 1996 agreement between USBR, IPC, and USFWS that limits flow at Milner to 1,500 cfs and pursue revisions that increase flexibility in water delivery. This requirement should include all elements in Conservation Recommendation B.2 and identification of options, by December 1999.

We disagree. See response to WDFW comment 7.

7. The Biological Opinion should also direct USBR to work with the Payette Watershed Council to relax limits on water volumes from the Payette (presently limited to 1,000 cfs above irrigation releases.

We disagree. The 1,000 cfs flow limitation, in combination with Brownlee Reservoir shaping operations, does not prevent upper Snake River basin water from being released downstream of Hells Canyon Dam during the summer migration season.

8. The Biological Opinion should require USBR to complete flood control studies as soon as possible and no later than December 1999. This requirement is a Reasonable and Prudent Measure (1.c) of the 1995 FCRPS BiOp and should be supplemented with requirements in Conservation Recommendation A.2.a and A.2.b.

See response to WDFW comment 9.

9. The Biological Opinion should explain how it factored new information provided in Section III into its finding that operations of USBR projects upstream of Brownlee Dam are not likely to jeopardize the continued existence of listed Snake River salmon. Modeling by USBR shows that flows at Lower Granite have been decreased by 51 kcfs in May and June (over 6 Maf) because of water development. This information was not known when the 1995 FCRPS BiOp was issued.

We disagree. See response to WDFW comment 5.

WYOMING STATE ENGINEER=S OFFICE

1. Wyoming is supportive of taking needed actions to stabilize and improve salmon populations, but is concerned regarding the potential impacts of the annual delivery of the 427,000 acre-feet by the USBR on Jackson Lake and Palisades Reservoir. The additional demand of supplying the 427,000 acre-feet downstream could result in Jackson Lake being drawn down during the height of the tourist season in Jackson Hole during dry years. In addition, low reservoir levels could lead the USBR to be reluctant to release 280 cfs to maintain minimum winter flows below Jackson Lake to protect native Snake River cutthroat trout. These fish have been petitioned for listing under the ESA. *It is not clear what impact their listing may have on the USBR=s commitment to deliver the 427,000 acre-feet for salmon recovery.*

The NMFS routinely coordinates with USFWS and state and tribal fish and wildlife agencies in an attempt to balance the needs of resident fish and wildlife, especially listed species, with those of ESA-listed anadromous fish. Should potential conflicts arise at Jackson Lake or Palisades Reservoir, the USBR should reinitiate consultation. During the ensuing process, interested Federal, state, and tribal agencies could work together to provide reasonable alternative operations that would benefit both resident and anadromous species.

2. Although Wyoming is not specifically mentioned in your Draft Biological Opinion, we are troubled by the references to measures that NMFS would like to see the USBR take that conflict directly with state primacy over water allocation within state boundaries. Any releases for endangered species recovery needs to be done in accordance with state law and for the beneficial uses recognized under a state water allocation permit.

See response to State of Idaho comments I., II.C.1., and II.F.2.

FISH PASSAGE CENTER

1. The Biological Opinion recognizes that the 427 kaf cannot be provided in average or below average water years. However, the Draft Biological Opinion does not present any analysis or alternate reservoir operation scenarios addressing these below average years.

See response to WDFW comment 2.

2. The Draft Biological Opinion does not adequately discuss the difficulty in determining whether or not the 427 kaf is delivered at downstream sites.

See response to ODFW comment 1.

3. The biological information regarding summer migration flows has become increasingly clear since the first implementation of the 1995 FCRPS Biological Opinion. Clear flow/travel time and flow/survival relationships for summer migrants have emerged. The data establish the importance of provision of the 427 kaf and additional flow. Therefore,

the Biological Opinion should include analysis of the below average water years when the 427 kaf can not, under present circumstances, be delivered because listed fish will be adversely impacted in those circumstances.

See response to WDFW comment 2.

4. The Koch report left significant uncertainty regarding the actual downstream delivery of the USBR flow augmentation volume. The USBR, NMFS and FERC should implement actions that assure that flows released for downstream migrants reaches fish when they are present and need flow.

See response to ODFW comment 1.

5. The Milner agreement has proven to be a serious impediment to delivery of flow augmentation. In addition, the flow cap at Milner could impede the modification of flood control operations to benefit juvenile migrants. Although the Biological Opinion discusses this agreement , modification of this agreement to allow delivery of water volumes downstream within the summer migration period was not included as a reasonable and prudent measure.

See response to ODFW comment 6.

6. The Biological Opinion discusses modification of flood control operations to benefit downstream migrants. Although this is discussed as a conservation measure, it was not included as a reasonable and prudent measure, even though experience to date has shown that opportunities to improve flows for downstream migrants by modifying flood control releases were not implemented.

See response to WDFW comment 10.

7. The Biological Opinion does not include any effect of the impact of USBR reservoirs on water temperature in the Snake River. Water temperature is a significant problem in the Snake River in the summer months for listed salmon.

See response to WDFW comment 6.

8. The USBR has recently begun taking actions to divest themselves of USBR facilities and holdings including canal easements, diversions, pumping facilities, groundwater wells, and natural flow rights. These actions are presently under consideration for the Napa-Meridian district, the Fremont Madison district, the Island Park project and the Minidoka project. The reasonable and prudent measures in the Biological Opinion should require the USBR to delay any actions in divesting facilities or resources until the final upper Snake river measures to recover listed stocks are established. In addition, NMFS should require the USBR to eliminate any additional groundwater pumping for irrigation, until

the final measures for the recovery of listed stocks are in place.

See response to WDFW comment 8. The USBR is consulting on the congressionally-authorized transfer of facilities and natural flow water rights at the Minidoka Project and NMFS would recommend consultation on any future divestiture of project works or water rights included in this and other biological opinions. Although we are concerned with the potential for future groundwater withdrawals to impacts Snake River streamflows, we know of no mechanism by which USBR could legally curtail such withdrawals except at groundwater developments under its direct control.

9. In summary, the Draft Biological Opinion falls short in addressing either the adverse impact of USBR operations in the upper Snake River or the serious limitations of the mitigation measures presently established to address those impacts. In view of the decade of delay in implementing recovery measures for Snake River listed stocks, discussed in the recently released AAnadromous Fish Appendix,@ and the prevailing data regarding the recovery of fall chinook stocks, it is imperative that NMFS include significant prudent and reasonable measures in the Biological Opinion for upper Snake River operations.

See response to WDFW comment 4.