Appendix B

Discussion of Issues related to the Jeopardy Analysis Framework In the Draft 2004 Biological Opinion on the Operations of the FCRPS

CRITFC, October 11, 2004

The new jeopardy standard articulated in NOAA's draft 2004 biological opinion on the operations of the FCRPS is counterintuitive to the ESA. Unlike prior biological opinions, NOAA Fisheries includes no type of trend analysis that would indicate if a given stock is in decline and, if so, how severe. While the draft 2004 BiOp acknowledges that for many stocks, the hydro system is the predominant cause of decline, there is no assessment of the likelihood of achieving survival or recovery goals, particularly such population goals that have been developed in over a decade of concerted biological collaborations such as the efforts of the Biological Requirements Work Group or the Plan for Analyzing and Testing Hypotheses. Even the concept of a stable population, whether the ad hoc goal of Lambda = 1 found in the 2000 BiOp or the 1986-1990 base period populations found in the 1993 BiOp, has been eliminated from the 2004 draft BiOp.

The following analysis recounts the history of biological opinions and how they have addressed the ESA's requirements of survival and recovery in the context of the FCRPS.

With the listings of Snake River salmon stocks in 1991 and 1992, NOAA began crafting a framework for its analysis of whether a proposed federal action would pose jeopardy under the ESA. Since 1992, NOAA's jeopardy framework has undergone substantial evolution. The most significant modifications in NOAA's approach occurred in 1995 and 2004 after the federal district court of Oregon remanded defective biological opinions to the agency. The 2004 draft opinion represents a major departure from the prior frameworks, ostensibly in response to legal guidance from the court. The following section describes the jeopardy frameworks applied by NOAA since 1993, with some discussion of the scientific deliberation that occurred during this period.

NOAA Guidance Document Entitled "The Section 7 Consultation Process: Analyzing Actions that May Affect Endangered or Threatened Snake River Salmon," March 16, 1993.

This guidance document formed the basis for the jeopardy analysis that was performed in the 1993 Biological Opinions on the Operation of the Federal Columbia River Power System Including the Juvenile Fish Transportation Program. In 1992, NOAA had established an interim goal "to improve survival and make progress toward reversing the decline of listed and proposed species." This so-called "bending the curve" goal was used in the Section 7 consultations to evaluate various agency actions including hydropower operations and fishery activities.[1] In 1993, NOAA substantially refined the framework.

[1] NMFS compared anticipated reductions in mortality against a 1984-1990 baseline for juveniles and a 1975-1990 baseline for adults passage counts.

The 1993 framework consisted to two basic steps:

> First, NMFS would consider an action individually to determine whether the action includes measures or modifications to significantly reduce the level of human-induced mortality compared with a specified base period. In the second step, NMFS would evaluate the combined effects of all actions using the available Columbia/Snake River salmon life cycle models and other information.
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> Unnumbered page 3

In addressing the first step for each proposed federal action, NOAA focused on "whether there would be a significant reduction in mortality relative to a 1986-1990 base period." NOAA anticipated "that each action would achieve some reduction," but did not quantify the level of mortality reduction required. In the second step (the combined-effects analysis) NOAA considered "whether improvements made in 1993 are sufficient (assuming that those improvements are continued) to halt the declining trend and stabilize the population abundance at specified levels" within four life-cycles or by 2004-2008. The stability levels were defined as those population sizes that were observed during the 1986-1990 base period. *Id.*

In applying this jeopardy standard to 1993 hydropower operations, NMFS found that the proposed operations represented a significant reduction in mortality (3-11% overall). Based upon this anticipated reduction, NMFS then determined that the long range goal of "stabilizing" the species' population levels, to 1990 levels by the year 2008, was possible to a confidence level of approximately 60-70%.

The tribes and states had misgivings with NMFS analyses, particularly with the selection of the base period and the stability analysis that NMFS performed. Among other things, the spring Chinook returns to the Snake River during the base period were very low and not indicative of recovery to the non-federal fishery managers.

IDFG v. NMFS (1994)

The primary focus of this lawsuit was upon NMFS' selection of, and the action agencies' acceptance of, a framework or methodology for analyzing whether jeopardy would exist to listed Snake River species from the operations of the FCRPS.

Judge Marsh found that NMFS' selection of the '86-'90 baseline (discussed above) was arbitrary as was NMFS' disregard for low range assumptions (STFA model results being the lowest) in analyzing the likelihood of reaching stability goals and NMFS' failure to consider additional risks posed from in-breeding and the "extinction vortex." Judge Marsh remanded the biological opinion to NOAA with instructions for NOAA to work with state and tribal fishery managers during the remand period.

On remand following the Court's decision, NMFS engaged in discussions with states, tribes and other parties. The participants established a Biological Requirements Work Group (BRWG) comprised of scientists and fishery managers representing the federal agencies, states, and tribes. The BRWG issued a report on October 13, 1994, which examined the biological requirements and their use in ESA §7(a)(2) determinations. The BRWG defined the biological requirements for listed salmon populations drawing upon and ESA Handbook developed by NMFS and USFWS. The BRWG developed the following definitions for survival and recovery:

> **Survival:** Persistence of a listed salmon population into the future under conditions that will retain the potential for recovery. Survival is characterized by sufficiently large populations, represented by all age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, that exist in an environment providing all of the requirements for completing the species' entire life cycle, including reproduction, growth, migration, and cover.
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> **Recovery:** The process by which the quality and quantity of the Columbia River/Snake River ecosystem is restored so that it can support self-sustaining and self-regulating populations of listed salmon species as persistent members of the native biotic community. At the end of this process, when the population conditions described above are achieved, delisting of the population is warranted. (BRWG, 1994; Draft Handbook at pp. 4-33 and 4-34.)

The BRWG focused on population levels as the measure of the biological requirements of listed species for both survival and recovery. For example,

> For spring/summer Chinook salmon, NMFS will consider the biological requirements to be met if there is a high likelihood, relative to the historic likelihood, that a majority of the populations modeled as well as the aggregate based on dam counts will stay above the threshold levels over a 24- and 100-year period, and a moderate to high likelihood that a majority of the populations modeled as well as the aggregate based on dam counts will achieve its recovery level within 48 years.

The BWRG framework, developed in concert with state and tribal scientists was applied by NMFS in issuing its 1995-1998 biological opinion on the operations of the FCRPS.

Biological Opinion on Consultation on Operation of the Federal Columbia River Power System Including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin, March 2, 1995

NMFS applied the framework analysis identified in the BRWG discussions in issuing a new biological opinion in 1995. In rendering the new opinion, NMFS articulated a "five step" jeopardy analysis framework. This five-step analysis was refined in the 2000 biological opinion on the FCRPS, primarily with regard to the metrics used to define the biological requirements of the listed species and the analysis performed pursuant to step four. The following narrative is excerpted from the 1995 biological opinion.

1. Define the biological requirements of the listed species.

To determine whether a proposed or continuing action is likely to jeopardize the continued existence of listed species or adversely modify its habitat, it is first necessary to know what is required for the species' continued existence, which is more specifically expressed by the regulations in terms of the species' survival and recovery.

1995 BiOp page 11

2. Evaluated the relevance of the environmental baseline to the species' current status.

The environmental baseline, to which the effects of the proposed or continuing action would be added, "includes the past and present impacts of all Federal, State, or private activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation and the impact of State or private actions which are contemporaneous with the consultation in process." See 50 C.F.R. § 402.02, definition for "effects of the action".

Consistent with this definition, the environmental baseline does not include future discretionary activities within the action area that have not undergone ESA consultation.

1995 Biop page 12

3. Determine the effects of the proposed or continuing action on listed species.

In this step of the analysis, NMFS examines the likely effects of the proposed agency action on the species. The analysis may consider the impact in terms of mortalities inflicted upon the species' population size and variability, or the

analysis may consider the impact on species needs, such as water temperature, sediment load, total dissolved gas levels, etc. These are the effects that are, or with further authorizations and appropriations could be, within the action agencies' discretion to impose or not, a decision that is influenced by NMFS advice in this biological opinion.

1995 BiOp page 13

4. Determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering measures for survival and recovery specific to other life stages.

In this step of the analysis, NMFS determines whether the specific action under the consultation is likely to jeopardize the continued existence of the listed species. This step has two parts for Pacific salmon species. The NMFS must first focus on the action area and add up the effects of the proposed or continuing action, together with those of the environmental baseline and all cumulative effects. The NMFS must determine the significance of that aggregate effect upon the particular biological requirements of the listed species in that action area.

The second part of the analysis calls for NMFS to place the effects of the proposed or continuing action in the context of the full salmon life cycle. This comprehensive analysis is necessary to fully evaluate the significance of each action under consultation to the biological requirements of the listed species in all life stages.

At the species level, NMFS considers that the biological requirements for survival, with an adequate potential for recovery, are met when there is a high likelihood that the species' population will remain above critical escapement thresholds over a sufficiently long period of time. Additionally, the species must have a moderate to high likelihood that its population will achieve its recovery level within an adequate period of time.

In circumstances faced by these listed Snake River salmon, where their current status, as affected by environmental baseline, is such that there is a low expectation of survival with an adequate potential for recovery, the proposed or continuing actions must reduce risks to the listed species' in the action area to insure that the likelihood of the species' survival and recovery is not appreciably reduced. The amount of risk reduction necessary to determine that the action will not likely jeopardize the listed species will depend upon the current status of the species. Again, the Recovery Plan will be the best evidence of the amount of improvement required in each life stage and the measures likely to accomplish that reduction sufficient to satisfy the requirements of Section 7 (a) (2). NMFS will therefore first consider whether the proposed action is consistent with the

Recovery Plan. If not, NMFS will consider whether the proposed action reduces the risks to the listed species as much as or more than the Recovery Plan.

5. Identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the listed species.

1995 BiOp pages 13-14

Between 1995 and 2000, a great deal of effort was expended in a scientific collaboration called "PATH", which stands for "Plan for Analyzing and Testing Hypotheses". In the course of the PATH proceedings, technical staff from NMFS, the action agencies, USFWS, state fish and wildlife agencies, Indian tribes, and others engaged in a formal and rigorous program of formulating and testing hypotheses. This effort was structured, in a decision analysis framework, to identify, address and (to the maximum extent possible) resolve uncertainties in the fundamental biological issues surrounding recovery of endangered spring/summer chinook, fall chinook, and steelhead stocks in the Columbia River Basin. Reports of the PATH proceedings are available at http://www.efw.bpa.gov/PATH/index.html. Among other things, the PATH participants considered alternative metrics for measuring survival and recovery of listed Columbia River salmon stocks. The work of the PATH group underlay life cycle analyses used in NNFS' 2000 FCRPS BiOp.

The PATH effort was a multi-million dollar, multi-year collaboration of scientists. The results of PATH are reflected in the PATH FY 1998 Conclusions document, authored by Marmorek, et al. (1999) and included as 10 to CRITFC's comments. Among other things, the PATH effort evaluated the likelihood that it would be possible to achieve survival and recovery of ESA listed stocks through various measures, particularly hydro and habitat measures.

A further analysis of feasibility of alternative measures for survival and recovery of listed salmon stocks was performed at the direction of CRITFC in 2000, using methods developed during the PATH proceedings. This feasibility analysis (Marmorek et al. 2000) is included as Attachment 12. Like the PATH work before it, the 2000 work identifies the limitations of achieving salmon rebuilding through habitat, harvest, or hatchery initiatives. This is particularly true for salmon stocks that spawn in large federally designated wilderness areas located in the Snake River Basin.

2000 FCRPS BiOp

Biological Opinion on Reinitiation of Consultation on Operation of the Federal Columbia River Power System Including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin, December 21, 2000

The 2000 Biological Opinion on the FCRPS used the five step analysis developed in the 1995-98 biological opinion.. NMFS used the five-step approach for applying the ESA

Section 7(a)(2) standards. NMFS adopted metrics for survival and recovery in the 2000 BiOp that were different from those developed during the PATH proceedings or those that were applied in the 1995 FCRPS BiOp. In other major respects, the 2000 BiOp's jeopardy analysis framework was very similar to that used in 1995. Again, the steps are as follows (with the sections of the BiOp implementing each step in parentheses):

1. Define the biological requirements and current status of each listed species (Section 4).

For specific ESU's, NMFS identified population growth rates (lambda) over the base period beginning in 1980 and including 1996 adult returns. The population trends were projected under the assumption that all conditions will stay the same into the future. For example, when considering Snake River fall Chinook NMFS identified that the median population growth rate over the base period ranged from 0.94 to 0.86, depending on the assumed spawning effectiveness of hatchery fish.[2] On this basis, NMFS estimated the likelihood of absolute extinction over 100 years as being between 40% and 100%.

2000 BiOp page 4-4

2. Evaluate the relevance of the environmental baseline to the species' current status (Section 5).

Among other things, NMFS considered past actions to improve the configuration, operation, and maintenance of the FCRPS for the benefit of salmon. NMFS compared mainstem survival rates that were observed in the 1970's with those observed in the late 1990's.

2000 BiOp page 5-3

3. Determine the effects of the proposed or continuing action on listed species (methods described in Section 6.1 and applied in Sections 6.2 and 6.3).

NMFS generally considered the effects of the FCRPS on juvenile and adult salmon and developed quantitative estimates of salmon loss attributable to the FCRPS. 2000 BiOp pages 6-13 to 6-78. For adult salmon survival, NMFS estimated the effects of the FCRPS by two methods. NMFS estimated the cumulative loss for adults migrating up the Columbia and Snake rivers through the FCRPS as the difference in adult counts between dams after adjustments for legal harvest and tributary turnoff. NMFS also estimated adult losses using the results of radio telemetry studies, which NMFS considered to eliminate certain errors associated with dam counting procedures. 2000 BiOp page 6-1

The primary method for evaluating the effects of the proposed action on migrating juvenile salmonids in the mainstem Columbia and Snake rivers was through simulation

[2] A lambda value of 1.0 reflects a population that is neither growing nor declining. Lambda values greater than 1.0 indicate that the population is growing, less than 1.0 indicate population decline. A lambda value of 0.9 would indicate a rate of population decline of 10% per generation.

modeling. NMFS' used the SIMPAS model to evaluate the biological effects of current FCRPS facilities and operations and the likely benefits of potential measures to improve juvenile salmonid passage survival. This spreadsheet model is a fish passage accounting model that apportions the run to various passage routes (i.e., turbines, fish bypass system, sluiceway/surface bypass, spillway, and/or fish transportation) accounting for "successful fish passage" (survival) and "losses" (mortalities) through each of the alternative passage routes to estimate total survival. p. 6-2. In commenting on the 2000 BiOp, CRITFC and others were critical of NMFS application of SIMPAS. Many of these criticisms continue to apply to NMFS' current SIMPAS application. NOAA's 2004 draft BiOp does not address CRITFC or other's major criticisms of SIMPAS.

Next NMFS considered the likely effects of the proposed action on the risk of extinction and the likelihood of recovery (#5% risk of extinction in 24 and 100 years; $50% likelihood of meeting interim recovery abundance levels in 48 and 100 years; $50% likelihood that population growth rate will be stable or increasing). 2000 BiOp section 6.3. NMFS then compared the survival change necessary to meet the survival and recovery criteria with the survival changes expected to result from the proposed action. Based on this comparison NMFS estimated additional survival changes to achieve the survival and recovery criteria.

4. Determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages (Section 8).

NMFS analysis of cumulative effects considered the effects of state, local, and tribal actions. In reviewing the 2000 BiOp, the federal district court ultimately determined that NMFS relied future state, tribal, and local actions that were not reasonable certain to occur. The court remanded the BiOp to NMFS, in part, because of its reliance on such actions.

NMFS determinations with respect to survival and recovery that are reported in section 8 of the BiOp refer to its previous analysis of the estimated necessary, expected, and additional survival changes in concluding whether the proposed action caused jeopardy.

5. Identify reasonable and prudent alternatives (RPAs) to a proposed or continuing action when that action is likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat (Section 9). Thus, this step is relevant only when the conclusion of the previously described analysis is that the proposed action would jeopardize listed species.

Because NFMS found that the proposed action caused jeopardy to various listed salmon stocks, NMFS engaged in a lengthy identification and analysis of RPAs. The analysis of the RPAs essentially followed the foregoing procedures.

DRAFT Biological Opinion Reinitiation of Consultation on Operation of the Federal Columbia River Power System Including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin September 8, 2004

Step 1: Evaluate Current Status with Respect to Range-wide Biological Requirements and Essential Features of Critical Habitat

> For this Opinion, NOAA Fisheries reviewed the current status of the populations affected by the proposed action in the context of viable salmonid population (VSP) criteria and then reviewed the status of each major population group before reaching a conclusion for an ESU. NOAA Fisheries based this analysis on information published in its June 14, 2004 Status Review (69 FR 33102), which states the reason for listing each ESU and any other relevant information about its status….
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> 2004 draft BiOp pages 1-6 & 1-7

NOAA did not quantify species' population trends in this BiOp, such as the likelihoods of achieving threshold population sizes or population growth rates that were set forth in the 1995 and 2000 BiOps, respectively. The 2004 draft BiOp generally indicates whether recent (5-year) population trends are above or below replacement. For example, the 2004 draft BiOp notes that:

> All populations in the UCR spring chinook ESU exhibited strong returns of adults during the past four years suggests [sic] that the next few brood cycles will also be strong. These increases are encouraging, following the last decade of steep declines to record, critically low escapements. However, despite the strong returns in 2001, both recent 5-year and long-term productivity trends remain below replacement.
>
> 2004 draft BiOp pages 4-6 & 4-7

For Snake River Spring/summer Chinook the picture according to NOAA is slightly better:

> Due to the severe declines in the populations since the 1960s, the long-term productivity trends remain below replacement for all natural production areas, despite the recent increases. However, the short-term productivity trends for the majority of the natural production areas in the ESU are at or above replacement, which are positive signs for this ESU.
>
> 2004 draft BiOp pages 4-4

For Snake River steelhead the picture according to NOAA is somewhat worse:

> Numbers of spawners surveyed in sections of the Grande Ronde, Imnaha, and Tucannon rivers were generally improved in 2001. However, recent 5-year abundance and productivity trends are mixed. Five of the nine available data series exhibit positive long- and short-term trends in abundance. Most of the remaining long-term population growth rate estimates were below replacement, and most of the short-term population growth rates were either marginally above replacement or well below replacement, depending upon the assumed effectiveness of hatchery fish in contributing to natural productivity.
>
> 2004 draft BiOp pages 4-10

Unlike the 2000 biological opinion NOAA does not quantitatively assess the likelihood of extinction for these stocks. Neither here nor in following steps does NOAA assess the degree of survival improvement that is needed to assure meeting biological survival and recovery indicators. The reader is left to wonder, among other thigs, how the "strong" Chinook returns can be below replacement or how far below replacement the recent "well below replacement" rates are for Snake River steelhead. This is one of the most serious "gaps" in NOAA's jeopardy framework.

Step 2: Evaluate Relevance of the Environmental Baseline in the Action Area to Biological Requirements and the Current Status of the Species and Any Designated Critical Habitat

> In this step, NOAA Fisheries analyzes the effects of past, present, and certain future human factors within the action area to which the effects of the proposed action would be added. The environmental baseline, together with cumulative effects (Step 4), provides the starting point for evaluating whether the action would cause, directly or indirectly, a reduction in the productivity, abundance, or distribution of the listed species or diminish any essential physical or biological feature of critical habitat.

1.2.2.1 Define the Action Area

> The action area defines the geographic scope of the environmental baseline and cumulative effects that are relevant to a particular consultation. It includes all areas affected directly or indirectly by the Federal action, not merely the immediate area involved in the action (50 CFR § 402.02).
>
> 2004 draft BiOp pages 1-8

NOAA defines the action area in this draft BiOp to include the mainstem Columbia and Snake rivers, high priority subbasins (Methow, Wenatchee, Entiat, Upper Salmon, Little Salmon, Lemhi, and John Day), areas affected by 19 BuRec water projects, and the estuary and near shore environment. Figure 5.1 on page 5-3 of the draft depicts these areas.

Once again, the identification of the action area in NOAA's BiOp is problematic. For instance, the action area defined in the draft BiOp does not appear to include any significant portion of the Yakima River Basin, yet this basin is pervasively influenced by the Bureau of Reclamation's water resources projects located therein, including five major water storage projects that largely dictate the flow of the Yakima and Naches rivers during certain months of the year.[3] Similarly, the operations of the Upper Snake projects should be considered in this BiOp because of their effects on Snake River water supplies. The action area inappropriately does not include subbasins where the Bonneville Power Administration is currently funding salmon restoration projects in fulfillment of its statutory duties under the Northwest Power Act. Attachment 6, the Columbia Basin Fish and Wildlife Program Rolling Provincial Review Implementation, prepared by the Columbia Basin Fish and Wildlife Authority, June 2004 (hereinafter "CBFWA Program Review"), describes BPA funded projects in numerous other basins such as the Walla Walla, Clearwater, Grande Ronde, Imanaha, Tucannon. These projects are directly and indirectly carried out by the action agencies in exercising responsibilities that are part and parcel of their operations of the FCRPS. These projects also directly affect salmonid species listed under the ESA. Also the draft does not incorporate the impacts of land disturbing activities that are the subject of programmatic consultations, due evidently to time limitations. The action area must be defined to include a much broader geographic range incorporating the full extent of areas affected by the action agencies' salmon mitigation projects and the full extent of Reclamation's project effects associated with the 19 projects under consultation in this BiOp.

1.2.2.2 Determine Biological Requirements and Essential Habitat Features within the Action Area

1.2.2.3 Evaluate the Environmental Baseline Relative to the Biological Requirements and Species Status

Unlike prior BiOps, NOAA's treatment of the environmental baseline in this BiOp has warped the jeopardy framework so severely that more than 90% of the salmon mortality associated with the operation and configuration of the FCRPS is excluded from treatment under section 7(a)(2) of the ESA. Moreover, the NOAA framework also effectively jettisons any notion of achieving salmon recovery from the agency's analytical

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[3] The Yakima Project provides irrigation water for land that extends for 175 miles on both sides of the Yakima River in south-central Washington. The irrigable lands presently being served total approximately 464,000 acres. Storage dams and reservoirs on the project are Bumping Lake, Clear Creek, Tieton, Cle Elum, Kachess, and Keechelus. Other project features are 5 diversion dams, canals, laterals, pumping plants, drains, 2 powerplants, and transmission lines. More information can be found at: http://www.usbr.gov/dataweb/html/yakima.html#general

framework. NOAA sets the stage for this wholesale turnabout in regulatory approach with the following narrative:

> Where the proposed action is a continuation of a past action, as is the case for the operation of the FCRPS, the analysis for this step is complicated, because the environmental baseline will necessarily include the effects of past actions taken to construct and operate the ongoing project. NOAA Fisheries must therefore distinguish the effects of the proposed future operation of the project from its past construction and operation. As described in more detail in Section 5.0, NOAA Fisheries made this distinction by following the fundamental principle of an ESA ' 7(a)(2) consultation. Section 402.03 provides: "Section 7 and the requirements of this part apply to all actions in which there is discretionary involvement or control." Accordingly, the ESA requires a Federal agency to consult on actions that it proposes to authorize, fund, or carry out that are within its discretionary authority. See also 50 CFR ' 402.02 *"action"* and ESA ' 7(a)(2). Thus, conversely, the effects of the existing project that are beyond the current discretion of the action agency are properly part of the effects of the environmental baseline. Those effects are part of the "no action" environment to which will be added the effects of the proposed action.
>
> 2004 draft BiOp pages 1-8 & 1-9

This new approach narrows the view of the effects of the operation of the FCRPS to the difference between a proposed operation of the FCRPS and a hypothetical reference case that purports to embrace the full "discretion" of the action agencies to operate the FCRPS for the benefit of salmon. As noted elsewhere in CRITFC's comments, the physical difference between the reference case and proposed operation is slight to non-existent. The measurement of survival differences between these two cases, using SIMPAS, compounds the omission of FCRPS induced mortalities from this BiOp, mortalities which were previously accounted for in the jeopardy frameworks of each FCRPS BiOp since 1993.

The 1995 and 2000 FCRPS BiOps recognized that the action agencies exercised control over both the operation and configuration of the FCRPS dams. Even the 2004 draft Biop recognizes that the action agencies will make configuration changes at the dams. Unlike the 2004 draft BiOp, however, these BiOps did not forgive FCRPS mortalities associated with past configuration decisions.

Step 3: Describe the Effects of the Proposed Action

As mentioned, the "net effects" approach taken by NOAA, which is essentially a comparison of two SIMPAS model runs and a qualitative assessment of the potential to fill any net survival "gap" identified stands in marked contrast to the analyses previously undertaken by NOAA.

> Effects of the action, to be evaluated in Step 3, are defined as "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline" (50 CFR § 402.02).
>
> 2004 draft BiOp page 1-10

While NOAA purports to assess the full effect of the FCRPS on species survival and recovery, what NOAA does instead is to focus on "net effects". E.g. table 6.7 and 6.9. The relatively small "net effect" starkly contrasts with the approach taken in section 6 of the 2000 BiOp, where NMFS concluded that for all ESUs, stocks will need additional survival improvements up to several orders of magnitude to achieve a stable population growth rate. E.g. Table 6.3-12. This "net effects" analysis, which occupies most of chapter 6 of the 2004 BiOp, has virtually nothing to say about the likelihood of species survival and recovery. Rather the focus has shifted from survival and recovery, which NOAA admits is profoundly impacted by the operation and configuration of the FCRPS, to net effects which have little or anything to say about survival or recovery, except to say that the proposed operation, including changes to system configuration, "would likely result in no **net** reduction in the numbers, reproduction, or distribution of this ESU." The "net" effects analysis performed in chapter 6 of the BiOp does not reveal whether the reproductive capacities of the target stock are such that it is in decline. Nor does the "net" effect analysis reveal whether the stock will achieve the indicators of survival and recovery identified by the BRWG or NMFS' 1995 BiOp or PATH or NMFS' 2000 BiOp.

Step 4: Describe Cumulative Effects

> The cumulative effects analysis in Step 4 requires NOAA Fisheries to evaluate the future effect of those state or private activities (not including Federal activities) that are reasonably certain to occur in the action area.
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> 2004 draft BiOp pages 1-10 & 1-11

NOAA appropriately recognizes that the overall cumulative effects on the listed species are likely to be negative.

Step 5: Conclusion (section 8)

The evidence of a shift in NOAA's thinking about survival and recovery as regards the mortalities imposed by the FCRPS is clearly expressed in the conclusions section of the draft BiOp. The following excerpt concerning Upper Columbia River spring Chinook is illustrative:

> The main consideration in determining if the reduced numbers, productivity, and distribution of this ESU constitute an appreciable reduction in the likelihood of survival and recovery is the degree to which the proposed action poses an additional risk to the ESU.

Even though NOAA recognizes that UCR spring Chinook are at "high risk," and that the mortality of the FCRPS in the baseline is the primary cause of this risk, the "main focus" is not this risk. It is instead the "additional risk" imposed by the hypothetical difference between a reference operation and the proposed operation. Because this "net effect" only rises to a "medium" indicator level, NOAA isn't too concerned about the "net effect". Gone from the analysis is any suggestion that the FCRPS must account for the overwhelming levels of mortality now included in the baseline.