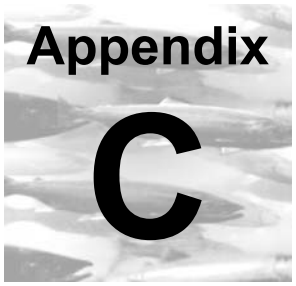

NMFS Responses to Revised HCP Comments

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Note: All references cited in Appendix C are located in Chapter 6 of the FEIS.

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Appendix C

NMFS Responses to Revised HCP Comments

Water Quality

Comment 1: The revised HCPs should have combined goals for meeting water quality standards with fish protection because implementing some HCP conservation measures could affect water quality. Committing to working together with the appropriate agencies to address water quality issues as described in the revised HCPs is inadequate because the decision to not address water quality issues in the HCPs could preclude implementation of certain water quality improvement measures.

Response 1: The HCPs were not developed to meet requirements of Section 303(d) of the Clean Water Act. However, the project applicants are required to comply with the provisions of the Clean Water Act and other Federal or State water quality standards when implementing any HCP provisions. Compliance with all applicable laws (including the Clean Water Act) is also a FERC license/relicensing requirement, thereby providing other regulatory and management authorities the ability to develop and enforce water quality compliance measures.

The revised HCPs require the signatory parties to cooperatively work together to address water quality issues (see Section 5.3 of the Wells HCP and Section 6.3 of the Rocky Reach and Rock Island HCPs), but do not establish the specific actions necessary to satisfy the Clean Water Act. For example, the HCP signatory parties recognize that total dissolved gas supersaturation is a cumulative effect of hydropower operations in the Columbia River and are committed to addressing this issue. In addition, while the PUDs have no control over the operation of upstream Federal projects, they are required to meet water quality standards at their own projects despite the influence of upstream projects on water quality parameters.

Under the HCPs, the PUDs and/or the coordinating committees would consider water quality regulations when determining the appropriate measures for meeting the fish survival performance standards. Any impacts to fish survival related to exceeding water quality parameters would affect their ability to meet the total project passage survival standards set forth in the HCPs. In addition, any impacts to fish survival at downstream hydroelectric projects resulting from efforts to meet survival standards at the Douglas or Chelan PUD projects would be similarly considered. For example, spill reductions at downstream projects may be necessary as a result of increased total dissolved gas entering these project areas, which is caused by spilling water at the Douglas or Chelan PUD projects to improve survival.

Water temperature is another water quality standard that is occasionally exceeded in the Mid-Columbia River area. However, unlike the Snake River or lower reaches of the Columbia River, the Mid-Columbia River typically does not exceed 15º C prior to mid-June, and rarely exceeds 20º C at any time during the summer (Columbia Basin Research 2002). Thus, any deleterious temperature effects on adult or juvenile anadromous fish or resident fish in the mainstem river resulting from the Douglas or Chelan PUDs' projects are likely nonexistent during the spring migration and negligible to extremely small during the summer and fall migrations.

Ecology is currently working to achieve water quality standards through the Clean Water Act's total maximum daily load (TMDL) approach. This approach attempts to gain more substantial water quality improvements by the cumulative improvements realized from a larger number of relatively minor adjustments throughout the Columbia River. The Douglas, Chelan, and Grant PUDs are currently working cooperatively with Ecology to establish appropriate TMDLs.

Comment 2: The revised HCPs do not address water temperature in adult fishways and how the fishways could be modified to reduce water temperatures.

Response 2: Although the HCPs do not propose specific operational criteria for the adult fish ladders to reduce water temperature, the HCPs specify that these operations would be in accordance with criteria developed by the coordinating committees. Because the existing criteria are based on the best available information, there is no reason to suspect that the criteria would change substantially under the HCPs. However, the coordinating committees would continue to consider any new information, as it becomes available, to determine appropriate changes to the adult fish ladder operation criteria.

The projects, including the fish ladders, have limited influence on the mainstem water temperatures. These temperatures are affected to a greater extent by upstream storage reservoirs, such as Grand Coulee Dam. While reducing water temperatures throughout the reach might be expected to benefit adult migration, it is unclear whether any achievable results would have a measurable benefit on adult survival or spawning success. At the same time, there are no substantive indications that altering the adult fishway temperature regimes through changes in project-specific operations would have a measurable benefit on adult fish survival or passage times.

Comment 3: The decreased turbidity resulting from the presence of the dams and reservoirs likely reduces smolt survival, yet the revised HCPs do not address this impact.

Response 3: As with water temperature in the mainstem Columbia River, the upstream storage reservoirs likely have a greater effect on overall turbidity in the system than the run-of-the-river projects (represented by the Wells, Rocky Reach, and Rock Island projects), due to their greater water retention time (e.g., particulate settling time). In addition, the reduced turbidity resulting from the settling action of suspended solids in the mainstem reservoirs is at least somewhat offset by an increase in turbidity caused by the increased primary productivity in these reservoirs. However, the large upstream storage reservoirs are also expected to have a greater influence on primary productivity in the system than the run-of-the-river projects of the Mid-Columbia River, which have relatively high flushing rates. Overall, the Mid-Columbia River hydroelectric projects are expected to have limited effects on turbidity levels.

Predation studies generally indicate that the effect of turbidity is primarily related to the visual acuity, response times, and behavior of both predator and prey species. In some cases, prey species appear to benefit from increased turbidity, while in other cases predator species appear to benefit. Thus, both the magnitude and the direction of turbidity effects on smolt survival are relatively unknown. Regardless of the influence of turbidity on predation rates, turbidity is likely to be less a factor in juvenile survival in the Columbia River compared to effects of increased predator habitat created by the projects. In addition, hydroelectric projects generally delay, to a varying degree, the downstream migration of juvenile salmonids, thereby increasing their exposure to predators. Rieman et al. (1988) suggest that predation is an important component of reservoir mortality of juvenile salmonids, accounting for as much as 80 percent of the losses. In addition, the mitigation (hatchery production) for juvenile fish passage losses at the projects are already provided through existing licenses and/or long-term settlement agreements and are not expected to change substantially as a result of implementation of the HCPs.

Cumulative Effects

Comment 4: The revised HCPs have inadequate survival standards to permit recovery, particularly in light of the Federal Columbia River Power System (FCRPS) biological opinion standards, questionable implementation, and other mainstem and tributary impacts to the species. If the survival standards prove to be inadequate, a disproportionate burden will be placed on other entities, because the HCPs restrict NMFS' ability to increase compensation levels from the PUDs. An overall assessment of impacts throughout the basin has not been quantified to determine if survival standards are adequate and whether recovery will occur. No peer-reviewed quantitative analysis has been done. NMFS has not completed the holistic basin-wide recovery plan based on survival improvements for the lower Columbia River Federal projects, as well as Grant PUD's Priest Rapids Project. Therefore, the justification of the proposed survival standards is not evident.

Response 4: The revised HCPs are based on a no net impact standard to minimize the impacts of the projects on anadromous salmonids and to provide mitigation for unavoidable impacts. The standard is based on the best available data, and the HCPs additionally include an adaptive management process for evaluating and improving survival at the projects over time. Because there are no ESA provisions for requiring any party to mitigate for impacts caused by other parties, a holistic basin-wide recovery plan is not necessary to establish protection levels at individual projects. In fact, a recovery plan may not be considered in a Section 7(a)(2) consultation, because it contains actions that are too speculative in that they have not undergone Section 7(a)(2) consultation or are otherwise not reasonably certain to occur, as that term is defined for ESA purposes.

The Quantitative Analysis Report (QAR) discussed in detail in Chapter 5 of the FEIS indicates that additional survival improvements in the Lower Columbia River, as well as improved egg-to-smolt and smolt-to-adult survival conditions, would be necessary to recover the species. However, QAR results also demonstrate an expectation that substantial survival improvements (about 16 percent for steelhead and 21 percent for spring-run chinook salmon) would occur as a result of meeting the performance standards in the revised HCPs. Although the HCPs alone are unlikely to result in the recovery of either listed species, the expected survival benefits would not appreciably reduce the likelihood of the survival and recovery of these species in the wild. The HCPs also minimize and mitigate the impacts of the taking, to the maximum extent practicable.

The provisions of the HCPs were developed to mitigate for the effects of the projects on both the listed and unlisted anadromous salmonids. These conservation measures were based on the best available data and the expertise of the negotiating parties, and are expected to benefit all salmonid species.

The HCPs provide specific funding for habitat improvements, representing a long-term investment in the recovery process that would commence immediately upon approval of the HCPs. Without the HCPs, off-site mitigation measures would likely not be provided until it was conclusively shown that the on-site measures were not adequately protecting the species. It is not known how long this type of assessment would take, or how long it might take to actually implement such off-site mitigation measures, without the HCPs.

Similar to the off-site habitat improvement measures, on-site HCP measures would also begin immediately upon approval of the HCPs. With the exception of juvenile spring chinook salmon and steelhead migrating through the Wells Hydroelectric Project (reservoir, forebay, dam, and tailrace), the survival standards established in the HCPs have not been achieved for the Plan Species. The HCPs provide specific criteria for measuring progress toward the goal, as well as agreed-upon data interpretation protocols. These factors are expected to result in both quicker implementation of measures and a lower likelihood of litigation and confrontation over the standards being measured, the evaluation methodologies, or the interpretation of the results. Therefore, in addition to providing both on- and off-site mitigation measures, the HCPs would provide these benefits with no delays.

Comment 5: Survival should be based on an ecosystem approach rather than a reach-based approach. Smolt-to-adult survival is more appropriate than project passage survival for assessing benefits. A comprehensive analysis of cumulative effects was not included to account for impacts from upstream Federal projects (flow and total dissolved gas) or the effects of global warming over the 50-year period.

Response 5: The cumulative effects assessment presented in the FEIS includes a discussion of the QAR results, which encompass survival through the total life history of the listed species and the overall geographic and environmental conditions that affect salmon and steelhead. The FEIS includes discussions of harvest, hatchery production, habitat quantity and quality, and hydropower within the Columbia River Basin. Note that the proposed tributary habitat improvements mitigation represents program funding, rather than specific projects. Therefore, a cumulative effects analysis for specific habitat restoration projects is not possible outside of the general benefit of improving overall fisheries habitat within the Mid-Columbia River region, including the four major tributaries.

The use of project passage survival standards is appropriate because it can be easily and accurately measured and represents the direct effects of the projects on the species. In addition, the results are less affected by confounding influences relative to other life-history conditions or factors, and provide a more immediate indication of the relative effectiveness of fish passage improvements or of additional improvements needed to meet the survival goals. While smolt-to-adult survival might be a better assessment of the species status, the ability to account for year-to-year variations in this metric relative to project-specific conditions is problematic. Many of the factors that affect smolt-to-adult survival are unknown and not quantifiable with existing assessment tools. Therefore, project-specific survival is considered the most accurate metric for determining project-related impacts.

The effects of upstream projects and global warming over the 50-year time period would be the same as for existing conditions. The PUDs are not responsible for, nor do they have any influence over, either of these factors.

Fisheries-Related Comments

Comment 6: Reduced travel time has been linked to increased smolt survival or smolt-to-adult survival, reduced smoltification reversal, and reduced exposure to diseases. Increased spill provides the safest and fastest passage rates through the project area. The cumulative travel time improvements could be substantial, thereby improving survival.

Response 6: The assumption associated with this concept is that increased migration speed results in an increase in survival rate because the migrants would have less exposure time to predators or other adverse river conditions (e.g., temperature, dissolved gas) that have been shown to affect survival. However, the theory of increased migration speed with increased water velocities has not been consistently observed for the various anadromous species in the Columbia River Basin. Berggren and Filardo (1993) found a weak or nonexistent relationship between migration travel time and river flow for yearling chinook salmon in the Mid-Columbia River reach. Similarly, Giorgi et al. (1997) found that flow was the best single predictor of travel time for Mid-Columbia River sockeye salmon and steelhead, but not for yearling chinook salmon. Giorgi et al. (2002) found little evidence supporting a flow survival relationship, based on passive integrated transponder tag (PIT-tag) evaluations conducted between 1993 and 2000.

NMFS summarized existing information from travel time and survival studies in 2000 (White Paper: Salmonid Travel Time and Survival Related to Flow Management in the Columbia River Basin) and concluded that a strong and consistent relationship exists between flow and travel time for spring migrants. Relationships between flow and survival or travel time and survival were neither strong nor consistent from year to year. However, these results were likely confounded by a number of other variables (e.g., varying spill levels). For summer migrants, flow is strongly and consistently correlated with survival in some reaches, but not in others. Flow is typically not correlated with travel times for these species as they often rear for extended periods of time in both free-flowing and impounded reaches.

The relationship between spill and travel time appears to be as inconsistent as total river flow and travel time. Giorgi et al. (2002) suggest that the correlation of spill and median travel time might be coincident to the spill variable being correlated with the flow variable. While they found that multiple regression models were sometimes improved by adding the spill exposure variable, the overall effects of spill on median travel time appeared to be secondary to effects of total flow and smoltification level. However, they also suggest that the influence of spill on travel time may be greater at higher levels of spill (greater than 20 percent of total flow) than at lower levels.

Low-flow conditions in 2001 resulted in a clear and dramatic reduction in juvenile steelhead survival migrating through the Snake and Columbia Rivers (from a typical 90 percent per project survival rate to about a 63 percent survival rate per project). The slow migration speed observed in 2001 and the increased water temperatures during the migration period are considered the causative factors for the dramatic decrease in survival and increased residualization of steelhead.

Considerable uncertainties exist relative to the most appropriate measures to maximize survival through the Mid-Columbia River region. The extensive survival evaluations necessary to assess survival rates and survival improvement needs for each Plan Species under the HCPs are expected to provide substantial information by which to assess the most appropriate tools to implement at each project. The survival improvement resulting from the implementation of these tools would be evaluated through subsequent survival evaluations using an adaptive management approach.

Tributary Plan and Projects

Comment 7: The HCPs do not provide justification for the tributary funding level or acknowledge the uncertainty of whether 2 percent survival improvement is likely. NMFS needs to fully acknowledge these uncertainties. The agency should also consider that any survival benefits would not happen immediately in their analysis.

Response 7: The approach used to translate 2 percent mitigation into habitat improvements was determined by negotiation among the participants in the development of the HCPs, including agency, Tribal, and PUD biologists. The initial process to determine the appropriate amount of mitigation for the tributary habitat improvement fund (Plan Species Accounts) was to evaluate the types and extent of habitat improvements that would mitigate for 2 percent of project mortality, and then to determine the overall cost to conduct these types of improvements. This effort included an analysis of the cost of habitat easements, property acquisitions, water rights purchases, and specific restoration projects to determine the specific level of funding needed over the next 50 years. The revised HCPs also provide additional funding to the Tributary Assessment Program ($200,000 per project) to assess the general benefits of various types of habitat improvement measures to aid the tributary committees when determining how the Plan Species Account would be applied.

Mortality was appropriated by project (Wells, Rocky Reach, and Rock Island), based on the numbers of fish that would be affected by each project, to ensure the appropriate commitment of financial resources. The tributary funding provided by each project represents the tributary habitat improvement mitigation measures (see Section 2.3.4.8 of the FEIS, HCP Conservation Plan and Compensation Measures), and not necessarily a survival standard. The habitat improvement component would shift emphasis of project impact mitigation away from hatchery production and toward improving natural production to facilitate recovery of the Evolutionarily Significant Unit. Total combined funding would be $46,660,010 in 1998 dollars, with annual payments adjusted for inflation. This is a substantial sum of money that would be provided in addition to the hatchery mitigation levels and the measures implemented at the projects to improve fish passage survival.

With respect to the tributary programs, the signatory parties agree that the funding of approved habitat restoration and protection projects would constitute compensation for 2 percent unavoidable adult project mortality. They also agree that no effort would be made to determine whether or not the Tributary Conservation Plan is, in fact, increasing the survival of Plan Species by 2 percent. Rather, future assessments of this program would be designed to ensure that the Plan Species Account is being utilized in a beneficial, effective, and efficient manner. This agreement recognizes that any statistical estimate of a 2 percent survival increase relative to habitat improvements would be inconclusive. Under even the most exacting experimental design, fluctuations in the natural environment alone would result in error bounds many times larger than the 2 percent metric to be estimated.

Because the funding levels were a negotiated amount, there were no specific evaluations conducted to assess the exact benefits that would result from the funding. In addition, different types of expenditures are expected to provide varying results over different time periods. For example, buying properties to hold in trust might not show immediate or even short-term benefits, but would likely have long-term habitat protection benefits. At the same time, allocating money to remove or replace culverts that are partial or complete barriers to fish passage would have immediate benefits associated with opening new spawning and rearing habitat.

The overall concept for the HCPs is to provide a broad array of enhancement, preservation, and protection activities that benefit multiple anadromous salmonid life-stages. The intent is to contribute to the rebuilding of tributary habitat production capacity and basic productivity and numerical abundance of the Plan Species.

Monitoring

Comment 8: Monitoring once a decade under Phase III is not adequate to account for year-to-year variability and limits the possibility of detecting inadequacies in the conservation measures, such as during a low flow year if that year does not coincide with the year monitored. Real-time evaluation methods, such as fish passage efficiency (FPE) estimates, are not included as a monitoring effort under the HCPs. The calculation of dam passage survival should be specified in the HCPs and based on a stated FPE measurement, which has been included in other biological opinions in the basin. Lacking a real-time assessment program would likely delay the implementation of corrective measures, making the HCPs inconsistent with other recovery initiatives in the basin.

Response 8: The revised HCPs require at least 3 years of monitoring for each of the Plan Species during Phase 1. Depending on the results of these evaluations, additional survival studies might be conducted in Phase 2 for some species. Once it is determined that the HCP survival standards are being met for a particular species, the PUD would enter Phase III (for that species only) and then conduct verification monitoring every 10 years. However, the initial evaluations would span a number of years, and are expected to provide a good long-term indication of the overall benefits of the on-site mitigation activities through a wide range of river conditions. The results of the Phase III verification monitoring are just as likely to show lower survival rates as higher survival rates, relative to the 3-year Phase I average as a result of year-to-year variability. If lower survival rates are observed during the verification monitoring, additional survival studies could be conducted. Overall, substantial fish passage survival evaluations are expected to occur as a result of the HCP implementation process. In addition, yearly assessments of adult returns would be available as a tool to determine if the species are recovering.

The HCP survival standards are different from the measures required in the biological opinion for the FCRPS (NMFS 2000a), which sets operational limits for the projects. Specific project operational and configuration guidelines have been the standard means of protecting anadromous fish species in the Columbia River Basin in the past. Among other things, these guidelines establish river flow targets, FPE levels, spill and/or bypass operation schedules, and turbine efficiency operating levels. This approach assumes that survival benefits would occur; however, such guidelines do not guarantee or mandate the achievement of specific survival rates. Setting a standard for FPE (non-turbine passage rates), for example, provides an opportunity for greater survival but does not establish a survival goal that must be met. The biological opinion for the Federal system uses this approach as a surrogate to, or an indirect way of, establishing fish passage survival criteria, but not necessarily as monitoring and evaluation methods. For example, FPE goals typically assume that a certain percentage of the fish would pass through a specific route each year, if the project is operated in a certain manner, and include a survival rate for that passage route (see Table 3-4 in the FEIS). In addition, this approach often relies on data from various projects or various years (e.g., average turbine passage survival) to determine route-specific survival or FPE rates. The HCPs rely on directly measuring survival rather than the indirect approach associated with establishing FPE or other operational criteria. As a result, there is less species recovery certainty with an operational criteria approach, compared to having a fixed, results-oriented, project-specific passage survival goal that is measured at each project. However, for those species that cannot be directly measured, the HCPs permit the use of calculated survival rates that rely on the FPE approach.

Comment 9: The PUDs are not required to rebuild the stocks, and the term "significant factor" related to the projects and the failure of the stocks to rebuild is not quantitatively or even qualitatively defined.

Response 9: The ESA does not mandate that specific actions result in species recovery, but requires that the actions do not jeopardize the continued existence of the species, meaning not appreciably reduce the likelihood of both their survival and recovery. Although the definition of "significant factor in the failure to rebuild" (relating to

the species recovery) is not specified in the HCPs, it is expected that the level of proof would be similar to the level required to seek reinitiation of Section 7 consultation in the absence of the HCP agreements.

Comment 10: Studies indicate a substantial number of steelhead kelts pass through the project area. Other studies indicate that few kelts survive passing lower river projects unless they passed during periods of spill, yet most of the spill provided by the Mid-Columbia River projects would occur outside of the primary kelt passage period (March).

Response 10: The HCPs specifically state that, if the observed rate of adult fallback and steelhead kelt losses are significant, then the coordinating committees will determine the most cost-effective method to protect adult fallbacks and steelhead kelts at the dams, and the PUDs will immediately implement the agreed-upon measures. The coordinating committees are responsible for determining whether spill is the most effective and efficient means of increasing kelt or adult fallback survival at the projects.

HCP-Related Questions

Comment 11: The 50-year time frame of the HCPs is too long, and inappropriate for Section 10 (should be 5- to 10-year permits).

Response 11: The Conference Report for the 1982 Section 10 amendments states: "The Secretary is vested with broad discretion in carrying out the conservation plan provision to determine the appropriate length of a Section 10(a) permit issued pursuant to this provision in light of all of the facts and circumstances of each individual case" (H.R. Rep. No. 97-835, 97th Congress, Second Session).

The purpose of Section 10 provisions of the ESA is to provide an alternate avenue for addressing ESA compliance while allowing some level of certainty to the proponent. If the HCPs were restricted to the same or similar time periods as the Section 7 consultation process, there would be little incentive to apply for a Section 10 permit. The HCP process is extremely time-consuming and expensive, and in this case includes a greater number of species than would be covered under Section 7 consultations. Therefore, a longer time period than Section 7 consultation is warranted, to provide a correspondingly greater level of certainty and species coverage.

The 50-year term of the HCPs was selected to coincide, to the extent possible, with a typical 30- to 50-year term of a FERC license. Chelan PUD is currently proceeding with the relicensing of Rocky Reach Dam, and the terms of the HCP and the FERC license would likely be similar. The Wells and Rock Island licenses would expire prior to the 50-year term of the HCPs. When this occurs, the PUDs would be required to proceed with the relicensing process. Although the HCPs would form the basis for mitigation measures for anadromous fish during this process, FERC has an obligation to independently ensure that adequate protection of all natural resources is provided in the license terms. Parties that sign the HCPs also commit to supporting the PUDs in the relicensing process by not recommending mitigation measures that are different from those outlined in the HCPs for the Plan Species.

While the HCP signatory parties commit to supporting the PUDs during relicensing, non-signatory parties can petition FERC to have specific measures included in the license terms. Signatory parties can also petition FERC to include license terms for non-Plan species, which might also coincidentally benefit the Plan Species. Although the HCPs are all separate agreements, the intent is to provide a coordinated effort throughout the Mid-Columbia River reach to address recovery issues for all the Plan Species. Therefore, coordinating the time frames of the HCPs is likely to be more important to the recovery process than coordinating the HCPs to the FERC license schedule. In addition, NMFS can terminate the agreements and revoke the permits in 2013 for Rocky Reach and Rock Island and in 2018 for Wells, if the HCPs are not leading to the recovery of the species or if the PUDs fail to meet or maintain no net impact. At that time, NMFS could seek drawdown, dam removal, or non-power operations or actions if the species are not recovering and the projects are a significant factor in their failure to recover. The HCPs would not affect any stakeholder decision to be involved in the

Rocky Reach relicensing effort (or subsequent Wells and Rock Island relicensing), although the HCPs define the positions that the signatory parties would support in the relicensing effort.

Other time frames may not be as effective over the long term because of the significant time and effort required to negotiate and consult with the various parties on successive HCPs. For example, these HCPs have been discussed and negotiated since 1993. During this negotiation process, the HCPs were only conditionally implemented, and this was a voluntary action by the proponents. At a minimum, Section 7 consultation would match the terms of the FERC licenses because Section 7 consultation would be required for the FERC action to relicense the projects. Although consultations could, in the event that reinitiation of consultation was required, occur more frequently, the exact timing and frequency of such consultations is unknown. While Rocky Reach relicensing is commencing, relicensing for Wells will occur in 2012, and the Rock Island license will expire in 2029.

Comment 12: Under the original (1998) HCPs, both the 91 percent and the 95 percent survival standards had to be met before moving to Phase III (standards achieved). The revised HCPs reduce the fishery parties' authority by allowing a provisional review classification to avoid Phase II. The average of the 3-year survival evaluations should be the benchmark for determining if Phase II should be implemented. There should be no provisional review phase; the standard should be met with the 3-year average.

Response 12: The HCPs were revised in response to issues raised during the NEPA process. As a result, the survival evaluation and data interpretation criteria are now specified, and the decision-making process and criteria are also specified in detail. The addition of the provisional review phase provides an intermediate classification that would allow the PUDs additional time to evaluate the survival rates if the initial 3-year evaluations indicate that they are close to meeting the survival goals. Given the year-to-year variability in migration passage conditions in the region, the additional project-specific data would result in a more informed decision-making process.

Although the 3-year average metric was incorporated in the HCPs to avoid disputes related to the statistical interpretation of survival data, there are still some difficulties related to relying on an estimate based on the average of three independent data points. The provisional review classification was developed to provide some flexibility in the decision and evaluation processes, while still maintaining distinct standards.

Comment 13: The permit applications allow the PUDs to withdraw from the permit after they secure their licenses, thereby allowing the PUDs to avoid anadromous fish obligations and circumventing the authority of the Services to prescribe license conditions. The reopener point for the Wells Permit (2018) is 6 years after the first 5-year check-in and after the project is relicensed (2012), thereby limiting the authority of the fishery parties. The HCPs also allow too much time before the no net impact survival standards must be met, which is inappropriate for stocks that could be extinct in a few generations.

Response 13: It is the intention of the PUDs and FERC to use the HCPs as the basis for establishing the mitigation requirements for the Plan Species during relicensing. As a result, even if the PUDs withdrew from the permits after securing their licenses, the licenses would still require compliance with the HCP protocols. HCP implementation is a related but separate process from relicensing. Withdrawal from the permit would allow NMFS to use its authorities under the ESA, FPA, and MSA to seek mitigation for the taking of listed species (and FPA and MSA for addressing impacts to unlisted Permit Species) that occurred as a result of the PUDs not meeting the HCP survival standards. Withdrawal from the permit would also eliminate the ESA compliance protection for the PUDs and result in the initiation of consultation under Section 7 of the ESA.

While the HCPs provide a relatively long time period for Phase I evaluations, it is unlikely that progress toward recovery of the species would occur sooner without the HCPs. The existing protection measures are based on the best available data, and the baseline data is not expected to change whether or not the HCPs are implemented. The HCP process includes specific fish passage survival evaluations, which would further improve the quality of the data for fish passage survival. Recent return rates suggest that other factors, such as ocean survival also substantially influence Plan Species survival across their life-cycle.

Comment 14: Adequate review of the Rocky Reach bypass system has not occurred, regarding passage delays and delayed mortality, as compared to spill passage. An EIS should be prepared for the bypass system because there are other alternatives that would better and more holistically protect salmonids.

Response 14: A biological opinion was written as a result of evaluations of the Rocky Reach bypass system, indicating that the construction and operation of the bypass is not likely to jeopardize the continued existence of the listed species. In addition, FERC developed an Environmental Assessment evaluating the bypass system. There are no indications that spill at Rocky Reach would provide greater benefits than the bypass system. Evaluations at the project show approximately a 1:1 spill to fish passage ratio for some species and substantially less for others. However, the maximum spill level of about 40 percent (due to total dissolved gas criteria) would result in 30 to 51 percent of the fish passing the project through the spillway. Evaluations of the prototype bypass system indicate that 19 to 63 percent of the fish pass through the bypass. Bypass flows are not expected to substantially affect downstream total dissolved gas levels (compared to spillway flow). A sluiceway bypass system at Rocky Reach Dam, in combination with maximum (40 percent) spill, is expected to result in only a 1 to 2 percent increase in juvenile fish survival (see Table 4-2 of the FEIS). However, the financial costs would be substantially higher as a result of lost power production due to the spill requirements. Despite the slight increase in overall survival, the increased level of spill under this alternative results in a 7 to 16 percent decrease in the bypass efficiency.

Comment 15: The revised HCPs rely on optimistic assumptions and lax standards, and ignore critical facts. This violates the ESA, which requires an incidental take permit to ensure that takings be minimized to the maximum extent possible and that such permits will not reduce the likelihood of survival or recovery of the species. The revised HCPs and EIS also lack survival, recovery, and delisting goals specific to the alternatives.

Response 15: The survival standards included in the revised HCPs were developed in cooperation with the resource agencies' and Tribal biologists, and were based on the best available data. The effects of meeting these standards were evaluated in the QAR analysis for the ESA-listed species. Although this analysis incorporates some optimistic assumptions relative to the benefits of hatchery production and tributary improvements, the QAR includes a conservative estimate of future environmental conditions. These overall environmental conditions appear to have substantial impacts on the status of anadromous fish in the basin (as evidenced by the relatively large run sizes in recent years). As a result, NMFS considers the QAR analysis to be a relatively conservative assessment of the benefits of the HCPs.

Although additional survival improvements would still be required to recover the species throughout their ranges, the ESA does not require that mitigation for one action must compensate for all actions that affect the listed species. In addition to the goal of minimizing take, ESA consultations also consider economic implications. The economic analysis suggests that relatively minor increases in survival would have a substantially greater incremental cost. The HCP biological opinions for the Wells, Rocky Reach, and Rock Island dams (as well as previous biological opinions for Rocky Reach and Wells) confirm that operating the projects in accordance with provisions of the revised HCPs is not likely to jeopardize the continued existence of the species.

The EIS identifies specific survival goals provided by the revised HCPs, as well as the specific recovery and delisting goals identified and used in the QAR analysis. Based on the QAR analysis, none of the EIS alternatives are expected to result in the recovery of the species without additional mitigation measures implemented throughout the basin, as well as assumptions concerning overall environmental conditions affecting the species. However, the revised HCPs are expected to provide substantial survival improvements (116 to 135 percent increase) compared to existing conditions (1982 to 1996 brood years).

In addition to establishing specific survival goals, the revised HCPs provide specific evaluation criteria to determine if the survival goals are being met. Even under optimal conditions, a number of assumptions are required to estimate project survival. These assumptions, as well as the complexity of the issues, often lead to

disagreements over the data analysis or the results. As a result, the HCPs include committees and a dispute resolution process to facilitate appropriate and timely decisions on the adequacy of the data or the need for additional evaluations. Establishing specific testing and evaluation procedures is expected to minimize disagreements among the parties. In addition, the coordinating committees have the ability to select an independent third party for the purpose of providing an independent scientific review of any disputed survival study results or reports. Survival studies would be conducted for all Plan Species, except where no appropriate methodology exists. The revised HCPs not only provide specific goals and objectives that are expected to improve salmonid survival at the projects, they also establish an adaptive management process to facilitate achieving the goals and a defined data collection process to provide for more informed decisions throughout the 50-year term of the revised HCPs.

Comment 16: The revised HCPs do not provide a mechanism to increase the protective measures mid-way through the Permit term if the standards are not adequate for all species.

Response 16: The revised HCPs provide a check-in process in 2013 (2018 for Wells Dam) to assess the success of the overall program. In addition to allowing program changes at that time, the HCPs allow any party to withdraw from the agreements if the no net impact standard has not been achieved and maintained, or the standard has been achieved but the species are not recovering and the projects are a significant factor in the failure to recover. Overall program reviews are also established at 10-year intervals, following this initial check-in point.

The HCPs and incidental take permits apply to three of the nine dams on the mainstem Columbia River. The Mid-Columbia River anadromous salmonid populations originating upstream of Wells Dam would pass all three of the HCP projects as they migrate to and from the ocean. Survival improvements likely to be achievable at the projects may not be as influential as the overall factors affecting the species as they migrate through the system. In addition, overall environmental and climate variables are likely to have a substantially greater influence on the species' status than survival improvements achievable at the three projects. As a result, NMFS has determined that the protection levels provided by the revised HCP standards are unlikely to appreciably reduce the likelihood of the survival and recovery of the species in the wild, or jeopardize the continued existence of the listed species.

Comment 17: The revised HCPs do not provide a workable, enforceable dispute resolution process. The lack of consensus can lead to no decision being made, or pressuring non-consenting parties to relent on otherwise legitimate positions. Too many issues are left undefined, creating a greater likelihood of needing dispute resolutions to solve issues. This will lead to delays in the implementation of protection measures. The committees should have access to independent experts to obtain input on technical issues, selected by unanimous consensus and funded by the PUDs.

Response 17: The operational criteria for the coordinating committees is similar to that currently employed by the coordinating committees established through the Mid-Columbia Proceedings, and some changes were made to improve the decision-making process. The operations and constraints involving the HCP committees were developed to expedite decision-making and minimize the risks of no decision. The operational criteria identify specific time periods in which decisions must be made and the options available to the parties if the decision is not made within the established time frame. The criteria also provide alternative resolution processes and allow parties to pursue any other alternative if the dispute cannot be resolved within the HCP dispute resolution process.

The signatory parties agree that the HCPs are not intended to create jurisdiction in any court. Any dispute arising in the tributary or hatchery committees would be sent to the appropriate coordinating committee for resolution. Any unresolved disputes within the coordinating committees would be sent to a policy committee for resolution. If no resolution can be reached at the policy committee, then any party may pursue any other right that they might otherwise have.

The revised HCPs specify the methodologies by which the survival standards will be measured, and what constitutes a valid survival study, to minimize disputes. Specifying these criteria eliminates the possibility of a party claiming that a standard has been met because it did not differ significantly from the survival study estimate.

Although the HCPs have specific provisions for allowing the coordinating committees to select independent third parties to provide independent scientific review of any disputed survival studies or reports, there are no specific provisions for other disputes. However, all the parties have the option of providing scientific justification or input on all technical issues to the committees.

Comment 18: Section 5.4 of the Rocky Reach revised HCP specifies a bypass system operation period that may not adequately protect early or late migrants, as well as kelts or adult salmonids. The formula for determining spill levels is biased against species other than yearling chinook. The revised HCP also specifies that turbine 1 or 2 will be used when only two turbines are operated at the project, although both units are needed to maximize the juvenile bypass efficiency. The HCP does not include monitoring and evaluation for predator control and only includes the northern pikeminnow as a predator species.

Response 18: NMFS has determined that the protection level provided during Phase 1 of the HCP is unlikely to jeopardize the continued existence of the Plan Species, based on existing information. Section 5.4 of the Rocky Reach HCP establishes a specific method for determining the spill and bypass operational period for the 2004 through 2006 juvenile migration seasons. Although this provision also applies to the years following 2006, this HCP section allows the coordinating committees to develop different criteria when appropriate. The specific operational constraints related to turbines 1 and 2 are a safety issue. In any case, the length of time that only two turbines would be operated during the juvenile salmonid migration periods is expected to be limited due to spring runoff and summer power demand. The predator control program is intended to minimize the impacts of the most prominent predators in the system (northern pikeminnow and piscivorous bird populations) and is similar to other successful programs established throughout the basin.

Comment 19: The HCPs do not address reservoir operations impacts on downstream fish stocks (i.e., the PUDs can store Federal water intended for Hanford Reach and other downstream Plan Species stocks). This conflicts with Section 9.9, which notes that nothing in the HCPs is intended to protect Plan Species in the Hanford Reach or the Vernita Bar Agreement.

Response 19: This comment appears to be a misinterpretation of Section 9.9 of the HCPs. This section specifies that nothing in the HCPs are "intended to affect the protection of Plan Species" in the Hanford Reach or the Vernita Bar Agreement, rather than "intended to protect the Plan Species." However, as indicated in the FEIS, the Mid-Columbia River hydroelectric projects are run-of-the-river facilities that have limited ability to store water in their reservoirs. Water management decisions in the basin are guided by the efficient use of water for all the projects, balanced with the need to protect the various anadromous fish species. As a result, the PUDs have very limited control over the total river flow conditions through the Mid-Columbia River region in comparison to upstream Federal and Canadian storage projects.

Compliance with Federal, State, and Local Laws

Comment 20: The revised HCPs and the EIS do not describe how the alternatives relate to other applicable treaties and laws, including the Clean Water Act, Tribal treaties, and U.S. – Canada Pacific Salmon Treaty. The HCPs also do not discuss or analyze whether they satisfy NMFS' obligations under its FPA conditioning authority.

Response 20: Refer to Section 4.13 of the FEIS, Relationship to Laws and Policies, which describes HCP compliance with applicable laws and policies, including the Clean Water Act, FPA, Tribal treaties, and the U.S. – Canada Pacific Salmon Treaty.

The HCPs were developed as comprehensive settlement agreements between the parties that sign the HCPs. The intent is to protect five anadromous salmonid species while adhering to provisions under the ESA, FPA, Fish and Wildlife Coordination Act, Pacific Northwest Electric Power Planning and Conservation Act, Essential Fish Habitat provisions of the MSA, and Title 77 RCW (see Section 4.13 of the FEIS).

Under Section 10 of the ESA, the HCPs are part of the incidental take permit applications for each project. If NMFS concludes that the HCPs satisfy the requirements of Section 10 of the ESA, NMFS would issue the requested permits. While making this decision, NMFS would also consider the HCPs' effects on habitat under the MSA, as well as their responsibilities under the FPA. The HCPs constitute the terms, conditions, and recommendations for Plan Species under Sections 10(a), 10(j), and 18 of the FPA and the Fish and Wildlife Coordination Act for the parties that sign the HCPs. The HCPs also satisfy any obligations the projects have in relation to game fish under Title 77 RCW.

While the HCPs do not expressly settle issues surrounding the Clean Water Act, the signatory parties agree to work cooperatively to address water quality issues. In addition, the HCPs do not affect the responsibilities of the PUDs to comply with the Clean Water Act or other laws and statutes outside the jurisdiction of NMFS or the other signatory parties. The HCPs do not abridge, limit, diminish, abrogate, adjudicate, or resolve any Indian right reserved or protected in any treaty, executive order, statute, or court decree. In addition, NMFS consulted with interested Columbia River Tribes, especially with the Yakama Tribe, before taking action on the ITP applications. However, NMFS is the only agency with mandatory conditioning authority for the listed anadromous fish species under the FPA and the ESA. NMFS has issued a biological opinion that identifies the recovery measures and approaches to be used for species recovery that are intended to condition the FERC licenses for the three projects. See Sections 1.1 (Introduction) and 4.13 of the FEIS.

Comment 21: The lack of recourse for FERC, through the inclusion of reopener clauses or petitions for administrative review, changes past FERC practices without adequate analysis and therefore likely violates the FPA. The No Surprises policy in the HCPs eliminates FERC's ability to use its traditional reopener clauses to ensure compliance with the equitable treatment for fish and wildlife in the FERC license under the FPA. The No Surprises policy is also not appropriate in a fishery-based HCP. The DEIS and the HCPs do not provide any means of determining whether the HCPs satisfy the relicensing requirements of the FPA, although the HCPs are intended to support relicense proceedings for the ITP holders.

Response 21: FERC's licensing under the FPA is an independent process from the issuance of these ESA Section 10 ITPs. While NMFS expects the PUDs will submit the HCPs as part of a settlement agreement that proposes the content of the license amendments for FERC's consideration, NMFS also expects that FERC will consult with NMFS pursuant to Section 7(a)(2) of the ESA on any action it proposes to take for these projects. That ESA consultation is expected to address the same issues for listed species that are covered by these HCPs and thus the HCPs are highly relevant to a consultation with FERC, but not binding on NMFS' or FERC's determinations that must be made in that consultation on the FERC action.

While the HCPs will be proposed to supercede the existing FERC license articles (relative to the Plan Species) for the Wells and Rock Island dams and settle the Mid-Columbia Proceedings for Rocky Reach Dam, this would not occur until the HCPs are approved as license amendments by FERC. Because FERC is not a signatory party to the HCPs, all of FERC's rights and responsibilities under the above mentioned statutes are maintained and unaffected by NMFS' decision concerning the approval of ITPs for the PUDs.

NMFS and the other signatory parties expect that FERC would amend the existing licenses to include the provisions outlined in the HCPs and/or the ITPs into each project's FERC license, although this cannot be predetermined in advance of the FERC decision process. The fish protection measures and methodologies proposed under the HCPs represent long-term settlement agreements under the FPA and other laws referenced above. As such, they are consistent with provisions in those statutes. In addition, while the HCPs are not automatically reinstated at relicensing, the signatory parties have agreed to be supportive of the HCP provisions during relicensing. FERC is not obligated to incorporate all of the provisions in the HCPs, and can

also specify additional mitigation requirements. However, if FERC does not incorporate the HCPs in their entirety or adds terms and conditions that are inconsistent with the HCPs, the parties are allowed to withdraw from the HCPs.

Consistent with this response, although the HCPs follow the "no surprises policy," as embodied in 50 CFR Section 222.307(g), the HCP provisions exceed the protections for listed fish provided by that policy by defining additional occasions when NMFS may withdraw from the agreement and revoke the permit.

Comment 22: The Mid-Columbia Proceedings established specific rights and responsibilities to the Joint Fishery Parties, while the HCPs would circumvent this process and replace it with the HCP provisions. Nothing in the ESA, FPA, or NEPA regulations provide for fishery protection measures being available only if parties to an agreement waive their past claims for damages. Therefore, such actions are outside the scope of permitted activities under these statutes.

Response 22: The Mid-Columbia Proceedings continue only with respect to the Rocky Reach Project and Grant PUD's Priest Rapids Project (not under consideration here). Rock Island and Wells portions of the Mid-Columbia Proceedings ended with the filing of settlement agreements in 1989 and 1990, respectively. The Mid-Columbia Proceedings established a process for coordination and for continued oversight by a FERC administrative law judge. The HCPs establish a committee structure for the purpose of coordination and decision-making for the signatory parties. Nothing in the HCPs limits the ability of non-signatory parties to seek additional or different fish protection measures through use of FERC procedures, including any that may be available as part of the Mid-Columbia Proceedings. The provision of the HCP that addresses a release of past damages, (Section 9.4.1 of the Wells HCP and Section 9.1 of the Rock Island and Rocky Reach HCPs), is specifically qualified with the clause that each party agrees to such a release "within the limits of their authority." Consequently, each party releases the PUDs of liability for past damages only to the extent that their authority allows, and therefore cannot be interpreted as exceeding any party's authority in agreeing to the provision.

Drawdown, Dam Removal, Non-Power Operations, and Normative River Conditions

Comment 23: The EIS misrepresents the requirements of the ESA and its relationship to hydroelectric projects. NMFS can mandate drawdown or dam removal at license reopener proceedings, not just at relicensing. The Mid-Columbia River projects have FERC licenses that contain such reopener clauses that allow FERC to change or revoke the licenses due to fish and wildlife concerns. Therefore a drawdown or dam removal alternative should be included in the NEPA analysis. In addition, no rationale is provided to show why drawdown would be delayed if Section 7 consultation showed that it was necessary to recovery of the species.

Response 23: NMFS cannot mandate drawdown or dam removal as the comment implies. Whether in a relicensing or reopener proceeding, NMFS can only recommend an alternative course of action to FERC if it is necessary to avoid jeopardy that may be found to be likely under the proposed licensing action. To recommend a "reasonable and prudent alternative" action, drawdown or dam removal in this example, NMFS must demonstrate that it meets the regulatory definition of 50 CFR Section 402.02 "reasonable and prudent alternative." The action agency, FERC in this example, then decides whether to implement the recommendation or to seek an ESA exemption instead.

NMFS' decision to not analyze the options of drawdown or dam removal as stand alone alternatives was appropriate where these options would be extremely expensive; would preclude power production; would be extremely controversial; would be inconsistent with the purpose of the proposed action; and could not be implemented in a timely manner even under a reopener scenario, particularly if these options were sought over the objection of the PUDs. NMFS did preserve its right to seek to require these alternatives in the future. See Response to Comment 24.

Comment 24: The HCPs are inconsistent with the 1995-1998 biological opinion for the FCRPS concerning the benefits of drawdown to minimum operating pools, which is a fundamental reasonable and prudent measure under the 1995 FCRPS biological opinion. In addition, the Services are restricted from withdrawing from the agreements and recommending drawdown without the consent of the PUDs, effectively removing a key restoration action to prevent extinction.

Response 24: While the benefits of drawdown to minimum operating pool have not been conclusively verified, NMFS continues to support this action in general as one likely to benefit juvenile outmigrants. The primary benefit of the minimum operating pool concept is to reduce the cross-sectional area of the river, which would result in an increase in water velocity, and potentially increase juvenile migration speed. However, the theory of increased migration speed with increased water velocities has not been consistently demonstrated for the various anadromous species in the Columbia River Basin (see Response to Comment 6). In addition to inconsistencies in the flow to travel time relationships for different species and between years, there are inconsistencies in the relationship between flow (velocity) and survival. Given a constant flow, drawdown to minimum operating pool would increase water velocities, however slightly (see Section 4.2 of the FEIS, Fisheries Resources).

Although the HCPs limit the use of drawdown options to protect the Plan Species, the HCPs provide specific language under Section 2.2.1.2 of the Wells HCP and Section 2.1.2 of the Rocky Reach and Rock Island HCPs that allows NMFS and USFWS (the Services) to seek drawdown, dam removal, or non-power operations (with or without terminating the agreements or the permits) if the survival standards are not met after 15 years (20 years for the Wells Project). Drawdown can also occur under the HCPs, by mutual agreement between the parties, without requiring the termination of the agreements or the permits. However, the Services can also withdraw from the agreements to pursue drawdown or dam removal options. Therefore, although the HCPs might initially restrict the authority of the Services, they maintain their ability to pursue dam removal or drawdown over the long term.

Lastly, the referenced biological opinions actually required the mainstem Federal hydroelectric project to operate within one foot of minimum operating pool. A commensurate drawdown could be considered a tool by the coordinating committees, if initial survival studies indicate that additional measures are needed to meet the appropriate survival standard.

Comment 25: Normative river conditions should be used as a baseline for comparing improvements in adult passage times, similar to the 2000 FCRPS biological opinion. The FPA and NEPA obligate a hydroelectric licensee to incorporate pre-project conditions in the relicensing process.

Response 25: According to the *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (USFWS and NMFS 1996), the purpose of the habitat conservation planning process, and subsequent issuance of an ITP, is to "authorize the incidental take of threatened or endangered species, not to authorize the underlying activities that result in the take." In this instance, the authorization for the activities that result in the take (continued operations of the project) is the responsibility of FERC during the relicensing process. FERC is not required to use normative river conditions as the baseline conditions for their evaluations. Refer to 55 Fed. Reg. 4:8-9 [Jan. 2, 1990]; FERC Stats. and Regs., Regulations Preambles 1986-1990, paragraph 30,869 at p. 31,613 (1989). Therefore, it is not appropriate to use normative river conditions as baseline conditions for the evaluation of the HCPs.

NMFS agrees that using a "normative" river as a relevant reference point is appropriate for the purposes of the ESA. In its biological opinions on the issuance of the ITPs, NMFS evaluates the available travel time and survival rate information for migrating Permit Species in impounded and unimpounded reaches of the Columbia River or with a hypothetical "free-flowing" river of the same length as the hydroelectric project in question.

Explanation of How the No Net Impact Standard is Configured

Comment 26: The biological basis of the no net impact standard needs to be provided to show that the permit applications are adequate to recover the species.

Response 26: The no net impact standard of the HCPs is based primarily on the 91 percent combined adult and juvenile project survival (approximately 98 percent adult survival and 93 percent juvenile survival through the projects). Achieving these survival levels, especially for juveniles, should result in substantial survival increases for migrating Permit Species through the three hydroelectric projects compared to past survival rates that have contributed to their current status. The draft QAR results (life-cycle modeling presented in Section 5 of the FEIS) indicates that achieving these standards at the three HCP projects and at Grant PUD's two hydroelectric dams downstream would improve juvenile migrant survival by 16 to 25 percent for steelhead and 21 to 35 percent for spring chinook salmon.

Unavoidable project impacts (i.e., the 9 percent of adults and juveniles combined that do not survive their migration through each hydroelectric project) will be mitigated through the Hatchery Compensation Plan (up to 7 percent) and Tributary Conservation Plan (up to 2 percent) components of the HCPs. Though hatcheries have the potential to negatively affect "wild" populations of anadromous steelhead and salmon, supplementing "wild" runs is generally supported by the Columbia River basin tribes, state and Federal agencies, and many other groups as a way of reducing the risk of short-term extinction for ESA-listed species and accelerating their recovery. Similarly, habitat conservation and restoration activities would likely benefit Permit Species over the next 50 years and are generally supported by agencies, tribes, and the public in the Columbia River Basin. However, the actual improvement in survival as a result of these actions cannot be quantified (see FEIS Appendix C - Response to Comments, Responses 27 and 29).

The ESA Section 7(a)(2) consultations and Section 10(a)(1)(b) findings relating to the proposed issuance of the ITPs are the appropriate venue for NMFS' determining whether or not the proposed action will jeopardize the continued existence, or appreciably reduce the likelihood, of the survival and recovery of ESA-listed species in the wild. See the Rocky Reach, Rock Island, and Wells Biological Opinions (2003).

Comment 27: The HCP no net impact concept only provides protection for 95 percent of the fish runs, thereby sacrificing the remaining 5 percent. There is no analysis of how these losses will be compensated, and therefore does not satisfy NEPA or ESA requirements. In addition, the PUDs are not required to achieve no net impact, only to implement actions to achieve it.

Response 27: The measurement of the no net impact standard is based on the entire run, although the protection measures implemented at the projects are targeted at 95 percent of the run. Compensation through hatchery and tributary funding measures is based upon calculations derived from the average adult returns effectively representing 100 percent of the runs. Thus, mitigation is provided for 100 percent of the migration periods, but the on-site project operations concentrate on the middle 95 percent of the spring and summer migration periods and do not cover the extreme ends of the migration periods.

Recognizing that some measures are costly per unit time, the signatory parties agreed that juvenile dam passage protective measures would encompass 95 percent of the migrations as an objective that could be effectively managed. This applies to the 95 percent juvenile dam passage survival standard but not the 93 percent juvenile project survival measurement. In addition, because the spring and summer migrations overlap significantly, the spill program under the HCPs would most often be a continuous operation between the spring and summer periods and would provide protection to more than 95 percent of the spring and summer migrants. Other measures to improve juvenile survival through the projects (fish bypass systems, predator control programs) are expected to cover an even greater proportion of the migrants. Implementing measures to cover 95 percent of the spring and summer migrations is consistent with the provisions of the biological opinions for the Wells, Rocky Reach, and Federal projects on the mainstem Columbia River (NMFS 2000a,b, 2002a). While the full suite of dam survival improvement measures would not cover all juveniles migrating throughout

the year, these protection measures are expected to provide a substantial survival improvement for all Plan Species compared to existing conditions. NMFS has determined that the protection measures would not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The HCPs require the PUDs to meet the no net impact standard by 2013 (Section 3.1 in the HCPs). The PUDs must continue to modify or implement new survival improvement measures if the standard is not met. If they cannot meet the standards, the HCPs have specific withdrawal or termination procedures.

Uncertainties

Comment 28: The revised HCPs do not adequately address delayed fish mortality related to project impacts. A major new study on the delayed mortality impacts of mechanical bypass systems has been completed since the issuance of the DEIS, with implications to the installation of the Rocky Reach bypass without adequate evaluation or testing. NMFS should include a smolt-to-adult survival metric to fully include delayed impacts.

Response 28: NMFS has reviewed that study to determine its pertinence to the newly constructed juvenile bypass system at Rocky Reach Dam. The study in question evaluates the impacts of juvenile bypass and collection systems at mainstem Federal projects. Flows through these bypass systems are typically screened such that only 30 to 40 cubic feet per second (cfs) remain to transport fish downstream. In contrast, approximately 340 cfs of water is utilized to transport fish through the Rocky Reach bypass system. NMFS does not believe that the results of the cited study can be extrapolated to the Rocky Reach bypass system.

The permits granted with the implementation of the HCPs cover the incidental take of listed species as a result of project operations, including direct, indirect, and delayed effects wherever they occur. The coordinating committees are responsible for assessing the available assessment methodologies and determining the best methods to assess the pertinent survival standard for each Plan Species. Although there are many similarities between the different hydroelectric projects in the basin, juvenile survival rates can vary substantially from dam to dam, requiring site-specific evaluations to accurately determine project passage or route-specific passage survival. The survival evaluations are expected to determine if there are substantial impacts related to the operation of the bypass system.

The revised HCPs acknowledge that limitations on the number of fish needed to make accurate survival estimates are an important consideration in determining the most appropriate methodology for assessing the pertinent survival standard (see Supporting Document D of the Rocky Reach and Rock Island HCPs and Supporting Document C of the Wells HCP). Some methodologies (radio or acoustic tags, for example) may be able to generate sufficiently accurate estimates with relatively small numbers of fish, but these tags have limited longevity, potentially affecting their ability to assess indirect and delayed mortality. In comparison, PIT-tags have no longevity limitations, and are therefore more likely to completely assess indirect and delayed effects. However, using this methodology requires tens or hundreds of thousands of tagged fish to generate sufficiently accurate survival estimates. The revised HCPs also require the coordinating committees to facilitate the availability of test fish for studies, which may include the rearing of additional hatchery fish (e.g., Section 4.10 of the Rocky Reach HCP) (see Response to Comment 5).

Despite the available technology improvements in recent years, assessing project-specific delayed mortality levels through smolt-to-adult survival assessments is problematic. Fish migrating to and from the Mid-Columbia River pass up to nine mainstem hydroelectric projects, making it difficult to separate project-specific impacts from cumulative impacts of hydroelectric projects from those due to variable estuarine habitat conditions and unrelated ocean survival conditions. In addition, approximately 100,000 smolts are required to obtain an adequately accurate (according to the metrics agreed upon in the HCP) paired release PIT-tag survival estimate (the tags are primarily detected far downstream at McNary Dam). In order to provide similarly accurate estimates of smolt to adult survival, hundreds of thousands of additional smolts would need to be tagged for each paired release. This proposal is simply untenable at this time due to limited numbers of test fish and the potential impacts of tagging the majority of smolts migrating from the Mid-Columbia River.

Comment 29: The HCPs and Permits should include potential increases in tributary funding or hatchery production if the survival evaluations indicate that there are uncompensated losses, particularly during Phase I when the survival standards might not be achieved.

Response 29: The HCP signatories determined that this approach was not the preferred approach for a number of reasons. First, increasing hatchery production to compensate for impacts to fish at the dams could have adverse consequences for naturally spawning fish. In addition, allowing the PUDs to "compensate" for losses at the project through funding off-site mitigation had the potential to create an incentive for PUDs to reduce spill at the projects and instead "compensate" with off-site funding. This situation could arise if power prices exceeded the level of compensation required. The signatory parties elected instead to retain the focus of achieving the survival standards at the projects as expeditiously as possible.

Alternatives

Comment 30: The no action alternative does not represent existing conditions because it completely omits statutory authorities at relicensing, and the actions that could be taken under the existing licenses.

Response 30: Alternative 1 (the no action alternative) represents existing baseline conditions that would occur if neither action alternative were implemented, which is consistent with NEPA requirements. Alternative 1 is evaluated in Chapter 4 of the FEIS (which describes effects of the alternatives), similar to the evaluation of Alternatives 2 and 3. Relicensing is a separate independent action with FERC as the lead agency, and includes more than fish protection measures for listed species. Therefore, Alternative 1 was limited to existing FERC licenses and settlement agreements that govern current operations, with one exception. FERC has amended the Rocky Reach Project license to allow for the construction and operation of a juvenile bypass facility at the project. Since this measure is rightfully considered an element of the HCP, evaluation of the juvenile bypass facility occurs under Alternative 3 rather than under Alternative 1. Alternative 1 also provides a baseline for comparison with the action alternatives.

Long-term settlement agreements have been negotiated for the Wells and Rock Island dams that include the hatchery mitigation provisions as compensation for project inundation and existing ongoing impacts. Although a long-term agreement has not been reached for Rocky Reach, this dam has operated from 1979 to 1997 under various stipulations and continues to be operated in accordance with the last approved interim stipulation. Initial inundation losses were established from estimates of spawning habitat loss. The initial inundation compensation did not mitigate for passage loss of juveniles. The long-term settlement agreements at Wells and Rock Island dams established passage loss rates, thus completing the mitigation package for project impacts to salmonids. Because of these relatively recent reevaluations of the mitigation programs at all three projects, it is reasonable to assume that existing mitigation or compensation levels are adequate to address project inundation, at least for the purposes of comparison within this FEIS.

Spill

Comment 31: The Rock Island HCP allows a reduction in spill, compared to current agreements, without having to prove that the 95 percent survival standard is being met. This puts the burden of proof on the resources. More spill might be available under existing conditions compared to the HCP. The HCPs should include specific actions for Chelan PUD to make modifications to the Rock Island spillway to reduce total dissolved gas levels and to maximize the use of spill to meet survival standards.

Response 31: Proposed spill levels are higher and/or occur for a longer duration than spill levels under the existing settlement agreements or stipulations at the three HCP projects. Reductions in spill can occur only under Phase III (standard achieved), and only to the extent that the standard is exceeded. The standard that must be met is the 91 percent combined adult and juvenile survival standard or the 93 percent juvenile project passage survival standard. These standards are more encompassing than the 95 percent dam passage survival standard because they include reservoir mortality as well as indirect and delayed mortality components. As a result, these standards account for differential mortality rates between dam passage routes. At this time it is unknown

whether or not the standards are currently being met for all Plan Species at the HCP projects. Survival would have to exceed the HCP standards before spill levels could be reduced.

Spill remains the primary juvenile fish passage system at Rock Island Dam. In the event that substantial increases in spill are necessary to meet the HCP survival standards, adequate modifications would be required to allow the necessary spill increases while meeting the water quality standards (or State of Washington waivers) for total dissolved gas. The coordinating committee would be responsible for assessing the spill needs necessary to meet the survival standards, and the PUD would be responsible for providing the spill while minimizing downstream total dissolved gas levels to meet water quality standards.

Tribal Issues

Comment 32: Both NMFS and USFWS have strict fiduciary trust responsibilities to Indian Tribes to protect, maintain, and enhance Tribal treaty fishing rights and the fish on which the Tribes rely. NMFS is required to fully implement the terms of Secretarial Order 3206 in its analysis of the permit applications. The EIS does not adequately address these responsibilities. NMFS should engage in government-to-government consultation over the issuance of the Permit and NEPA issues. The Permits will substantially impact treaty-trust resources. The No Surprises policy has a particular potential for prejudice against Tribes and treaty trust resources.

Response 32: The HCPs specifically recognize Federal obligations to protect Tribal treaty/trust resources, and state that "[n]othing in this agreement is intended to nor shall it in any way abridge, limit, diminish, abrogate, adjudicate, or resolve any Indian right reserved or protected in any treaty, executive order, statute or court decree. This Section shall be deemed to modify each and every Section of this Agreement as if it is set out separately in each Section" (see Section 12.11 of the HCPs). Additional protections are also described in HCP Sections 12.12 and 12.13. Formal consultation between NMFS and the Tribes included discussions among technical and policy level staff of these issues, as well as the content of the biological opinions and the ROD. It is the intent of NMFS that the HCPs would aid in increasing the wild stock of anadromous fish over time, thereby allowing for increasing Tribal harvest of hatchery fish as the wild stocks approach and eventually reach minimum escapement levels necessary for recovery. The relationship between the proposed HCPs and the Federal Government's Tribal treaty trust responsibilities is discussed in Section 4.13.17 of the FEIS, Legislation Pertinent to Tribal Governments.

During preparation of the HCPs, the Tribes were continually informed and invited to participate. The Tribes participated directly and through the Bureau of Indian Affairs and the Columbia River Inter-Tribal Fish Commission. Modifications to the HCPs were made in response to input from the Tribes, including modifications to the hatchery provisions, funding for assessment of the tributary fund, and other provisions. The five principles of the 1997 Secretarial Order 3206 (American Indian Tribes and the ESA) have been followed in development of these agreements. These principles are: (1) working directly with the Indian Tribes on a government-to-government basis to promote healthy ecosystems, (2) recognizing that Indian lands are not subject to the same controls as Federal public lands, (3) assisting Tribes in developing and expanding Tribal programs so that healthy ecosystems are promoted and conservation restrictions are unnecessary, (4) being sensitive to Indian culture, and (5) making available to Tribes information related to Tribal trust resources and Indian lands and to facilitate the mutual exchange of information.

Principle 3 of Secretarial Order 3206 also includes the following components: (a) the Departments shall take affirmative steps to assist Indian Tribes in developing and expanding Tribal programs that promote healthy ecosystems, (b) the Departments shall recognize that Indian Tribes are appropriate governmental entities to manage their lands and Tribal trust resources, and (c) the Departments, as trustees, shall support Tribal measures that preclude the need for conservation restrictions. Although the HCPs are not Tribal programs, the anadromous fish within the Columbia River are considered a traditional Tribal treaty resource. Implementation of the HCPs is intended to support a comprehensive strategy for protecting and recovering the five Plan Species that pass the three dams (Wells, Rocky Reach, and Rock Island), thereby promoting a healthy ecosystem.

The original signatory parties began intensive negotiations to resolve outstanding issues identified in comments on the DEIS in September 2001. The outstanding issues were resolved to the satisfaction of NMFS, USFWS, Washington Department of Fish and Wildlife (WDFW), the PUDs, and the Colville Tribe, who signed the HCPs pending completion of the regulatory review process. NMFS has encouraged all HCP applicants to invite and include other Federal and State agencies who can utilize their existing authorities, expertise, or lands in support of the HCP development and implementation process. Furthermore, NMFS considered whether the proposed plans might affect Tribal rights to trust and treaty resources. After careful consideration of Tribal concerns, NMFS described the rationale for the recommended final decision and explained how the decision relates to the government's trust responsibilities in the biological opinion and the ROD. In light of this obligation, it was important that, during the planning process, NMFS identify and evaluate the anticipated effects of a proposed HCP upon Indian treaty and trust resources in the EIS.

Harvest

Comment 33: There is no evidence that meeting the survival standards will lead to sustainable and harvestable fish populations, so any shortfall in recovery will be the burden of the Tribes through harvest restrictions. NMFS should examine the impact that the HCPs would have on the sustainability of the salmon populations and the ability of such populations to meet broad (beyond mere ESA) recovery goals. The HCPs and the EIS do not provide analysis of how the failure to provide harvestable runs satisfies the FPA equitable treatment rule. In addition, the inclusion of the No Surprises policy in the HCPs restricts NMFS' ability to change the standards if they are found to be insufficient, unless they can prove that the projects are a significant factor in the failure of the species to recover. The Tribes suffer substantially greater economic impacts from the loss of salmon; this is not addressed in the HCPs or the EIS. The HCPs satisfy NMFS' responsibilities under the ESA and the FPA by balancing the needs for power production against the protection of treaty trust resources. This violates its trust responsibilities.

Response 33: Both Section 7 and Section 10 consultations allow for the incidental take of endangered and threatened species, exempting applicants from the take prohibitions under Section 9 of the ESA. Although the PUDs have voluntarily included a commitment in the HCPs to rebuild the stocks to sustainable, harvestable populations, the PUDs are not required to conduct this effort under either Section 7 or Section 10 of the ESA.

The HCPs attempt to balance the conservation of ESA-listed and unlisted anadromous Plan Species with the Federal Government's treaty trust obligations to provide meaningful Tribal harvest, on both a short- and long-term time frame. This includes the difficulties of providing these harvest opportunities under the harvest rate restrictions for ESA-listed species in a mixed stock fishery. The Columbia River Basinwide Salmon Recovery Strategy recommends that the overall harvest rate of Upper Columbia River spring-run chinook salmon continue to be capped at 6 to 9 percent, depending on the run sizes of natural origin fish. This harvest rate is primarily intended to accommodate a base level fishery for the Tribes. Thus, under this recovery strategy, the Tribal harvest would continue to be limited by the abundance of naturally produced adult fish, unless effective selective harvesting techniques are developed. For example, the harvest of the large runs of hatchery spring-run chinook salmon in recent years has been limited by the relatively low abundance of naturally spawned fish.

The HCPs are intended to protect, enhance, and restore the populations and habitats of not only the ESA-listed species but also the other unlisted Plan Species. The long-term goal is to establish and maintain naturally spawning populations that are capable of supporting a sustainable fishery, which would also allow greater harvest rates on hatchery stocks. Therefore, goals developed to maximize the opportunities to harvest hatchery fish and rebuild the naturally spawning populations are expected to enhance the harvest opportunities for both Tribal and non-Tribal fishers. These goals satisfy both the specific provisions of the ESA and the Federal trust responsibilities.

Even with the inclusion of the No Surprises policy, the revised HCPs acknowledge that the Services could withdraw from the HCPs and NMFS could revoke the permits (even if the project has achieved and maintained the no net impact standard) if the Plan Species are not rebuilding and the projects are a significant factor in the

failure to rebuild (see Section 2.1 of the Rocky Reach and Rock Island HCPs and Section 2.2.1 of the Wells HCP). This could occur after 2013 at the Rocky Reach and Rock Island projects and after 2018 at the Wells Project. There are numerous factors that affect the recovery of the species, and the PUDs have control or influence over relatively few of these factors. The HCPs and the No Surprises policy would not affect NMFS' ability to improve survival at other appropriate life-stages, distribute the recovery burden throughout the basin, and increase the overall efforts being implemented to recover the species.

Comment 34: Implementation of the HCPs would impact the ability of the non-signatory Indian Tribes to manage treaty trust resources, or force them to sign the HCPs in order to have a management role. This violates NMFS' treaty trust responsibilities.

Response 34: The development of the HCPs involved many years of negotiations with multiple parties including the PUDs, state and federal resource agencies, Tribes, and a nongovernmental organization. The Columbia River Basin Tribes participated throughout the negotiation of the agreements. The parties made significant modifications to the agreements to accommodate the interests of the Tribes. NMFS respects the decision by the Tribes not to sign the agreement. The PUDs insisted that only signatories to the agreement should have the right to participate as voting members on the committees, because only signatories have provided the PUDs with certain assurances regarding the sufficiency of the mitigation package. NMFS believes the PUDs' position, as reflected in the HCPs, was reasonable. NMFS intends to continue to fulfill any treaty trust obligations it may have through coordination with the Tribes as it exercises its right to participate in the committees. In addition, the HCP provide that any committee established under the HCP may agree to allow participation of any government entity not a Party to this Agreement. (see Wells HCP Section 6.6 and Rock Island and Rocky Reach HCPs Section 4.6). This provision could be used to include the Tribes in discussions of particular interest to the Tribes.

Section 7 Consultation

Comment 35: NMFS' consultation with itself is meaningless because the permit applications would already be approved, thereby precluding a precautionary approach of systematically implementing actions to recover the species.

Response 35: NMFS' ESA Section 7(a)(2) consultation is not meaningless because it must precede and, with the NEPA analysis, inform the basis of its decision to issue ESA Section 10(a)(1)(B) permits for these HCPs. The issuance of these permits is a federal action triggering the Section 7 consultation requirement. The analysis for the Section 7 consultation must also be done to determine if the Section 10 finding that "the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild" (Section 10(a)(2)(B)(iv)) is appropriate.

Through formal consultations pursuant to the ESA, NMFS determined that the proposed action is not likely to "jeopardize the continued existence of any listed species," defined as, "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR Part 402.02 – Definitions).

Comment 36: NMFS should immediately conduct Section 7 consultation because the PUDs failed to conditionally implement the HCP provisions during the 2001 low water year.

Response 36: Though NMFS may remind Federal agencies of their obligation to consult under Section 7(a)(2) of the ESA, it is ultimately up to the Federal "action agency" to request consultation. Formal consultation was conducted for the Wells Project, and a biological opinion was prepared in 2000 (NMFS 2000b). Although formal consultations had not occurred for the Rocky Reach and Rock Island projects by 2001, informal consultations had begun. A subsequent biological opinion was completed for the construction and interim operation of the juvenile fish bypass system in 2002, which is an integral part of the HCP agreement. Although the PUDs conditionally implemented the revised HCP provisions, the HCPs were not yet approved

nor were their licenses amended prior to 2001. Therefore, Chelan PUD had not approved and signed any obligation to continue to implement the voluntary programs in 2001. Without specific guidelines (similar to those included in the HCPs), similar situations could occur in the future.

ESA-Related Questions

Comment 37: The lack of supporting quantitative scientific analysis calls into question whether the HCPs are consistent with the fundamental principle of the ESA – using caution in the face of uncertainty, and placing the burden of risk on the project rather than the species. The ESA requires that the biological needs of the species be identified and addressed. During the initial phase of the HCPs, the risks of uncertainty are borne solely by the resource instead of power generation at the PUD projects. The HCPs do not satisfy the requirements of the ESA or Tribal treaties. The ITP process is motivated by the PUDs' perceived financial constraints, rather than the protection and recovery of the species.

Response 37: The purpose of Section 7 and Section 10 ESA proceedings are to insure that the continuation of otherwise legal activities that could affect the listed species, will comply with the mandatory requirements of the ESA. These provisions of the act recognize that some take might be allowable if it is not so great as to jeopardize the continued existence of the species.

The HCPs set specific survival standards that must be met by 2013 and documented through site-specific survival studies. The intent of the HCPs is to provide no net impact survival conditions for both listed and unlisted anadromous Plan Species through the use of on-site passage survival improvements, off-site production of hatchery fish, and off-site enhancement of tributary habitat. The signatory parties to the HCPs would participate on the coordinating committees and in the selection of appropriate monitoring methods for each of the Plan Species. Under the HCPs, the PUDs are required to demonstrate that the performance standards are met not only at the end of Phases I and II, but also periodically during Phase III. Therefore, as better survival estimation techniques are developed over the 50-year HCP terms, these techniques would be incorporated into the monitoring process to demonstrate continued compliance with the performance standards.

The revised HCPs specify the methodologies by which the survival standards will be measured. The HCP signatory parties have agreed that point estimates of survival measurements from 3 years of valid studies would be averaged (arithmetic mean), and that this average would be used to compare against the pertinent survival standard. A valid study is one in which the study design, implementation, and criteria are determined to be acceptable by the appropriate coordinating committee, and one in which the study occurs during representative flow conditions and normal project operating conditions consistent with the approved study design (see Section 5.2.3 of the Rocky Reach and Rock Island HCPs and Section 4.1.4 of the Wells HCP). In addition, NMFS developed a briefing paper that summarizes the strengths and weaknesses of existing technologies for estimating survival standards. This paper was developed to assist the coordinating committees in selecting study methodologies for each of the Plan Species (see Supporting Document D of the Rocky Reach and Rock Island HCPs and Supporting Document C of the Wells HCP). As a result, NMFS has determined that adequate safeguards are provided to ensure that the implementation of the HCPs would not jeopardize the continued existence of the listed species.

Comment 38: Section 10 ITPs are available for non-Federal actions and are inappropriate for Federally licensed hydroelectric projects. The Section 7 consultation process is a more appropriate process than Section 10 because it does not restrict future options to protect the species. The ESA and the NMFS HCP Handbook make it clear that projects subject to Federal activities are not eligible for Section 10 treatment.

Response 38: The HCP handbook (USFWS and NMFS 1996) states that "[t]he Section 10 process is an opportunity to provide species protection and habitat conservation within the context of non-Federal development and land and water use activities … allowing economic development that would not appreciably reduce the likelihood of the survival and recovery of the species in the wild." An HCP can be proposed where a Federal agency is involved in a cooperative planning effort in which both Federal and private lands are addressed under a single

HCP but the Federal agency is not the applicant or the primary partner in the plan. For the Wells, Rocky Reach, and Rock Island HCPs, the PUDs are the applicants and project owners. An HCP is particularly appropriate notwithstanding the federal FERC licensing of these projects where the licensees provide off-site measures such as the tributary enhancements that may not traditionally be included in a FERC license article.

Comment 39: While there is no ESA requirement that an HCP have a dispute resolution process, there is a requirement that the listing agency's hands not be tied while it carries out its statutory duties. The delays likely to result from the proposed dispute resolution process, over the 50-year term of the HCPs, can have serious consequences for the resource.

Response 39: The provisions of the ESA require the use of the best available scientific data. The monitoring and evaluation methods currently being used to evaluate survival at the projects provide the best available data. The same evaluation methods are also likely to be used in the future, regardless of HCP implementation, and are consistent with monitoring standards throughout the basin. Under the HCP provisions, if improved methods are developed in the future, these new methods would be implemented at the discretion of the coordinating committees during Phase I or during the reevaluation every 10 years (e.g., Rocky Reach HCP Section 5.3.3 [Phase III Standard Achieved]).

The HCPs establish coordinating committees to select and guide the appropriate monitoring and evaluation procedures. The committees are expected to use the best available data to determine if the HCP objectives are being met. However, even under optimal conditions, a number of assumptions are required to estimate project impacts. Due to the complexity of the issues involved, there have often been disagreements over these assumptions or the results of the data analysis. By defining survival study requirements (necessary accuracy and representative environmental conditions), such disagreements should be minimized in the future. The HCPs include committees and a dispute resolution process to facilitate appropriate and timely decisions on the adequacy of the data or the need for additional evaluations. In addition, the coordinating committees have the ability to select an independent third party for the purpose of providing an independent scientific review of any disputed survival study results and/or reports.

The HCPs support a comprehensive strategy for protecting and recovering the five Plan Species that pass the three dams (Wells, Rocky Reach, and Rock Island), thereby promoting a healthy ecosystem. The strategy of conditionally implementing some provisions of the HCPs prior to NMFS and FERC approval was developed to enhance the recovery process in a cooperative atmosphere and evaluate survival standards sooner rather than later (refer to Section 2.6.5 of the FEIS, Implementation Schedule). In contrast, the Section 7 consultation approach was expected to result in lengthy legal proceedings if FERC or the PUDs disagreed with NMFS' decisions on the actions needed to ensure survival and recovery of listed species. The HCPs set specific time limits on decision-making procedures. These time limits are intended to reduce delays in the event of disputes.

The signatory parties agree that the HCPs are not intended to create jurisdiction in any court. Any dispute arising in the tributary or hatchery committees would be sent to the appropriate coordinating committee for resolution. The HCPs limit the committee to 20 days in which to resolve the dispute. Any unresolved disputes within the coordinating committees would be sent to a policy committee for resolution. The policy committee also has a limited time (30 days) to come to a resolution. If no resolution can be reached with the policy committee, then any party may pursue any other right that they might otherwise have. Thus, as revised, the HCP dispute resolution process clearly defines the resolution time frame, which is non-binding and does not reduce NMFS' regulatory authority.

Note, the dispute resolution process and the committees all operate on a unanimous consensus basis. NMFS retains its authority to reject the position taken by the other parties to exercise any legal authority it might otherwise have.

Comment 40: The ESA requires the revocation of the ITP if the permittee is not meeting the permit's terms. The HCPs limit this authority by allowing the PUDs to continue to operate their projects, while not meeting the HCP survival standards, for as long as 15 years with no recourse. In addition, permit

revocation can only be exercised if NMFS is specifically seeking drawdown, dam removal, and/or non-power operating actions. Limiting NMFS' authority violates the ESA.

Response 40: Section 10 of the ESA provides a clear regulatory mechanism to permit the incidental take of Federally listed fish and wildlife species by private interests during lawful land and water use activities. The intent of this process is to reduce conflicts between listed species and economic development activities by integrating non-Federal development and land use activities with ESA conservation goals and by fostering partnership and cooperation. The HCP survival standards are only one facet of the agreements, which establish the conservation goals for the Plan Species. This approach provides an adaptive management component to the long-term management process for protecting the Plan Species.

Furthermore, NMFS has the discretion to enforce compliance of the HCPs and its permits. The HCPs do not limit any responsibility or obligations of NMFS to the Tribes, and the revised HCPs state that the withdrawal and termination provisions are not subject to the No Surprises policy.

In addition, the responsibilities of FERC to protect these resources would not be limited by the HCPs, and FERC would have an obligation to review the HCP provisions to determine if additional mitigation measures are necessary at relicensing. Before adopting the HCPs into the project licenses, FERC would determine if the HCP provisions are sufficient to fulfill their Federal responsibilities. The HCPs also do not affect the ability of FERC to include reopener clauses in the new licenses, although such actions would allow any signatory party to withdraw from the agreement.

As modified, Phase I of the HCPs will be completed at all of the HCP projects by 2006, unless sufficient numbers of test fish are not available (i.e., the required studies cannot be performed for each Plan Species at all projects) or the coordinating committees determine that another year of study is required. The revised HCPs now explicitly state that the no net impact standard would be met no later than 2013 and that representative species will be chosen by the coordinating committees for additional survival studies at each subsequent 10-year interval to ensure that the standard continues to be met. In the event that the standard is not being met and the PUDs fail to implement agreed-upon measures to achieve or maintain the no net impact standard, or if the Plan Species are not recovering, NMFS may revoke the permit to seek other actions to recover the species (see Section 2.2.1.2 of the Wells HCP and Section 2.1.2 of the Rocky Reach and Rock Island HCPs).

The survival rates of listed and/or unlisted species would likely improve over time as the PUDs attempt to meet the performance standards or other criteria established through the Section 7 consultation process. If the performance standards are not met under the HCPs, the PUDs are required to apply additional species-specific protective measures (also referred to as tools) in an effort to meet the performance standards for all Plan Species. If the performance standards cannot be met, and the permit is revoked, the last agreed upon measures will continue until another process resolves the issue. For ESA-listed species, necessary survival improvements would be achieved through the Section 7 consultation process.

Lamprey

Comment 41: Lamprey and sturgeon should be included as Plan Species because measures implemented for the Plan Species could negatively impact these species. Although the non-Plan species will be addressed during relicensing, this does not obviate the need to assess impacts related to the HCPs. The inclusion of lamprey could increase the predation rates on salmonid smolts by predators that would otherwise prey on lamprey.

Response 41: The decision to include or exclude any species for an HCP is the applicant's decision, and there are no provisions in the ESA that require that all species affected by an action be included in an HCP. Although these species are not included as Plan Species, they were reviewed along with other project effects evaluated in the EIS. There are limited data concerning the status of lamprey and sturgeon within the project area, including the potential impacts of the Mid-Columbia River projects on these species. This lack of information is one

reason that lamprey and sturgeon were not included as Plan Species in the HCPs, because no performance standards could be developed.

The potential measures that could be implemented at the projects to improve fish passage are limited, and would likely be the same regardless of whether the protection of ESA-listed species occurs through Section 7 or Section 10 processes. However, it is recognized that full implementation of measures under the Section 7 consultation process is less likely to benefit unlisted species and could be substantially delayed for all species through litigation or FERC's relicensing and rehearing processes.

Because the HCPs set survival standards for all Plan Species, there is a greater likelihood that the protection measures implemented to protect these Plan Species would also benefit non-Plan species, such as lamprey and sturgeon. For example, lamprey are known to be more susceptible to impingement and mortality from turbine intake screens than some of the Plan Species. However, sockeye salmon also tend to be disproportionately impacted by intake screens compared to the other Plan Species. Therefore, the use of intake screens would likely be restricted by the need to meet the survival standards for sockeye salmon, and thereby coincidentally benefit lamprey. Such a restriction would not necessarily occur under Section 7 consultation over the protection of listed species (chinook salmon and steelhead).

Another benefit of the HCPs to non-Plan species is the provision of a Tributary Conservation Plan. The goal of the tributary committees is to select and fund ecologically sound tributary improvement projects with the Tributary Enhancement Fund. These projects would be selected by the tributary committees and will focus on Plan Species, although the potential benefits and impacts to other species would be considered in any decision. Any project that would directly improve tributary or mainstem habitat would likely also benefit all native aquatic species.

The continued implementation of predator control measures at the projects is expected to substantially improve the survival of the Plan Species, and have some benefit to lamprey and sturgeon by reducing what limited predation might be occurring on juveniles of these species. These predator control programs would continue under the HCPs, but are not currently included in the existing FERC licenses for the three projects and are voluntarily provided by the PUDs. Therefore, there is no guarantee that the programs would continue in the future without the HCPs, though they could be required through ESA consultations on listed species.

Hatchery Plan

Comment 42: The revised HCPs still do not guarantee the 7 percent hatchery compensation level. Although they provide that other actions at the hydro facilities can be taken to make up for the unmitigated losses, they provide no provisions to compensate for losses during the transition period or during Phase I (until 2013) if no net impact is not achieved. The HCPs also lack analysis of the hatchery plan in light of NMFS' draft new hatchery policy, which requires heightened scrutiny of hatchery fish on the survival and recovery efforts. Potential impacts of trapping adult fish in the tributaries to supply hatchery broodstock needs to be evaluated for the Permit.

Response 42: Hatchery compensation is based on an initial estimate of 7 percent juvenile mortality through each individual hydroelectric project. This compensation level can be reduced if evaluations clearly demonstrate that project mortality is less than 7 percent. Initial hatchery production objectives are based on agreed-upon numbers that represent baseline compensation levels for the Mid-Columbia River hatchery program. The *Biological Assessment and Management Plan, Mid-Columbia River Hatchery Program* (NMFS et al. 1998b) provides a description of the methodology and baseline numbers. However, because of the wide range of scientific and policy opinions regarding the purpose and appropriate use of artificial production in specific circumstances, NMFS recommends a variety of hatchery strategies, coupled with an adaptive management approach. Therefore, NMFS is unable to guarantee a 7 percent supplementation rate throughout the term of the 50-year agreement, although the goal is to achieve this rate whenever possible.

To provide some level of assurance to the Tribes on this issue in the near future, the signatory parties revised several components of the Hatchery Compensation Plan. First, the parties detailed the initial production levels that must be obtained to meet the no net impact standard for each project. Second, the parties agreed that hatchery production commitments, except for original inundation mitigation, would be adjusted in 2013 and every 10 years thereafter to achieve and maintain no net impact. Thus, production levels, including those initially specified in the HCPs, would most likely be stable for at least 10-year intervals. (The HCP allows adjustment of production levels prior to 2013 only if NMFS first seeks agreement from the HCP committees, proposes a transition plan, and allows elevation to the "NMFS Administrator," meaning NMFS Assistant Administrator for Fisheries.) This alteration was made both to provide greater assurances to the Tribes with respect to production levels (and harvest opportunities) and to allow sufficient time (approximately 2 to 3 generations) to assess the effects of previous changes to the hatchery programs. Furthermore, the supplementation programs contained in the Rocky Reach and Rock Island HCPs through 2013 are double that which is necessary to contribute 7 percent toward no net impact. In addition, in response to requests from the Tribes, the revised HCPs expressly provide for supplementation programs for coho salmon and Okanogan Basin spring-run chinook salmon.

However, recent changes in the goals and practices of these hatchery programs focus on producing fish that pose a lower risk to natural populations. This is accomplished by either minimizing negative interactions with natural populations or using natural broodstocks. This approach has led to an increased reliance on natural broodstocks to fulfill hatchery program needs. Nevertheless, it is recognized that the recovery of natural populations cannot be achieved simply by releasing more hatchery-produced fish, regardless of their ancestry or fitness.

The current operations of the Mid-Columbia River PUD-funded hatcheries (including broodstock collection activities) are either covered by existing Section 10 permits issued to WDFW or are undergoing consultation at this time. It is expected that the stipulation of these permits, or future permits, would address all issues related to collection and use of natural broodstock for these hatchery programs. Future Section 10 permits are expected to have the PUDs as co-applicants with WDFW, establishing more direct responsibility for hatchery operations by the PUDs. However, the HCP hatchery committees are expected to provide the actual hatchery oversight for the PUDs.

Comment 43: The HCPs allow a portion of the 7 percent hatchery mitigation production to be used in the extensive testing procedures to assess fish survival relative to the HCP survival standards, with no provisions to replace fish lost due to handling and stress.

Response 43: The coordinating committees are responsible for assessing the available methodologies and determining which method can best be used to assess the pertinent survival standard for each Plan Species. The revised HCPs also require the coordinating committees to facilitate the availability of test fish for studies, which may include the rearing of additional hatchery fish (e.g., Section 4.10 of the Rocky Reach HCP).

Other Existing Agreements Relative to Fish and Dams

Comment 44: The HCPs and ITPs will supercede the existing settlement agreements for the projects. However, these agreements mandate that the signatory parties will jointly petition FERC to eliminate or modify those agreements. Therefore, for the settlement agreements to be superceded, all the signatory parties to the agreements must be allowed to negotiate over the terms of the ITP. The parties to the existing settlement agreements may not sign the HCPs; the contractual rights of these non-signatory parties would be compromised if the HCPs supercede the existing agreements. It is inappropriate for NMFS to sanction such an action through the ESA or NEPA process, and violates its responsibilities under Secretarial Order 3206. Further, NMFS should consider a mechanism to ensure meaningful non-signatory Tribal participation in the HCP process if approved. NMFS must analyze the contractual rights of the participants in the Mid-Columbia Proceedings relative to their treaty trust responsibilities. Eliminating the participation of two fish co-managing Indian Tribes (Yakama and Umatilla) and conservation groups from the HCP committees and the superceded committees developed through the

Mid-Columbia Proceedings for a period of 50 years is a major change that NMFS must consider in developing the alternatives and mitigation for the action of approving the permits. There is no explanation of the statutory basis for the HCPs superceding the FERC license conditions and settlement agreements, under either the ESA or the FPA.

Response 44: NMFS and the Tribes discussed these issues at technical and policy levels during formal consultation and prior to NMFS issuing the ROD and final biological opinion on the HCPs. The HCP parties intend to request that FERC issue a final order approving the HCPs as follows:

> "For Wells: replacing the Wells Settlement Agreement with the HCP, replacing the Interim Protection Plan biological opinion (now expired) with the HCP, and replacing the Settlement Agreement's Coordinating Committee with the HCP committees.
>
> For Rocky Reach: settling the Rocky Reach portion of the pending Mid-Columbia Proceedings with FERC, replacing the Mid-Columbia Coordinating Committee with the HCP committees, and replacing the bypass order and biological opinion with the HCP.
>
> For Rock Island: replacing the Rock Island Settlement Agreement with the HCP, and replacing the Settlement Agreement's coordinating committee with the HCP committees."

At this point, the Yakama and Umatilla Tribes have not signed the HCPs, and therefore may not participate directly on the HCP committees, which are limited to signatory parties. However, nothing in the HCP precludes the Tribes signing at some future date. While there remains some potential for non-signatory parties who participated in HCP development to participate in the committees as non-voting members, the influence of these non-voting Tribal parties would be exercised through coordination and possibly government-to-government consultation with Federal parties who participate on the HCP committees.

With respect to substantive protection measures provided in the Rock Island and Wells agreements, the HCPs provide greater protection for fish (both ESA-listed and unlisted) and a more holistic approach (survival standards).

EIS-Related Questions

Comment 45: Due to the substantial changes in the HCPs, a supplemental DEIS is needed to provide full environmental review, analysis, and alternatives to these HCP changes. 40 CFR §1502.9 provides that agencies shall prepare supplements to either draft or final environmental impacts statements if the agency makes substantial changes in the proposed action that are relevant to environmental concerns or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

Response 45: The HCPs were revised to respond to public comments on the DEIS. These comments primarily related to areas where insufficient definitions were identified, and interpretation was questionable based on representation. The HCPs were then revised to ensure clarity among all parties and issues involved, but did not fundamentally change the standards, goals, tools, or the alternative descriptions. A supplemental EIS was therefore not required.

Comment 46: Clearly, the approval of the HCPs is a major Federal action; therefore, the NEPA process must be completed before the HCPs are approved.

Response 46: This is a correct statement and the HCPs would be approved following the NEPA process and ROD for the project.

Comment 47: One of the substantial changes in the HCPs was changing the need to meet both the 95 percent dam passage survival and the 91 percent project passage survival standards, to requiring to meet only one of the standards, including a new standard of 93 percent juvenile project passage survival. The revised HCPs substitute 95 percent juvenile dam passage survival for the 93 percent project passage survival because the monitoring methods are likely to be inadequate to verify the original standards. These changes are likely to impact adult fish survival, because their survival rates cannot be adequately assessed with existing methods.

Response 47: The HCP signatory parties, recognizing the limitations associated with the best available technology, developed three surrogate standards for assessing the survival of juvenile fish. These are, in order of priority: (1) measured juvenile project survival (93 percent) (most protective of the juvenile standards), (2) measured dam passage survival (95 percent), and (3) calculated dam passage survival (least protective of the juvenile standards). The achievement of the HCP survival standards would be determined by averaging the estimates from 3 years of valid studies. Only the survival estimates for species that cannot be measured directly at this time (e.g., sockeye or subyearling chinook salmon) would be based on the lowest priority route-specific methodology or surrogate species (see Figure 2-4 of the FEIS). In addition, as technology advances allow, verification of survival rates measured against a higher priority standard would be required. Therefore, the standards are not interchangeable, but are used to assign phase determinations as a way of assessing progress toward reaching the HCP goals and to help determine the need for any additional studies or evaluations.

The HCP signatory parties recognize that current methodologies cannot differentiate between sources of adult mortality (included in the 91 percent combined adult and juvenile survival standard) within the project area. Known adult mortalities within a project boundary could be due to natural mortality (i.e., mortalities occur even in fairly pristine river systems without dams), or due to delayed or cumulative effects (e.g., catch and release angling, injuries sustained while escaping commercial or tribal fisheries, downstream Federal project impacts). Recognizing these difficulties, and based on regional information, the signatory parties agree that adult fish survival is estimated to be 98 to 100 percent at each project. Analysis conducted as part of the 2000 FCRPS biological opinion (NMFS 2000a) and the Rocky Reach biological opinion (NMFS 2002a) provide additional evidence that total mortality rates are likely no more than 2.4 percent for spring-run chinook salmon and 3.2 percent for steelhead. Taking into account natural mortality, which undoubtedly occurs, it is likely that the 2 percent adult mortality resulting from project-related effects is currently being attained, at least for the listed species for which estimates are available. It appears, based on the available information (including that obtained from surrogate species), that the other Plan Species are likely being affected at similarly low rates.

Comment 48: The revised HCPs reduce the leverage of the Fishery Parties to implement new tools. If adult mortality is greater than the assumed 2 percent per project, the HCPs will not adequately compensate for this shortfall.

Response 48: Not only do the revised HCPs establish specific survival standards, they also establish specific guidelines or criteria for selection of survival methodologies, data analysis, and interpretation of study results. As a result, there would be fewer disagreements over interpretation of study results and fewer delays in implementing additional tools. The HCPs also establish specific time frames for making decisions through a dispute resolution process, allowing decisions to be made in an efficient and timely manner. Thus, the revised HCPs should increase the leverage of the Fishery Parties to implement new tools because failure to meet the survival metrics will require that actions be taken.

The HCPs include the 91 percent combined adult and juvenile project survival standard, which includes adults. Therefore, as monitoring methods improve over time, the results would be used to further refine the estimates of adult mortality that would be included in measuring survival against the performance standards. Not achieving the performance standards for all Plan Species requires the PUDs to continue to implement new tools in an effort to meet the standards. If the performance standards cannot be met and the permit is revoked, the procedures for continuing to improve survival rates are described in the EIS.

The PUDs would select the methods for improving survival under Phase I, while the coordinating committees would select the methods under Phase II. After Phase I testing is complete, the coordinating committees are authorized to adjust the measures to increase survival for those Plan Species that received a Phase II (Interim or Additional Tools) designation. Should a Plan Species receive a Phase III (Provisional Review) designation, the PUDs would have a one-time 5-year period to implement additional measures or conduct additional survival studies to more accurately determine whether the pertinent survival standard is being achieved. These decisions would likely change over time, depending on subsequent evaluations and the development of new technologies for measuring survival standards. Not achieving the performance standards for all Plan Species requires the PUDs to continue to implement new tools in an effort to meet the standards.

Comment 49: The revised HCPs changed the combined juvenile and adult survival standard from 91 percent project survival over the entire run to only specify 95 percent coverage of the juvenile migration periods.

Response 49: The measurement of the no net impact standard is based on the entire run, although the juvenile protection measures implemented at the projects target 95 percent of the run. Compensation through hatchery and tributary funding measures is based upon calculations derived from the average adult returns effectively representing 100 percent of the runs. Thus, mitigation is provided for 100 percent of the migration periods, but the project operations concentrate on the middle 95 percent of the spring and summer migration periods and would not cover the extreme tails of the migration periods. Recognizing that some measures are costly per unit time, the signatory parties agreed that juvenile dam passage protective measures would encompass 95 percent of the migration as an objective that could be effectively managed. In actuality, because the spring and summer migrations overlap significantly, the juvenile spill programs would most often be a continuous operation between the spring and summer periods. This would, in most years, actually provide protection to more than 95 percent of the migrants.

Other measures to improve juvenile survival through the projects (Rocky Reach fish bypass system, predator control programs) are expected to cover an even higher proportion of the migrants. Implementing measures to cover 95 percent of the spring and summer migrations is consistent with the provisions of the biological opinions for the Wells, Rocky Reach, and Federal projects on the mainstem Columbia River (NMFS 2000a,b, 2002a). While the full suite of dam survival improvement measures would not cover all juveniles migrating throughout the year, these protection measures should translate into a substantial survival improvement for all Plan Species.

Comment 50: The issuance of revised HCPs does not satisfy NEPA requirements of responding to public comments. The HCPs do not indicate which comments are satisfied by the revisions in the HCPs. The decision-making processes and respective authorities and obligation of NMFS and the PUDs have changed as a result of the HCP revisions, which may significantly affect the analysis. In addition, the DEIS was developed under the assumption that all the HCP negotiating parties would sign the agreements. This is not the case, so additional NEPA review is required.

Response 50: The responses to comments received on the DEIS, shown in Appendix C of the FEIS, provide specific discussions concerning the changes to the HCPs and the rationale for the changes. In response to Tribal comments during the NEPA process, the revised 2002 HCPs deleted the language contained in the 1998 HCPs where NMFS or any other party bringing an action to enforce the HCPs had the burden of proof. The HCP dispute resolution process was revised, with the exception that disputes first be addressed at the technical level in the coordinating committees and then at a policy level in the policy committees prior to bringing forth any legal proceedings. The revised HCPs changed the approach used to make decisions under the HCPs. Decisions are subject to unanimous agreement by all signatory parties to each of the various committees; thus, each signatory party retains the authority to effectively veto any action or decision. If a resulting dispute cannot be resolved through technical and policy level meetings or voluntary, non-binding mediation, any party may exercise whatever right it may otherwise have under applicable law. Furthermore, NMFS has the discretion to enforce compliance with the HCPs and its permits. These changes were implemented to address

issues and comments raised during the NEPA scoping and EIS review process, and therefore do not require additional review.

During the NEPA scoping process and the development of the DEIS, it was clear that not all the HCP negotiating parties were likely to sign the agreements. This was identified in the DEIS, as well as some of the specific issues surrounding their unwillingness to sign. However, due to the changes made to the HCPs to address these issues, several of the negotiating parties that had previously indicated an unwillingness to sign the agreements have now agreed to sign the agreements.

Comment 51: NMFS' failure to analyze alternatives that provide greater protection to the listed species violates the ESA mandate to minimize and mitigate the taking of endangered and threatened species to the "maximum extent practicable." The established interpretation of "maximum extent practicable" requires NMFS to consider an alternative involving greater mitigation and show that this greater protection alternative is impracticable. In particular, the EIS does not include dam removal, drawdown, and non-power operations, especially since the HCPs fall short of ESA survival and recovery levels.

Response 51: The EIS assesses a broad range of potential measures for implementation at the projects to reduce anadromous salmonid species mortality, including the potential benefits and likelihood of implementing drawdown, dam removal, or other non-power operations (see FEIS Section 2.5, Alternatives Considered but Eliminated from Detailed Study). The primary differences between the EIS action alternatives are (1) the extent (proportion of juvenile migration covered) and level (percentage of total river flow) of the spill programs at each project, and (2) the enhancement of alternative passage routes (i.e., a 6,000 cfs sluiceway or juvenile collection and transport system at Chelan PUD's Rocky Reach Project). The EIS also addresses differences with respect to regulatory procedures, the length of time that might be required to implement alternative measures, and the likelihood of implementing the protective measures for listed and unlisted Plan Species.

Procedural differences are described in Section 2.6 (Alternative Comparison), in Tables 2-8 and 2-9, and in Chapter 4 of the FEIS. Table 2-8 compares procedural differences for complying with the ESA, while Table 2-9 illustrates the environmental differences that would occur from implementation of the alternatives, as well as the no action alternative. All alternatives were given equal weight, consideration, and review for selection of the preferred alternative.

The EIS evaluates alternative protective measures at the projects, including maximizing spill levels to achieve greater fish passage survival, while also meeting water quality parameters. It is recognized that full implementation of these measures is less likely for unlisted Plan Species and could be substantially delayed for all species through litigation or FERC's relicensing and rehearing processes. Under the HCPs, the measures would be implemented immediately and should improve the juvenile fish passage conditions for downstream migrating Plan and non-Plan species alike. Potential impacts to resident fish are not expected to be affected by HCP implementation, and consequently were not a significant factor in determining the preferred alternative.

The mitigation measures proposed at the dams are expected to be similar with or without the HCPs and to yield similar results for listed Plan Species. The HCPs are expected to provide more protection for unlisted Plan Species, compared to protection levels without the HCPs. The assessment of the alternatives in the FEIS also includes discussions concerning the implementation of drawdown, dam removal, and other non-power operations. These discussions identify the likely result of these operation changes, as well as the regulatory framework under which such changes could occur.

It would be inappropriate for the EIS to make a determination as to whether or not the proposed HCP would jeopardize the ESA-listed Plan Species. This is a question specifically reserved for formal consultation under the ESA. The ESA consultations on NMFS' issuance of the Permits to Douglas and Chelan PUD determined that this action would not jeopardize the continued existence of the ESA-listed species.

Comment 52: The DEIS does not adequately assess how anadromous fish and other trust resources would be impacted by the HCPs or the other alternatives. The QAR addresses Alternative 3 (HCPs) but not the other alternatives, so there is no adequate basis for comparing the survival and rebuilding benefits of the alternatives.

Response 52: Although the HCPs are not Tribal programs, the anadromous fish within the Columbia River are considered a traditional Tribal treaty resource. Implementation of the HCPs is intended to support a comprehensive strategy for protecting and recovering the five Plan Species that pass through the three dams (Wells, Rocky Reach, and Rock Island), thereby promoting a healthy ecosystem. The HCPs specifically recognize Federal obligations to protect Tribal treaty/trust resources, and state in the Miscellaneous sections (Section 12.11 of the HCPs) that "[n]othing in this agreement is intended to nor shall it in any way abridge, limit, diminish, abrogate, adjudicate, or resolve any Indian right reserved or protected in any treaty, executive order, statute or court decree. This Section shall be deemed to modify each and every Section of this Agreement as if it is set out separately in each Section." Additional protections are also described in HCP Sections 12.12 and 12.13.

NMFS and the Tribes engaged in discussions of these issues prior to issuance of the ROD and the final biological opinion on the HCPs. It is the intent of NMFS that the HCPs would aid in increasing the wild stock of anadromous fish over time, thereby allowing for an increased Tribal take of hatchery fish when the wild stocks reach minimum escapement levels necessary for recovery. The relationship between the HCPs and the Federal Government's Tribal treaty trust responsibilities is discussed in Section 4.13.17 of the FEIS, Legislation Pertinent to Tribal Governments.

There are a limited number of available measures that can be implemented at the Mid-Columbia River projects to enhance the survival of anadromous fish species. The availability of these measures is unlikely to be affected by implementing the HCPs. As described in the QAR, the actions associated with the HCPs are individual components in a series of recovery actions planned by NMFS to recover ESA-listed fish species. Although it is fully recognized that implementation of the HCPs alone is not expected to recover these fish, the QAR analyses indicated that even the removal of the dams would not result in the recovery of the species without additional measures. Strategies that might need to be implemented elsewhere in the basin to provide further survival improvements are independent of the HCPs, and therefore did not affect the decision to issue the ITPs.

Although the strategies implemented at the Mid-Columbia River projects are not expected to be different under the HCPs, the HCPs provide a framework for implementing the strategies in an efficient and effective manner. The conditional implementation strategy included in the HCPs was developed to ensure a speedy recovery relative to implementation schedules likely to occur without the HCPs (refer to Section 2.6.5 of the FEIS, Implementation Schedule), where lengthy legal proceedings may occur if FERC or the PUDs disagree with NMFS' decisions on the actions needed to ensure survival and recovery of listed species. The HCPs set specific time limits on decision-making procedures and restrict the abilities of all the signatory parties to seek legal remedies to outstanding issues that may impede decision-making progress and implementation of needed conservation measures to improve survival.

QAR

Comment 53: The HCP survival standards may not meet NMFS recovery and survival goals for the listed species. As indicated in the QAR, substantial additional survival improvements are needed. However, the HCPs do not allow for additional measures.

Response 53: Issuance of an ITP under Section 10 of the ESA requires NMFS to issue a biological opinion determining whether or not the proposed action is likely to jeopardize the continued existence of the listed species. The biological opinions for the Wells, Rocky Reach, and Rock Island hydroelectric projects determined that the HCPs would not jeopardize the continued existence of the listed species. Section 10 states that an ITP can be authorized if the activity would not "appreciably reduce the likelihood of the survival and

recovery of the species in the wild," and includes the development of a mitigation program that minimizes and mitigates take "to the maximum extent practicable." The biological opinions pertaining to NMFS' decision to issue permits to Douglas and Chelan PUDs for the HCPs concluded, in each case, that the proposed action would not "reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild" (50 CFR § 402.02).

In addition, the HCPs include adaptive management opportunities that take newly available information into consideration, including special attention to results of the required survival studies. The revised HCPs clarify how additional measures would be instituted should the results of these studies indicate that the pertinent survival metrics are not being attained.

Revisions to the FEIS discussing the potential shortfall of the HCP measures at reaching the necessary survival levels are found in Chapter 5 and Appendix E. However, the additional measures identified in the QAR consist of lower river survival improvements and a shift in recent climate/environmental conditions, neither of which is under the control or responsibility of the PUDs. The QAR also indicates that, even if the dams were removed, these additional survival improvements would also be needed. The shortfall is more of a system-wide concern than a Mid-Columbia River concern. The cumulative effects analysis (Chapter 5 of the FEIS) can only project reasonably foreseeable future actions, but cannot enforce those actions that are outside the project applicant's purview.

Comment 54: The QAR does not consider the merits of the survival standards on summer/fall-run chinook or sockeye.

Response 54: The QAR was prepared by NMFS to determine if the HCPs would avoid jeopardy to the listed species, but there was no intent to address unlisted species in the QAR. The PUDs voluntarily elected to include the unlisted anadromous salmonid species in the HCPs to provide additional protection to those species as well. Although the QAR does not specifically address summer/fall-run chinook and sockeye salmon, the HCPs establish the same survival goals for these unlisted species as the listed species. This approach is expected to minimize the risk of the unlisted species needing ESA protection in the future. The unlisted species are subject to the same factors that affect spring-run chinook salmon and steelhead, although to varying degrees. In addition, many of these factors are outside the immediate control or influence of the Mid-Columbia River projects (e.g., climate/environmental factors). These other factors are expected to be substantial, in light of the QAR results that indicate that even removing the dams would not, in and of itself, result in the recovery of the listed species. Therefore, any differences in the benefits attributable to the HCPs between the listed and unlisted species are not expected to be substantial when considering the entire life history of these populations.

Comment 55: The QAR analysis is unrealistic because it: (1) uses the most liberal recruit/spawner data (1960-present), (2) assumes too low of an adult passage mortality rate, (3) does not meet the Tribal goal of harvestable surplus, (4) defines extinction as one fish instead of a viable population of several hundred fish, (5) assumes the Federal system will meet performance goals, and (6) assumes that the no net impact standard will be met immediately. The QAR also assumes that the performance standards in the HCPs would also occur at the Grant PUD projects (Priest Rapids and Wanapum dams), and does not assess the proposed hatchery production program. For these reasons, NMFS should refrain from relying on the QAR results.

Response 55: NMFS is well aware of the assumptions and limitations of the QAR model – especially those relating to defining extinction and when performance standards are assumed to be met. Any model, including the QAR necessarily includes several constraints and assumptions. No model can assess every possibility or eventuality. The QAR was specifically designed to provide decision makers with current assessments of the status (population trend, risk of extinction, etc.) of naturally produced ESA-listed spring-run chinook salmon and steelhead runs returning to the Wenatchee, Entiat, and Methow river systems. The QAR was a retrospective analysis specifically designed to estimate (1) current extinction risks, (2) survival changes needed to meet alternative risk and recovery criteria, (3) sensitivity of population growth rate to survival changes in different life-history phases, and (4) potential survival changes for the naturally produced populations resulting from

achieving the HCP survival standards at each of the Mid-Columbia PUD-owned projects and actions taken at the Federal hydroelectric projects to improve survival. As described in the QAR, the actions associated with the HCPs are a single component of a series of recovery actions needed to recover listed fish species, and are not expected (or required) to solely recover these fish populations.

With respect to the recruit/spawner data, the QAR analyzed Upper Columbia River spring-run chinook salmon and steelhead data from three periods: 1960 to 1994, 1970 to 1994, and 1980 to 1994. Because the shortest (and most recent) time series (1980 to 1994) results in the most pessimistic population trends, NMFS focused on this data series as the most conservative estimate of survival improvements needed to meet extinction risk and recovery metrics. The longer time series (1960 to 1994 and 1970 to 1994) require less survival improvement to meet these same metrics.

There is presently no available technology that can differentiate hydro-related mortality from natural adult losses, which are known to occur in even the most pristine river systems. Recognizing these difficulties, and based on regional information, the signatory parties agreed that project-related adult fish mortality is likely 0 to 2 percent at each project.

Harvestable populations cannot be defined adequately for the purpose of conducting a quantitative analysis. Some might argue that, because some level of treaty and non-treaty harvest is currently allowed (varying by year, location, and adult return estimates) even while many populations in the Columbia River Basin are listed, the populations are currently harvestable. Others might argue that harvestable populations are best defined by population levels equal to historic (pre-European) levels. The QAR established interim recovery goals for the listed species and determined the probability of achieving these goals with the HCP performance standards. These recovery goals included current harvest levels. While this is important information, for the purposes of the Section 7(a)(2) analysis, however, NMFS cannot determine whether the action will jeopardize listed stocks by projecting recovery requirements, because such an analysis would include speculative future actions contrary to the requirements of the Consultation Regulations, 50 CFR Part 402.

Due to long-term uncertainty associated with the effectiveness of hatchery supplementation, the QAR analyses did not incorporate continued supplementation as envisioned under the proposed HCPs. Under NMFS guidelines, hatchery production is not included in the assessment of long-term sustainability of a stock. However, for Upper Columbia River steelhead, the QAR did assess the relative risks of extinction under alternative assumptions regarding the effectiveness of hatchery origin fish spawning naturally. NMFS acknowledges that, in some instances, hatchery supplementation can play a separate and important role in addressing particular ESA-listed stock recovery issues. Other HCP actions (such as dam passage survival and tributary habitat enhancements) were also considered in the QAR analysis.

When conducting formal ESA Section 7(a)(2) consultation on the issuance of the permits, NMFS was required to analyze the effects of past and ongoing human and natural factors leading to the current status of the listed species, its habitat, and ecosystem within the action area. In this process, NMFS determined that the proposed action would not jeopardize the continued existence of the listed species. Jeopardy is defined as, "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR Part 402.02 – Definitions). NMFS did not utilize the QAR for making this determination, but did contemplate (when available), updated life-cycle summary statistics (including 2001 adult returns) to describe the range-wide status of the Permit Species.

Larger Project Area

Comment 56: The project area should include the upstream and downstream Columbia River dams to fully assess the cumulative effects on the species, including the effects of increased total dissolved gas resulting from upstream spill programs. Providing dam or project passage survival standards does not address the needs of fish located downstream of the project area. For example, flow augmentation for Plan Species spawning in the Hanford Reach could be affected by the operations of upstream projects. This could happen if an upstream project that is exceeding the survival standards cuts back on spill to the point that survival standards are being met but not exceeded.

Response 56: The stated intent of the HCPs is to achieve the no net impact standard no later than 2013, with the exception that measures implemented under the Tributary Conservation Plan would not be directly monitored to quantify the specific survival benefit of each implemented measure. The pertinent HCP definitions clearly note that the survival standards are intended to measure project effects "including direct, indirect, and delayed mortality wherever it may occur and can be measured (as it relates to the projects) given the available mark-recapture technology." Actions implemented under the HCPs can be implemented independently of actions that occur at other Columbia River dams, hatcheries, or tributary areas. However, the overall survival and recovery of the species is affected by all of the projects, and these effects would be considered by the coordinating committees when determining the measures to be implemented at any one of the projects covered by the HCPs.

Upstream and downstream dams are considered in the cumulative effects assessment in Chapter 5 of the FEIS, which includes total dissolved gas impacts. The PUDs have no control over the operation of upstream Federal projects, but are required to meet water quality standards at their own projects despite the influence of upstream projects on water quality parameters. All three HCPs require the signatory parties to work together in addressing water quality issues. Chelan and Douglas PUDs are also working directly with Ecology to resolve water quality issues.

The HCP signatory parties recognize that total dissolved gas supersaturation is a cumulative effect of hydropower operations in the Columbia River and are committed to addressing these issues (see Section 5.3 of the Wells Anadromous Fish Agreement and Section 6.3 of the Rocky Reach and Rock Island agreements). The PUDs and/or the coordinating committees would consider these restrictions when determining the appropriate measures for meeting the fish survival performance standards. Any impacts to fish survival related to exceeding water quality or quantity parameters would affect the ability to meet the total project passage survival standards set in the HCPs. In addition, any impacts to fish survival at downstream hydroelectric projects (for example, spill reductions at Wanapum Dam forced by the increased forebay total dissolved gas levels resulting from efforts to meet survival standards at the Douglas or Chelan PUD projects) would be similarly considered.

Nothing in the HCP agreements is intended to affect the protection of Plan Species in the Hanford Reach or the Vernita Bar Agreement, as it exists now or may be modified in the future (Section 9.12 of the Wells and Section 9.9 of the Rocky Reach and Rock Island HCPs).

Representative Survival Studies

Comment 57: Although the committees will decide on the representative species to be used in Phase III to verify continued compliance with the no net impact standard, it is unlikely to be the species with the poorest survival rates (e.g., subyearling chinook salmon). The survival assessment methodology also fails to integrate representative water years that include both high- and low-flow years, which is when passage survival should be measured.

Response 57: The HCPs clearly indicate that survival evaluations are required for each Plan Species. The HCPs also specify that the coordinating committees are responsible for: (1) determining the most appropriate standard to be measured for each Plan Species, (2) approving studies prior to implementation, (3) establishing the protocol(s) and methodologies to determine whether or not the survival standards are being achieved, and (4) determining whether or not the no net impact standard is being achieved (see Section 6.7 of the Wells HCP, and Section 4.7 of the Rocky Reach and Rock Island HCPs).

Other clarifications made in the revised HCPs pertaining to the performance standards include explicit criteria (and flexibility around those criteria) for coordinating committee determinations regarding whether or not a study is valid. The revised HCPs specify the methodologies by which the survival standards will be measured. The HCP signatory parties have agreed that point estimates of survival measurements from 3 years of valid studies will be averaged (arithmetic mean), and that this average would be used to compare against the pertinent survival standard. A valid study is one in which the study design, implementation, and criteria are determined to be acceptable by the appropriate coordinating committee, and one which occurs during representative flow conditions and normal project operating conditions consistent with the approved study design (see Section 5.2.3 of the Rocky Reach and Rock Island HCPs and Section 4.1.4 of the Wells HCP).

The HCPs now explicitly state that the no net impact standard will be met no later than 2013 and that representative species – one species to represent spring migrants and another to represent summer migrants (e.g., Section 4.2.5.1 of the Wells HCP) -- would be chosen by the coordinating committees for additional survival studies in each 10-year period thereafter to ensure that the no net impact standard continues to be met. In the event that the standards are not being met and the PUDs fail to implement agreed-upon measures to achieve or maintain the no net impact standard, or if the Plan Species populations are not rebuilding, NMFS may revoke the permit to seek actions to recover the species (see Section 2.2.1.2 of the Wells HCP and Section 2.1.2 of the Rocky Reach and Rock Island HCPs). However, it might not be possible to conduct project survival studies for some species due to the limited number of fish available for the studies and their body size relative to the tagging method required. In these cases, verification would likely be through studies with representative species. For such evaluations, species with relatively good survival rates would not be considered representative of species with expected poor survival rates.

Some methods would provide adequate data for certain species or life stages, but may not be as well suited for other species for a variety of reasons (see Supporting Document D of the Rocky Reach and Rock Island HCPs and Supporting Document C of the Wells HCP). However, decisions must be made based on the best available scientific data. The methods currently being used to assess project impacts are the best available methods, although they might not provide conclusive results for all species, life stages, or potential project impacts. The survival studies conducted at the PUD projects under the HCPs would include the best available techniques and protocols as agreed to by the HCP coordinating committees.

Under the revised agreements, Phase III (Standards Achieved) can only be designated for a Plan Species if studies conducted in accordance with the approved methodologies and criteria (see above) indicate that either the 91 percent combined adult and juvenile survival standard or the surrogate standard of 93 percent juvenile project survival is being achieved at the project for that species. The signatory parties recognize that for some species (such as sockeye and subyearling chinook salmon) for which measurement of juvenile dam passage survival and juvenile project survival is not yet possible, the juvenile dam passage survival standard would be calculated based on the best available information (including route-specific passage rate and mortality estimates) as determined by the coordinating committees. Unlike the measured standards, however, the calculated standard might use off-site information where site-specific information is lacking.

If, at any time during Phase III (Additional Juvenile Studies), the appropriate coordinating committee approves the use of new survival methodologies (to measure a higher-priority survival standard according to the Decision Matrix), the PUD would have 5 years to conduct the appropriate evaluations. Based on the results of these studies, the appropriate coordinating committee would reevaluate the phase determination for the pertinent species. If the coordinating committee agrees (based on the results of these studies) that the applicable standard is met, Phase III (Additional Juvenile Studies or Standard Achieved) status would remain.

If the applicable standard is not being met, a Phase II determination would be made and the coordinating committee would determine what additional tools would be implemented to achieve the applicable survival standard.

Adults

Comment 58: The HCPs are inconsistent with the 2000 FCRPS biological opinion, which requires Federal projects to improve adult survival by 0.5 percent per project in 10 years. The HCPs do not provide an adult survival improvement goal, even for the full 50-year term of the HCPs. To establish a holistic, basin-wide recovery plan, measurable standards must be consistent throughout the basin, and quantified with respect to life cycle metrics such as spawner-to-spawner replacement rates and population growth. The assumed 2 percent adult mortality is on the low end of the range indicated for the Federal hydrosystem (2 to 4 percent), and there are no specific adult standards included in the HCPs. In addition, the HCPs acknowledge that there are currently no methods capable of measuring adult losses associated with the projects, and as a result, there is no mechanism to ensure that the PUDs evaluate and implement operational or structural fixes that could benefit adult fish. The burden for proving that there is an adult passage problem at the projects is on the fishery parties. The effects of power peaking, identified by the FCRPS biological opinion as a significant problem, is not addressed in the HCPs.

Response 58: The adult passage plans are similar to those required at downstream Federal projects on the Columbia River. The passage times at the projects covered by the HCPs are within the ranges of those observed at other mainstem hydroelectric projects on the Columbia and Snake Rivers. At other mainstem projects, NMFS has determined that, while delays may occur in passing mainstem projects, adults likely migrate faster in the pools than they did in the free-flowing river (NMFS 2000a). Because these project effects tend to offset each other, the potential effects of project passage delays are likely small (see Response to Comment 55).

The difficulties of interpreting tagging results for adult fish are the primary reason that specific performance standards have not been identified in the HCPs for adult passage. There are a number of reasons for fish to delay passing a project that are not related to passage conditions. For example, fish may mistakenly migrate past their natal tributary stream or hatchery, and as a result, might be more reluctant to pass a project than those that are destined for upstream spawning areas or hatcheries. Passage delays might also be affected by life-history characteristics, fish maturation, physical conditions related to the entire migration area, or the tagging and handling process. The estimates of delay provided in the FEIS were included to indicate overall fishway passage conditions and reflect median passage times**.** Note that there are little or no data that accurately estimate the effects of passage delays on spawning success.

The HCPs require the PUDs to use their best efforts to operate and maintain the adult fishways in accordance with approved Detailed Fishway Operation Plan criteria (or equivalently protective criteria in the case of Wells Dam), and any subsequent revisions to these criteria, which are a component of the provisions in existing settlement agreements and project licenses. However, until accurate estimates of impacts to adult fish can be quantified and related to specific project operations, there is no basis for altering the current ladder operating criteria for adult fishway operations at the projects. These criteria are expected to be requirements of the FERC licenses for the three PUD projects.

In addition to meeting the various adult fishladder operating criteria, the HCPs also have the 91 percent combined adult and juvenile project survival standard, which includes adults. Therefore, as monitoring methods improve over time, the results would be used to further refine the estimates of adult mortality that would be included in measuring survival against this performance standard. Not achieving the performance standards for all Plan Species requires the PUDs to continue to implement tools in an effort to meet the standards. The HCP coordinating committees are responsible for determining if changes are needed to the adult fish passage facilities, similar to the responsibilities of the coordinating committees established through the Mid-Columbia Proceedings.

The FCRPS biological opinion (NMFS 2000a) concluded that, although power peaking can affect spawning adults, egg incubation, and fry rearing stages, power NMFS judges that peaking alone does not have a significant adverse effect on migrating salmon. There are no specific adult survival goals set in the HCPs because NMFS and the other signatory parties agree that the current state of the monitoring technology is incapable of accurately assessing adult survival (see Response to Comment 47).

Miscellaneous Comments

Comment 59: The agencies have expedited the HCP negotiations as a result of political pressure and have provided the PUDs greater authority or influence on the decisions of the committees, compared to existing committees.

Response 59: The HCP process has not been unduly expedited. In fact, the HCP negotiations and permitting processes have been ongoing for about 10 years. The initial discussions over the development of a Mid-Columbia Conservation Program were to establish an ecosystem-based plan to manage fish and wildlife that inhabit the Mid-Columbia River Basin and its tributaries. In late 1994, this ecosystem approach was abandoned as overly broad in scope, in favor of the HCP approach focusing on aquatic species that inhabit the Mid-Columbia River Basin. In 1996, the approach was further narrowed to focus on the anadromous salmonids in the basin. Since 1996, this has been an ongoing process that has included numerous negotiations with the interested parties. The purpose of the HCPs is to develop a comprehensive long-term framework within which the management of anadromous salmonid species is conducted in a cooperative manner, thereby minimizing disputes and legal proceedings to effect the protection of anadromous salmonids in an efficient and effective manner, as well as to manage the Mid-Columbia River region as a whole rather than on an issue by issue basis.

Comment 60: The HCPs and the EIS fail to address the Tribal water rights to have water spilled at the projects rather than run through the turbines.

Response 60: Nothing in the HCP affects any water right of any entity. If the Tribes do hold a right to have the water spilled rather then run through the turbines, nothing in the HCPs would prevent the assertion or exercise of such right. To the extent that the HCPs specify spill levels, the levels are minimums and could be increased. In any event, the PUDs' obligation to achieve the survival standards would exist regardless of whether they were required to increase spill to meet a tribal water right to spill water should such a right exist.

Comment 61: The HCPs should specify that all draft reports should be provided to the committee by December 1 of the study year to allow adequate time for review and planning for the following year.

Response 61: Although the HCPs establish the overall structural guidelines for the committees, flexibility is provided to allow specific protocols surrounding committee operations to be altered by the respective committees. The committees are expected to operate in a similar manner as the existing committees established through the Mid-Columbia Proceedings. As such, most reports would likely be provided, at least in draft form, by December. In addition, the dates specified in the HCPs for final reports and comment periods would require draft reports by about January. Furthermore, the HCP committees (within the bounds of their authorities) are able to adjust reporting deadlines throughout the term of the agreement based on past experience.

Comment 62: Spill should be adjusted based on actual instantaneous flow, as opposed to the daily estimated flow.

Response 62: The HCPs specify that spill would initially be set with the daily estimated flow, and would be adjusted in real time based on actual flow rates. This is similar to existing protocols for providing spill at the Mid-Columbia River projects. The HCP Coordinating Committees will ensure that the agreed upon spill rates are met each season.

Comment 63: The 3-year survival evaluations should be conducted during representative flow conditions, including low-, medium-, and high-flow years using the historical record. Eliminating the high and low 10 percent exceedance flows biases the results.

Response 63: The HCPs allow the coordinating committees to expand the flow range to include up to the 5 percent exceedance flows. However, eliminating study results from extreme flow years best represents the conditions that determine the long-term influences on the populations, rather than biasing the results. These flows encompass the range of conditions that affect the population in most years, while artificially including a high- and low-flow year could bias the results to a greater extent because these non-representative flows are infrequently occurring conditions. In addition, extreme stream flow conditions affect a number of factors that are independent of fish passage conditions at the projects, but could influence the results of survival studies. For example, low-flow conditions could result in higher water temperatures, both in the mainstem and in tributary rearing areas. Low flows also result in reduced rearing habitat, thereby affecting competition for food and space, and potentially increase the predator-prey encounter rates. All of these factors affect the physical condition of migrating fish, as well as the environmental conditions that affect long-term survival, but are not necessarily reflective of the fish passage conditions at the projects.

Survival studies of the magnitude called for by the HCPs require months of planning and hundreds of thousands of dollars in investment. Assuring that sufficient numbers of test fish are available from designated hatcheries requires planning often in excess of one year. While ideally, studies could be conducted during the conditions noted in the comment, practically, the effect of this proposal could be to delay the completion of studies and the resultant phase determinations for many years.

Comment 64: It is unclear about the procedural context of this public notice and comment process, and how these comments relate to past or future comment opportunities. Is this mandated by NEPA or ESA? How do these comments relate to FERC relicensing?

Response 64: Comments to the Revised HCPs, as noticed in the Federal Register (67 Federal Register 42755) on June 25, 2002 were considered both in preparation of the FEIS and the ROD. The comment period was from June 25, 2002 through July 29, 2002. Comments on the FEIS, which was noticed on December 27, 2002 (67 Federal Register 79082), were accepted through February 10, 2002. Any comments received on the FEIS were reviewed and considered by NMFS during preparation of the ROD. The HCPs are a necessary component of an ITP that would be obtained under Section 10 of the ESA, whereas the associated NEPA analysis for an HCP is also a necessary evaluation prior to NMFS authorizing a proposed HCP action. If requested by the PUDs and approved by FERC, the HCPs would be added to the existing licenses by amendment. The HCP measures would then likely supercede any existing FERC settlement agreements on the three projects pertinent to the Plan Species. The parties that sign the HCPs can also propose that FERC include the HCP provisions in any new license issued during the 50-year term of the Permits.