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Rich Turner
NMFS Salmon Management Division
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232
By email: SandyHatcheries.nwr@noaa.gov

RE: Comments on the Sandy Hatchery Draft EA and HGMPs

Dear Mr. Turner:

Pacific Rivers Council (PRC) appreciates the opportunity to comment on the Draft Environmental Assessment (EA) prepared by the National Marine Fisheries Service (NMFS) regarding the Sandy Hatchery and the associated Oregon Department of Fish and Wildlife (ODFW) Hatchery and Genetic Management Plans (HGMPs) submitted pursuant to the Endangered Species Act (ESA). The HGMPs describe the proposed operations of four hatchery programs for rearing and releasing salmon and steelhead in the Sandy River subbasin for the purposes of providing recreational and commercial fishing opportunities.

PRC's mission is to protect and restore rivers, their watersheds and the native species that depend on them. Our comments on the EA and HGMPs focus on the implications of the proposed supplemental commercial and recreational hatchery programs on the recovery of ESA-listed wild salmon and steelhead. PRC strongly recommends against recreational and commercial fisheries management actions that interfere with or divert resources from the conservation and recovery of threatened and endangered species.

I. Introduction.

PRC finds the EA inadequate in the accuracy and rigor of its description, analyses, and conclusions. To be frank, we are profoundly disappointed that NMFS would circulate this document, which reflects neither the agency's expertise and understanding of the potential effects of hatcheries on wild stocks, nor its investment in the recovery of listed wild salmon and steelhead. Should NMFS elect to approve these HGMPs in some form, a thorough Environmental Impact Statement that analyzes the significant effects on ESA-listed stocks of salmon and steelhead that result from operation of the Sandy Hatchery must precede such approval.

While activities conducted under an approved HGMP are exempt from the take prohibitions of the 4(d) rule, it is unclear how the proposed activities comply with other requirements of the ESA. The HGMPs "propose" activities that have been

117 SW Alder Street
Suite 900
Portland, OR 97204
Tel: 503.228.3555

ongoing, and have caused take of listed wild salmon and steelhead for several years. The HGMPs and EA are silent on whether or how NMFS has provided take authorization for these ongoing activities. ODFW and NMFS should cease activities that result in the unauthorized take of listed species. The failure of the Sandy Hatchery programs to obtain take authorization implies an absence of a meaningful commitment to the recovery of listed wild salmon and steelhead, which underlies our principal concerns about approval of the HGMPs.

It is unclear how NMFS can ensure that its participation in the Sandy Hatchery programs complies with the ESA's requirement that federal actions not jeopardize the existence of listed species or result in adverse modification of critical habitat for listed species.[1] Operations proposed in the HGMPs will occur within and adversely modify critical habitat for Lower Columbia River Chinook and steelhead through the introduction of migration barriers and de-watering of Cedar Creek. (NMFS has not yet designated critical habitat for Lower Columbia River coho.) Operations proposed may affect the rearing and migration corridor elements of critical habitat for these Evolutionarily Significant Units (ESUs) as well as Upper Willamette River Chinook, Columbia River chum, Upper Columbia River spring-run Chinook, Upper Columbia River steelhead, Snake River steelhead, Middle Columbia River steelhead, and Upper Willamette River steelhead through the release of large numbers of hatchery fish, which no matter how deftly timed, will prey on listed wild salmon and steelhead and compete with them for food and habitat. The HGMPs should not be approved, nor should the Sandy Hatchery continue to be operated, absent conclusion of a Section 7 consultation that demonstrates the hatchery programs will not jeopardize the existence of listed species or adversely modify the critical habitat of listed species.

Among our principal concerns with the HGMPs are the effects on wild salmon and steelhead posed by hatchery produced fish that stray into natural spawning habitats. Strays present the combined impacts of habitat competition between wild fish and hatchery fish and reduction of genetic fitness of wild fish. To date, the hatchery has not effectively controlled straying of hatchery fish and the measures proposed in the HGMPs are insufficient to ensure that stray rates will be effectively controlled.

II. Endangered Species Act compliance.

A. The HGMPs threaten the survival and recovery of listed salmon and steelhead.

Operations proposed in the HGMPs would likely result in take[2] of listed native salmon and steelhead, including Lower Columbia River Chinook, Lower Columbia River coho, Columbia River chum, and Lower Columbia River steelhead. Take may occur during or as a result of capture, handling, and relocation of fish at collections weirs and the fish trap at Sandy Hatchery, the diversion of water from Cedar Creek, entrainment at the water diversion intake, broodstock collection of spring Chinook and winter steelhead, effluent discharge, outbreeding, introduction or amplification of pathogens, competition and predation by hatchery fish, monitoring, and other

[1] 16 U.S.C. § 1536.

[2] Under the ESA, take means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19).

actions proposed under the HGMPs. The 4(d) rule promulgated by NMFS relevant to listed salmon and steelhead prohibits take unless it complies with the provisions of the rule. ODFW intends for the HGMPs to comply with Limit 5 of the 4(d) rule, which exempts activities conducted pursuant to an approved HGMP from the take prohibition.

PRC urges NMFS not to approve the HGMPs as proposed. We believe that the hatchery programs described in the HGMPs interfere with, delay, and will likely prevent the recovery of listed wild salmon and steelhead in the Sandy River and in the Lower Columbia River. The HGMPs as written pose a number of serious threats to listed wild salmon and steelhead, including direct and indirect take, genetic and ecological effects, and degradation of habitat. The HGMPs expressly intend only to support commercial and recreational catch of artificially propagated fish. Viewed in the best possible light, the HGMPs purport only to minimize the significant risks they pose to listed wild salmon and steelhead. A closer reading reveals the HGMPs reflect a poor understanding of those risks and a weak commitment to resolving them. The measures included in the HGMPs to mitigate risks are variously of highly questionable efficacy, non-committal, and difficult to verify. Overall, the HGMPs presume that the mitigation measures will be successful and allow current levels of hatchery production to continue. Both the ESA and fundamental precepts of adaptive management require a far more precautionary approach that does not place the risk that the mitigation will fail solely on the listed species. In short, we urge NMFS to reject the HGMPs because they merely propose to continue the current operations of the Sandy hatchery without demonstrating that the effects to wild salmon and steelhead can or will be mitigated.

In light of the current condition and prognosis for wild salmon and steelhead in the Lower Columbia River basin, we believe the principal goal of federal fisheries management should be to take positive actions to recover listed wild salmon and steelhead. The HGMPs merely attempt to lessen – but not eliminate – the substantial adverse effects of an unnecessary and counter-productive artificial propagation program. The agency's emphasis should be on affirmative actions to ameliorate decline and foster recovery of listed stocks, not on finding ways to allow a hatchery program to continue with less damage. Viewed through this lens, the question the agency must ask in approving these HGMPs is whether they can effectively eliminate the risks, not whether they can just reduce them to anything below current levels.

To reiterate, the HGMPs present substantial risks of take and harm to listed wild salmon and steelhead, including the following:

- Reduced fitness resulting from inter-breeding with adult hatchery-produced fish that spawn in natural habitat
- Competition for food and habitat during out-migration
- Predation of larger hatchery smolts on smaller wild fish
- Migration barriers presented by collection facilities and de-watering of Cedar Creek
- Direct injury and mortality from capture and handling during broodstock collection activities
- Injury and mortality from stranding due to diversion from Cedar Creek
- Injury and mortality resulting from impingement on non-compliant diversion intake screens

The HGMPs' descriptions of their potential to take listed salmon and steelhead are inconsistent and incomplete. While the coho and steelhead HGMPs state that direct take may occur during trapping and handling of fish at traps and broodstock collection facilities, the spring Chinook HGMP – which contemplates similar use of fish traps and handling – erroneously states that no activities will result in direct take.

The HGMPs also fail to fully identify the direct and indirect take of listed salmon and steelhead which may result from improperly screened intakes, de-watering of habitat from the hatchery intake, effluent discharge, introduction of pathogens, bycatch from sport and commercial harvest, competition and predation of hatchery fish on wild salmon and steelhead, and passage barriers posed by HGMP actions (such as installation of collection weirs and de-watering of habitat). The HGMP assessments of ecological interactions fail to consider effects that may be manifested in the migration corridor, the estuary, and the ocean.[3] The assessments also fail to fully analyze the factors of within-basin freshwater interactions such as residence time, habitat segregation, carrying capacity, residualization rate, habitat complexity, number released, size of hatchery fish and size of wild fish, and piscivory rate.[4] The HGMPs fail to analyze interspecific interactions. The HGMPs fail to identify the specific pathogens that could be introduced or accelerated by proposed operations and fail to reasonably assess the risk and magnitude of potential effects on the natural populations.

The HGMPs fail to account for and minimize the effects on natural populations caused by straying of hatchery fish. The spring Chinook HGMP reports that the estimated proportion of hatchery spring Chinook in the natural spawning areas above the Marmot Dam site exceeded 10% in all years except 2007. In many years the stray rate exceeded 70% and it approached 80% in 2010. The coho HGMP reports stray rates of hatchery coho as high as 24.3%. As discussed below, the HGMPs' performance indicators associated with hatchery strays are incomplete, vague, of uncertain feasibility, and inadequate to demonstrate fulfillment of performance objectives.

While the HGMPs variously describe the use of acclimation procedures, collection facilities, and release timing, location, and condition, to help mitigate the adverse impacts caused by high stray rates, the available data shows that the hatchery has been ineffective at preventing hatchery spring Chinook and coho salmon from spawning in natural spawning habitat above and below Sandy Hatchery. The EA's analyses of proposed alternatives demonstrate that ODFW has not yet obtained sufficient information to evaluate risk to natural populations and the HGMPs improperly subordinate concerns about adverse impacts to natural populations to their recreational and commercial goals.

In the event of flooding or water system failure at the Sandy Hatchery, smolts would be released directly into Cedar Creek. Such a response would deprive the natural populations the purported protection afforded by the acclimatization of hatchery smolts. It is reasonable to expect that hatchery fish so released would be less likely to return to the hatchery and more likely to return

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[3] *See* Fig. 1, Pearsons and Busack, PCD Risk 1: A tool for assessing and reducing ecological risks of hatchery operations in freshwater. Envtl. Biol. Fish. 94:45, 65 (2012).

[4] *See* Pearsons and Busack, *supra* note 1.

to spawn in natural spawning habitat. The HGMPs must include emergency measures that minimize adverse effects on the natural population.

B. The HGMPs fail to satisfy approval criteria.

As specified in the 4(d) rule for salmon and steelhead, NMFS may approve an HGMP only if it meets specific criteria.[5] These HGMPs fail to fully satisfy these criteria because they lack performance indicators that meaningfully support program objectives, propose prohibited use of broodstock collected from listed species, fail to evaluate and minimize effects on natural populations, fail to include adequate monitoring and evaluation of risks posed to wild populations of listed salmon and steelhead, and fail to specify meaningful adaptive management measures.

An HGMP must have clearly stated goals, performance objectives, and performance indicators. The goals of the HGMPs are clearly directed only at harvest augmentation for sport and commercial fisheries. Other than purportedly minimizing the risk factors posed by Sandy Hatchery operations intended to support their augmentation goal, the HGMPs do not address – and are not intended to address – any factors contributing to the decline of or aid in the recovery of listed salmon and steelhead. In order to be approved, an HGMP must be "designed to provide as many benefits and as few biological risks *as possible* for the listed species."[6] The HGMPs identify no benefits to the listed species other than measures attempting to minimize the adverse effects posed by the HGMPs themselves. The measures identified to address the effects of adverse ecological and genetic effects on natural populations are insufficient.

The spring Chinook and winter steelhead HGMPs contain no objective to benefit listed wild salmon and steelhead. The coho and summer steelhead HGMPs identify "contribut[ion] toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish" as a primary objective.[7] This objective is disingenuous: the HGMPs include no activities to benefit wild salmon and steelhead other than to minimize adverse effects from Sandy Hatchery operations. In light of the current condition of listed wild salmon and steelhead in the Lower Columbia River Basin, no HGMP should be approved which does not aim to avoid any and all deleterious effects on listed species as its principal objective.

C. Performance indicators.

Many of the performance indicators identified in the HGMPs are not sufficiently clear to provide, as required, a basis to assess the HGMPs' success or failure in meeting performance objectives. Rather, they are vague, lack binding commitments, do not identify assessment methods or standards, are of uncertain feasibility, or are inadequate to demonstrate fulfillment of performance objectives. The measures specified to address straying of hatchery fish illustrate these failures.

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[5] 50 C.F.R. § 223.203(b)(5)(i).
[6] 50 C.F.R. § 223.203(b)(5)(i)(F) (emphasis added).
[7] Final HGMP, Sandy River Coho Program, p. 5, Oregon Department of Fish and Wildlife; Final HGMP, Sandy River Summer Steelhead Program, p. 6, Oregon Department of Fish and Wildlife.

1. Spring Chinook HGMP.

The spring Chinook HMGP identifies a performance indicator to reduce hatchery Chinook straying in the Upper Sandy River Basin through construction of off-station acclimation ponds, use of collection weirs/traps, acclimation procedures, and other stray reduction measures, but adopts no performance targets that those measures must meet (*e.g.*, percentage of adults in natural spawning grounds comprised of hatchery fish). No measures are proposed to address hatchery fish spawning in natural habitat below downstream of collection sites.

Moreover, while the HGMP describes annual spawning surveys that have been and presently are conducted, there is no commitment to continue those monitoring efforts. There is no attempt to analyze how or whether any of the proposed stray reduction measures will actually achieve the de minimus stray rates necessary to comply with the ESA.

2. Winter steelhead HGMP.

The winter steelhead HGMP identifies a performance indicator that the number of hatchery winter steelhead spawning in the natural spawning habitat of winter steelhead in the Sandy Basin shall remain below 10%. The HGMP states that spawning surveys will be conducted throughout the basin to "confirm [the] stray rate."[8] The HGMP discusses alternative reforms to implement if stray rates exceed 10%, but commits to none. The HGMP reports that spawning surveys in the Upper Sandy Basin were not performed in 2008 and 2009, and reports the percentage of hatchery steelhead at 2.6% in 2010.

3. Summer steelhead HGMP.

The summer steelhead HGMP identifies a performance indicator to minimize the number of hatchery summer steelhead adults that stray throughout the basin. The HGMP states that annual ground surveys to assess the number of hatchery fish spawning above the Marmot Dam site will be conducted. Although summer steelhead are not considered indigenous to the Sandy River Basin and the stocks proposed for planting are from out-of-basin, the HGMP does not distinguish summer steelhead from winter steelhead in its consideration of stray rates: the HGMP reports the same data on hatchery escapement figures presented in the winter steelhead HGMP. Again, as in other HGMPs, this HGMP discusses alternative reforms to implement if stray rates "cannot be minimized" (although no escapement threshold is established), but makes no commitments. The HGMP also identifies as an indicator that prior to removal of Marmot Dam, all fish without fin clips were passed above the dam. It is unclear how events that occurred in the past can serve as effective indicators of future program performance.

Each of the HGMPs' performance indicators with respect to hatchery escapement to natural spawning habitat are deeply flawed and reflect an overall insufficient consideration of conservation and recovery of listed salmon and steelhead. At a minimum, performance indicators for hatchery escapement must account for all effects to listed salmon and steelhead (including interspecific interactions), set appropriate risk thresholds, commit to ongoing monitoring of

[8] Final HGMP, p. 11, Sandy River Winter Steelhead Program, Oregon Department of Fish and Wildlife.

indicators as a program requirement, identify specific contingency actions to implement in the event that thresholds are exceeded, and monitor the implementation and effectiveness of those contingency actions.

4. Coho HGMP.

Another example of a poorly crafted performance indicator is #1 from the coho HGMP, which combines the issues of the location, timing, and fish condition at smolt release with the installation of fish screens at the hatchery intake. A blended performance indicator is not useful as a criterion of program success because it is unclear how partial compliance will be assessed.

These types of deficiencies of the performance indicators (lack of completeness, lack of specificity in methods and standards, absence of feasible contingency actions, tenuous connection to performance objectives, combining discrete issues) are not limited to those discussed here, but rather pervade the HGMPs. The HGMPs must include performance indicators that are sufficiently feasible, fully developed, evaluated by specified methods and standards, and specific methods and standards, and sufficiently specific to provide clear criteria for achievement of performance objectives. To satisfy the ESA, performance indicators must be more than conclusory statements of intent, but rather should demonstrate thorough implementation of specific and verifiable actions to ensure that defined and clear performance objectives will be achieved.

D. Conservation needs of listed species.

The spring Chinook, coho, and winter steelhead programs were developed after 2002 in part from broodstock collection from the Sandy River Basin listed populations. Under 50 C.F.R. § 223.203(b)(5)(i)(C), the primary purpose of broodstock programs must be conservation of the species. Use for recreation and commercial purposes may only be authorized "*after the species' conservation needs are met and when the proposed use is consistent with survival and recovery of the ESU*."[9] There is simply no straight-faced argument that the conservation needs of the source ESUs are met.

NMFS' 2011 status review[10] reports no change in risk category for any of the Pacific salmonid ESUs: the Lower Columbia River Chinook salmon ESU remains "likely to become endangered," the Lower Columbia River coho salmon ESU remains "in danger of extinction," and the Lower Columbia River steelhead ESU remains "likely to become endangered." While the status review concludes that the Sandy spring-run Chinook population is *relatively* at lower risk than other populations in the ESU, it concludes that this population remains at moderate risk. The 2011 status review recognizes improvements in risk from hatchery production, but it continues to apportion a significant share of the ongoing risk to the ESUs to hatchery production: "Although recovery plans call for multiple actions to reduce the impact of hatchery fish on the [LCR Chinook] ESU, provisions in the plans have yet to be implemented for all populations and hatchery fish still remain a significant risk factor in this ESU." The status review describes

[9] 50 C.F.R. § 223.203(b)(5)(i)(C) (emphasis added).

[10] M.J. Ford (ed.). Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest. U.S. Dep't of Commerce., NOAA Tech. Memo. NMFS-NWFSC-113, 281 pp. (2011).

ongoing hatchery operations as posing genetic ecological risks and masking the performance of wild populations. With respect to Lower Columbia River steelhead, the status review similarly notes that while changes to hatchery practices have been noted in recovery plans, there have been no substantial changes since the last review. Under these circumstances, where hatchery production has been identified as a significant risk to these populations and the conservation needs of the species have not been met, the HGMPs' proposed use of broodstock derived from ESA-listed fish for recreational and commercial purposes is prohibited by 50 C.F.R. § 223.203(b)(5)(i)(C).

E. Monitoring.

While the HGMPs include or refer to important monitoring efforts, such as marking all hatchery-produced fish, tracking mortality and injury of wild fish during capture and handling at collection facilities, and spawning ground surveys, these measures are insufficient to evaluate all of the risk potentially impairing recovery of listed native salmon and steelhead because they fail to address the full scope of potential adverse risks to the wild populations such as spawning habitat competition downstream of the Sandy Hatchery and maintenance of instream flows and downstream of the hatchery diversion. As described above, the relationship between monitoring efforts, performance indicators, contingency actions, and program evaluation is not clear. Program actions undertaken to address adverse effects on listed salmon and steelhead should be accompanied by commitments to undertake specific implementation and effectiveness monitoring. As the monitoring efforts cited in the HGMPs are conducted by multiple entities, it is unclear if they can be relied on to continue in the future in a manner that is appropriate to evaluate hatchery program risks. Even if the HGMPs are modified to include measurable performance targets and indicators, the HGMPs cannot be approved absent adequate monitoring and evaluation to detect and evaluate risks that impair the recovery of listed salmon and steelhead.

HGMPs must also include adaptive management measures to be implemented in response to the results of monitoring data. The submitted HGMPs fail to include any such provisions that pertain to hatchery stray rates. Alternatives are discussed, but are explicitly described as being for discussion purposes only.

F. Consistency with proposed Lower Columbia River Recovery Plan.

NMFS recently released a proposed ESA Recovery Plan for Lower Columbia River coho, Chinook, chum, and steelhead.[11] The proposed Recovery Plan repeatedly emphasizes the importance of the Sandy River runs of wild salmon and steelhead.[12] In particular, the Sandy River's wild run of spring Chinook is targeted by the proposed Recovery Plan for protection and improvement, as it is "the only Lower Columbia River spring Chinook salmon population with

[11] 77 Fed. Reg. 28855 (May 16, 2012).

[12] *See*, *e.g.*, Proposed ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead. National Marine Fisheries Service, Northwest Region (April 2012) [hereinafter Proposed Recovery Plan], Executive Summary, pp. ES-19, ES-21, and ES-23.

appreciable natural production."[13] The proposed Recovery Plan aims to protect and improve the Sandy's wild spring Chinook run "by protecting high-quality, well-functioning spawning and rearing habitat" and "reducing the proportion of hatchery-origin spawners . . . ."[14] The proposed Recovery Plan notes that for the Sandy River wild run of spring Chinook, "lessening the effects of hatchery-origin fish on naturally produced fish is expected to provide greater benefit than any other general category of action."[15]

PRC fully supports protection and improvement of the Sandy's wild run of spring Chinook and believes the Sandy River could indeed support a recovered run, but continued operation of the Sandy Hatchery, and the startlingly high stray rates of hatchery-origin spawners, stand in the way of this goal. Reduction of the proportion of hatchery-origin spawners is certainly needed to recover the wild run of spring Chinook on the Sandy, but the HGMPs as proposed will not reduce the proportion in a timely manner, and the proposed Recovery Plan appears not to establish a timeframe by which hatchery spring Chinook stray rates will be reduced to 10% in the Sandy. As proposed, the HGMPs are not consistent with NMFS' proposed Recovery Plan that includes actual protection and improvement of the Sandy's wild run of spring Chinook, as the purported means to reduce stray rates have no established efficacy. Definitive action is needed to genuinely lessen the effects of hatchery-origin fish on wild run spring Chinook in the Sandy to achieve recovery according to the proposed Plan.

III. National Environmental Policy Act compliance.

The purposes of the National Environmental Policy Act (NEPA) are to ensure that federal agencies thoroughly consider, or take a "hard look"[16] at the environmental consequences of their actions and disclose those consequences to the public. NEPA requires federal agencies to prepare an environmental impact statement (EIS) when undertaking any "major federal actions significantly affecting the quality of the human environment."[17] The significance of an effect is determined by the context of the action and the intensity of the effect as determined in part by proximity to wild and scenic rivers and the degree to which the action may adversely affect species listed under the ESA or their critical habitat.[18] "Human environment" includes the natural and physical environment.[19] An agency may prepare an environmental assessment (EA) in order to determine whether preparation of an EIS is required.[20] An agency may forego preparing an EIS and issue a finding of no significant impact (FONSI) only when an EA provides sufficient evidence and analysis for determining that the proposed action will not have a significant effect on the environment.[21] If there are substantial questions about whether there may be a significant adverse effect or if the agency fails to provide a statement of reasons for

[13] Proposed Recovery Plan, Executive Summary, p. ES-23.
[14] *Id.*, pp. ES-23 to ES-24.
[15] Proposed Recovery Plan, Chapter 7, p. 7-42.
[16] Oregon Natural Res. Council v. Lowe, 109 F.3d 521, 530 (9th Cir. 1997).
[17] 42 U.S.C. § 4332(2)(C).
[18] 40 C.F.R. § 1508.27.
[19] 40 C.F.R. § 1508.14.
[20] 40 C.F.R. § 1501.3-1501.4.
[21] 40 C.F.R. § 1508.13.

concluding there are no significant effects, a determination to forego preparation of an EIS is not reasonable.[22]

The EA fails to provide sufficient evidence and analysis supporting a reasonable conclusion the project will have no significant effects on the environment because the project description is unclear and incomplete, the scope of the EA is inadequate, and the EA fails to take a hard look at the identified potential significant adverse effects.

A. The EA fails to provide a clear project description or indicate the environmentally preferred alternative.

The EA's project description is insufficient to support meaningful analysis of the actions because, on one hand, the EA's description of the project includes details of project activities that are not found in the underlying HGMPs and, on the other, the EA lacks any discussion of NMFS' intended actions in response to the HGMPs. For example, the EA states that the spring Chinook program will be operated with a maximum hatchery escapement target of 10%, but this condition or objective is not included in the spring Chinook HGMP. It is unclear whether or in what fashion this limit is understood by ODFW to be a requirement of the spring Chinook program. Hatchery escapement is a principal pathway of ecological and genetic effects on the listed wild salmon and steelhead populations and whether or not project limitations will be imposed, the extent to which they are binding on the project, and the form of the limitations is essential to evaluating their adequacy to assess the effectiveness of project measures to mitigate the effect.

With respect to NMFS' intended action in response to the EA, the EA lacks any indication whether NMFS intends to simply "rubber stamp" the HGMPs, exercise its authority to conditionally approve the HGMPs, or exercise some other regulatory mechanism. When approving HGMPs, NMFS is required to specify implementation and reporting requirements.[23] While this may occur through an ESA § 7 consultation, no such consultation process is identified in the EA. An EA must include "appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."[24] Indeed, agencies must identify the environmentally preferred alternative(s) and, if they are not adopted in the final record of decision, explain why they are or are not choosing to implement that alternative.[25] As the Council on Environmental Quality (CEQ) has explained, "[t]hrough the identification of the environmentally preferable alternative, the decision maker is clearly faced with a choice between that alternative and the others, and must consider whether the decision accords with the Congressionally declared polices of the Act."[26] Here, the EA neither clearly identifies the environmentally preferred alternative nor presents conclusions

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[22] Save the Yaak Committee v. Block, 840 F.2d 714, 717 (9th Cir. 1988).
[23] 50 C.F.R. § 223.203(b)(5)(i)(J).
[24] 42 U.S.C. § 4332(2)(E).
[25] *See* 40 C.F.R. §1505.2(b); *see also* 43 Fed. Reg. 55978 (Nov. 29, 1978) (preamble to regulations discussing identification environmentally preferred alternative explaining that "the purpose of NEPA is better environmental decisonmaking. . . The objective of this requirement is to ensure that Federal agencies consider which course of action available to them will most effectively promote the national environmental policies and goals.")
[26] Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 48 Fed. Reg. 18,026 (Mar. 16, 1981), Question 6a.

regarding whether the proposed activities will result in significant effects to the environment. These deficiencies effectively frustrate the ability of the public to understand the nature of the actions being considered and to evaluate whether the actions will result in significant effects, as discussed above.

B. The scope of the Environmental Assessment is inadequate.

The scope of the EA is inadequate to fully consider and analyze the effects of the HGMPs because the action area is improperly limited, the effects are not fully considered, and the activities proposed are not fully considered. The spatial extent of the effects analysis undertaken by the EA is limited to "areas immediately adjoining the hatchery facility on Cedar Creek, the acclimation site on the lower Bull Run River, and potential weir locations on the Bull Run, Salmon, and Zigzag Rivers, and in Still Creek" on the grounds that "[i]mpacts of the programs on the human environment outside of this area are not expected."[27]

This approach is improper on several grounds. First, "human environment" must "be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment."[28] As such, the effects of hatchery fish must be considered at the spatial scales where they manifest significant effects on the "natural and physical environment." Second, the principal intent of the project is to modify commercial and recreational aspects of the human environment in the Sandy River, the Columbia River, and ocean fisheries by increasing fishery harvest through the release of large numbers of smolts. It is reasonable to expect that releases of numbers of fish sufficient to meaningfully augment fishing opportunities in the ocean may likewise produce ecological and genetic effects across a similar, if not more extensive, spatial extent. A recent publication[29] describes the spatial and functional mechanisms of ecological interactions between hatchery and wild fish that can contribute to wild salmon mortality as including competition, predation, indirect predation, disease and nutrients in migration corridors, the estuary, and the ocean. Further the straying of hatchery fish to upstream spawning grounds is obviously, albeit inadequately, documented in the HGMPs.

The EA improperly excludes consideration of "indiscernible" effects on fisheries outside of the Sandy River on the grounds that Sandy Hatchery production "accounts for only a small percentage of the total Chinook salmon available to the Ocean and mainstem fisheries."[30] An adequate environmental analysis must include consideration of the action in light of connected, cumulative, and similar actions and the incremental impacts of the action when added to the past, present, and reasonably foreseeable future actions which may be individually minor but collectively significant.[31] As the HGMPs propose to release hatchery fish in the tributaries of the Lower Columbia River basin, the incremental effects of those releases, even if "individually minor" as asserted without support by the HGMPs, must be analyzed in conjunction with the

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[27] Sandy Hatchery Draft EA, p. 7.
[28] 40 C.F.R. § 1508.14.
[29] Pearsons and Busack, PCD Risk 1: A tool for assessing and reducing ecological risks of hatchery operations in freshwater. Envtl. Biol. Fish. 94:45 65 (2012).
[30] Sandy Hatchery Draft EA, p. 13.
[31] 40 C.F.R. §§ 1508.7 and 1508.25; Te Moak Tribe of W. Shoshone of Nev. v. U.S. Dep't of Interior, 608 F.3d 592, 602 (9th Cir. 2010).

effects of other hatchery releases with which they may combine to produce a cumulatively significant effect. The effects of the Sandy hatchery are either cumulative effects or connected actions, or both (see discussion of cumulative effects below). Regardless of how they are characterized, the effects of other past, present and future related or unrelated human activities must be included in NMFS' analysis.

The EA also improperly excludes consideration of effects at Cascade, Bonneville, Willamette, Marion Forks Hatcheries on the grounds that those facilities "would continue to be operated and funded in a similar manner without the addition of the production from the proposed program."[32] This misses the point. NMFS's analysis is not examining whether its approval of these HGMPs will cause direct modifications or changes in other hatcheries, or whether or how those other hatcheries will continue to operate. Rather, NMFS must analyze the effects of the proposed HGMP operations in conjunction with these other hatcheries, assuming that these other hatcheries will continue to operate. To support its conclusion that implementation of the Sandy Hatchery HGMPs, as well as operations at these other facilities, would have no significant effect on the environment, the EA cites findings from previously conducted jeopardy analyses. However, the purpose of an ESA jeopardy analysis is to determine whether an action will threaten the continued existence of a species, not to satisfy NEPA questions of whether or not there will be a significant effect on the environment. "No jeopardy" is not synonymous with "no significant effect". As such, findings from prior no-jeopardy determinations are not adequate substitutes for analysis of significant environmental effects for the purposes of NEPA.

C. The EA fails to take a hard look at specific impacts.

An EA must include more than general statements about the risk of possible effects.[33] While this EA identifies and discusses some potential significant effects on the environment, for most such effects it fails to take a "hard look" and fails to state NMFS' conclusions as to the magnitude of the potential effects and whether or not project measures are sufficient to reduce the effects to a level of insignificance. Where such conclusions are presented, they are often conclusory statements without the support of quantitative or valid qualitative analysis.

1. Capture, handling, holding, and transport.

Under "Fish Removal," the EA discusses the capture, handling, holding, and transport of spring Chinook, coho, and winter steelhead. The EA fails to provide estimates of resulting mortality for spring Chinook and simply restates ODFW's estimates for coho and winter steelhead mortality of two percent of returning spawners. Given the precarious state of the listed salmon and steelhead populations in the Sandy River Basin, the EA's treatment of the potential losses due to take at collection facilities cannot, in the absence of any independent assessment of ODFW's mortality estimates or an analysis of the effects of these losses on the recovery of the wild spawning populations, be considered a "hard look."

[32] Sandy Hatchery Draft EA, p. 16.
[33] Neighbors of Cuddy Mtn. v. U.S. Forest Serv., 137 F.3d 1372, 1379-80 (9th Cir. 1998).

2. Genetic and ecological effects.

The EA's treatment of the genetic and ecological effects on wild salmon and steelhead populations is also insufficient. As described in the EA, the percentage of hatchery spring Chinook spawning in natural habitat above Sandy Hatchery has been well above the 10% management target adopted by the HGMP, reaching nearly 80% in 2007 and remaining high since. The spring Chinook HGMP identifies measures to address the stray rate, including installation of additional collection weirs and the use of an acclimation pond at the Bull Run powerhouse. However, these additional weirs were installed and operated in 2011 and failed to control the stray rate at the target level (resulting in an estimated stray rate of 61%). The EA provides no basis to conclude the acclimation program will be effective. The EA fails to provide meaningful analyses of the effects of extremely high stray rates on the wild population of spring Chinook or the efficacy of the proposed measures to address it. Rather, it recognizes the efficacy of the proposed measures is uncertain and provides the circular conclusion that if the proposed measures, or other unspecified ones that might be developed at a later time, are effective, the effects may be similar to the no-action alternative.[34]

Similar deficiencies in analysis are found with respect to coho salmon. The EA discusses straying of hatchery coho into lower tributaries and reports hatchery stray rates as high as 24.3%, but again, no analysis of the effects of such rates on the wild population and no independent assessment of the efficacy of purported control measures are presented. Similarly, the EA's treatment of the effects of hatchery fish on listed salmon and steelhead through competition and predation simply enumerates the measures identified in the HGMPs and fails to provide either analysis of the potential effects on wild salmon and steelhead populations or any independent assessment of the efficacy of the proposed measures.

3. Competition and predation.

The EA fails to sufficiently analyze the competitive and predation effects of released hatchery fish on listed wild salmon and steelhead, but instead relies on coarse generalizations about run timing and habitat preferences to support a conclusion that such effects are expected to be low. The EA simply recites the HGMP measures to release smolts at a "size that is optimal" (unstated) for rapid emigration and fails to reflect available research and management findings regarding the effectiveness of releasing smolts at particular sizes as a means of controlling residualization.

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[34] *See* Sandy Hatchery Draft EA, pp. 87-88: "Genetic impacts under the proposed Action would be expected to decrease over time if the above actions…are successful…. It would take a number of years to determine whether the acclimation of and release of hatchery spring Chinook salmon at the Bull Run acclimation pond would reduce the proportion of hatchery spring Chinook salmon reaching the primary spawning areas in the Upper Sandy Basin. It is also uncertain whether the installation operation of the weirs under the Proposed Action would be enough to reduce the number of hatchery spring Chinook salmon that could potentially spawn naturally to achieve the less than 10 percent hatchery spawner goal. It would be expected that, if the goal is not achieved under the Proposed Action, or if impacts from the handling of natural-origin spring Chinook salmon causes increased pre-spawning mortality, then additional actions would be needed…. These additional actions may be able to achieve genetic impacts similar to those under the no-action alternative."

In a previously released biological opinion, NMFS recognized that acclimatization and volitional release have not been demonstrated to be effective at controlling residualization: "It is unclear at this time whether or not acclimating and volitionally releasing steelhead smolts can substantially reduce the proportion of residualized steelhead in all cases."[35]

4. Pathogens.

The EA fails to properly address the potential effects of hatchery operations on listed wild salmon and steelhead through the introduction or amplification of diseases. The EA simply relies on the statements in the HGMPs that pathogens will be "intensively managed" without any independent assessment of whether such assurances have a basis. The EA fails to even identify the particular disease agents of management concern. It lacks any assessment of the sufficiency of proposed measures and includes no discussion of the potential adverse effects in context or intensity.

5. Water quality.

The EA fails to assess the effects on water quality that may result from effluent discharge. It includes no discussion of potential effects, acceptable thresholds, or analysis of the sufficiency of the HGMP program measures (settling ponds). The effects of water quality components, including temperature, turbidity, and dissolved oxygen on salmonids are well-known, but the EA identifies none of these potential adverse effects. Hatchery effluent may include other materials not considered in the EA, such as aquaculture drugs and chemicals, toxic materials, and non-conventional materials that have adverse effects on water quality.

The EA also does not consider water quality impacts that may occur as a result of releasing hatchery-produced fish. The efficacy of settling ponds for the capture of suspended materials from flowing water depends on a number of factors including pond outlet design, pond dimensions, and maintenance, none of which are described, much less analyzed, in the EA. Potential effluent discharges from the Bull Run acclimation ponds are not discussed. What analysis the EA does provide relies largely on reference to NPDES permits. For most pollutants, the EA fails to include critical information such as an enumeration of the discharged materials and water quality components, the water quality standards and conditions imposed by the permits, and the frequency of exceedances.

6. Water diversions.

The proposed operations of the water supply intake at Sandy Hatchery will divert substantial volumes of water from Cedar Creek, resulting in the complete de-watering of the channel in fall when flows subside. The EA blithely concludes, without supporting information, that water diversion that occurs prior to September has no adverse effects on listed salmonids and steelhead. The EA barely acknowledges that diversions that de-water Cedar Creek present a passage barrier to spawning wild salmon and steelhead, and completely fails to analyze the local

[35] Endangered Species Act Section 7 Consultation Biological Opinion and Magnuson-Stevens Act Essential Fish Habitat Consultation, USFWS Artificial Propagation Programs in the Lower Columbia and Middle Columbia River. National Marine Fisheries Service (Nov. 27, 2007).

effects or effects on listed wild populations. Reductions in surface flow due to water diversion may have extensive effects on aquatic habitats and result in mortality or reduced productivity of wild salmon and steelhead, including passage barriers, stranding, reduced water quality, increased competition, increased predation, and reduce invertebrate production. The EA's analysis of measures to minimize impacts is limited to reference to compliance with water rights and fails to establish significance thresholds, determine whether the project will exceed those thresholds, or demonstrate the project will not adversely affect wild salmon and steelhead.

D. The EA fails to adequately consider cumulative impacts that have resulted and will continue to result from operation of the Sandy Hatchery.

The EA brushes off cumulative impacts that would result from continued operations of the Sandy Hatchery and other foreseeable actions as "minor, if at all measurable."[36] NMFS contends that because "[o]ther Federal, tribal, and state actions are expected to occur within the action area" and "the migration corridor between the Sandy River and the Pacific Ocean that would affect the fish populations considered under the Proposed Action," the agency has no duty to analyze the additional, cumulative effects that would result from the Sandy Hatchery. By failing to thoroughly assess the effects of the Sandy Hatchery's operation on the environment wholly fails to satisfy NMFS' duty under NEPA.[37] Merely because other actions will continue to occur does not mean operation of the Sandy Hatchery has only minor effects on the environment, particularly listed wild salmon and steelhead.

NMFS' statement that "hatchery programs and fishing in the action area would be substantially diminished" only "[i]f the cumulative effects of salmon management efforts fail to provide for recovery of listed species" exemplifies PRC's concerns about continued operation of the Sandy Hatchery and the inadequate cumulative effects analysis contained in the EA.[38] This statement indicates the agency's awareness that cumulative effects may indeed prove to be significant and impede listed species' recovery, but fails to take pre-emptive action to curb such impacts or even provide a thorough assessment of those cumulative impacts to determine their significance. Adaptive management must be much more thoroughly discussed if NMFS is to rely on such measures to counter cumulative effects that prove to be significant and impede recovery.

E. The EA fails to evaluate a reasonable range of alternatives and mitigation.

The evaluation of all reasonable alternatives is the "heart" of any NEPA analysis.[39] The discussion of alternatives is intended to provide a "clear basis for choice among options by the decisionmaker and the public."[40]

Consideration of a broad range of alternatives is necessary because it forces agencies to conduct an objective assessment of impacts by comparing the impacts of different alternatives.[41] It also

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[36] Sandy Hatchery Draft EA, p. 115.
[37] 40 C.F.R. § 1508.25(a)(2).
[38] Sandy Hatchery Draft EA, p. 116.
[39] 40 C.F.R. § 1502.14.
[40] *Id.*; Idaho Sporting Congress v. Alexander, 222 F.3d 562, 567 (9th Cir. 2000).
[41] 40 C.F.R. § 1502.14.

forces federal agencies to consider options other than the preferred alternative, which may cause them to adapt or reject a previously preferred alternative if its environmental impacts are too severe.[42]

An agency cannot reject an alternative because it is "not within the jurisdiction of the lead agency" or outside the bounds of congressional authorization.[43] The CEQ has explained that:

> An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies.[44]

The EA, however, considers only two alternatives: implementation of the HGMPs and the no action alternative. This fails to provide a meaningful analysis because it is unclear what the no-action alternative really is. The EA states that the no-action alternative is that the HGMPs are not approved and that NMFS does not provide a concurrence letter. The EA only assumes that this would result in the termination of the hatchery programs and the removal of the weir and intake facilities and speculates with respect to other possible outcomes. Because the nature and scope of potential impacts that would or could occur under the no-action alternative is not known, the alternative does not provide for a meaningful comparison with the proposed project and suggests that NMFS has formed the intent to approve the HGMPs prior to undertaking a meaningful evaluation.

The EA also fails to consider additional meaningful alternatives to approving the HGMPs as proposed, such as imposing conditions on approval or approving only some of the proposed activities, which would provide a higher level of assurance that adverse effects will be avoided or minimized to a level of insignificance.

The agency's failure to consider alternatives hampers its ability to examine the additional mitigation measures required to ensure that operation of the Sandy Hatchery does not cause significant environmental effects. Pursuant to 40 C.F.R. § 1508.20, agencies must consider the following mitigation components as provided for by measures that are verifiable and certain to occur:

> (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
> (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

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[42] 40 C.F.R. § 1502.14(a) (emphasis added); *see also* Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 48 Fed. Reg. 18,026 (Mar. 16, 1981)
[43] 40 C.F.R. § 1502.14(c).
[44] Forty Most Asked Questions Concerning CEQ's NEPA Regulations, *supra* note 26, Question 2b.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.

Prior to approval of any of the HGMPs, NMFS should conduct a thorough analysis of additional alternative actions, including a defined no-project alternative, conditional approval, and partial approval. The no-action alternative should include a scenario wherein proposed hatchery operations are not conducted and ODFW undertakes effective measures to trap and remove returning hatchery adults while minimizing harm to wild salmon and steelhead, as well as a scenario where ODFW continues to operate the hatcheries absent approval. A conditional approval alternative should include additional measures to address project impacts, such as requirements to minimize or avoid straying adults, properly screen the diversion intake, maintain specific instream flows in Cedar Creek, sufficient monitoring and reporting requirements, and other measures necessary to ensure avoidance or mitigation of project effects. NMFS should also consider alternatives in which not all of the HGMPs are approved.

IV. Conclusion.

Overall, the Sandy Hatchery Draft EA fails to demonstrate a reasonably thorough consideration of the many adverse effects posed by the HGMPs. That such a document was produced by NMFS, the federal agency charged with recovery of listed salmon and steelhead, is a disappointment. Under NEPA, NMFS's job is to rigorously take an independent hard look at the measures in the HGMPs and to evaluate alternatives to those proposals that would lessen the environmental impacts. This EA fails to do that. Because there continue to be substantial questions about the nature and magnitude of significant effects posed by the HGMPs, any approval of them must be preceded by a full environmental impact statement. Further, a formal Section 7 ESA consultation that fully and effectively evaluates the effects of the Sandy Hatchery operations on listed wild runs of salmon and steelhead and results in a biological opinion should be undertaken to inform a full environmental impact statement.

We appreciate the opportunity to comment on the Draft EA. Again, we urge NMFS to withhold approval of the HGMPs. If you have any questions about our comments, please contact Greg Haller, Conservation Director for Pacific Rivers Council, by telephone at (503) 228-3555, ext. 205, or by email at greg@pacificrivers.org. PRC looks forward to future opportunities to support the recovery of listed wild salmon and steelhead.

Sincerely,

John Kober
Executive Director
Pacific Rivers Council
317 SW Alder Street, Suite 900
Portland, OR 97204
(503) 228-3555, ext. 201
john@pacificrivers.org