Wild Fish Conservancy
Raincoast Conservation Foundation
SkeenaWild Conservation Trust
Watershed Watch Salmon Society
David Suzuki Foundation

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SUBJECT: Conservation stakeholder comments on the proposed assessment tree for the 2nd MSC reassessment of Alaskan salmon fisheries

Dear Dr. Blyth-Skyrme,

We are please to provide the following comments on your assessment team's proposed assessment tree for the current re-assessment of Alaskan salmon fisheries. We trust that you still have a copy of the January 6, 2012 comments submitted by Watershed Watch and Pacific Salmon Foundation on the draft assessment tree that was release for comment under the previous client. Please note that several issues raised in those comments were not addressed in this latest draft assessment tree. Please consider those outstanding comments in addition to the comments offered below.

Please feel free to contact us if you require clarification or follow-up information on any of the items discussed below.

General concerns regarding Performance Indicator Scoring Guideposts, with a focus on Chinook

A primary concern is that most Southeast Alaska Chinook fisheries are mixed-stock fisheries that primarily harvest non-Alaska-origin (NAO) Chinook stocks. While many of the NAO Chinook harvested are hatchery-origin, they are mixed with wild fish from similar regions of origin and fisheries are not mark-selective. Most of the *wild* Chinook stocks harvested are depressed British Columbia (BC) and Southern US (SUS) stocks, including ESA-listed SUS stocks. There is, therefore, a high probability that NAO wild Chinook stocks are over-harvested. Performance Indicators (PI) and Scoring Guideposts (SG) should fully take these facts and the associated risks into account.

Additionally, the recent modification of several PIs and SGs, which were intended to account for the potential impact of enhancement activities on wild stocks, needs to include specific quantitative standards. This is particularly necessary for the proportion of hatchery-origin (F1) potential spawners present on the spawning grounds (pHOS in the terminology of the Hatchery Science Review Group [HSRG]). Basic concepts and HSRG recommendations for pHOS standards for various types of enhancement programs can be found in Appendix A of the HSRG's "Columbia River Hatchery Reform System-Wide Report", February 2009, White Paper #1 ("Predicted Fitness Effects of Interbreeding between Hatchery and Natural Populations of Pacific Salmon and Steelhead") (available at www.hatcheryreform.us). These concepts and recommendations should be adopted and incorporated into the Assessment Tree.

Specific PISGs:

PI 1.1.1. Stock status, and PI 1.2.3. Relevant information collected to support the harvest strategy.

The rationale for the new text states: "Often non-local stocks are harvested at a very low exploitation rate – this might be so small as to have no measurable effect on status or recruitment of the stock." This perspective likely will fail to protect depressed stocks from suffering a "death of a thousands cuts" as multiple fisheries are permitted to take "small" numbers from a depressed stock in multiple mixed-stock fisheries that in the aggregate do have a measurable effect on status and recruitment, albeit one that is not measured. In order to be consistent with MSC's Principles and Criteria for Sustainable Fishing (P&C) – specifically, Principle 1 and its Intent and Criteria – The Assessment Tree (AT) must require that all impacts on depressed stocks to which the fisheries in question contribute are fully accounted for. This requires that the assessment consider cumulative effects.

A cumulative effects approach is particularly important for Chinook, and requires that the Assessment Team (Team) explicitly consider harvest levels on Chinook stocks *throughout their range*. Consideration of local harvest rates alone is inadequate to determine the sustainability of the fishery whose certification is at issue, and highly inappropriate given that Alaska is a party to the Pacific Salmon Treaty which regulates aggregate exploitation rates on Chinook stocks in Canadian and US fisheries (including Alaska). At minimum, the assessment must consider the incremental mortality on wild stocks due to harvest in specific Alaska fisheries and should do so using robust quantitative criteria.

The above concerns also apply to stocks from other species harvested in Alaskan salmon fisheries, including sockeye salmon fisheries in Southeast Alaska, which intercept stocks of high conservation concern (i.e., below their LRPs) originating in British Columbia rivers.

Moreover, there is no discernible justification for the proposed changes to 1.1.1 to be found in the *MSC Certification Requirements (version 1.2)*. Specifically, CB2.2 (page C54) does not provide for the assessment team's proposed changes. For this reason, as well as the reasons discussed above, the clause under the 60, 80, and 100 SGs ("…or fishery impacts are so small as to have no significant effect on the stock status") should be removed. Inclusion of this clause in the AT will draw strong objection from the authors of these comments and severely diminish the credibility of the assessment.

An additional concern for Chinook stocks in particular is the historic and continuing pattern of age- and size-overfishing. Troll fisheries are particularly egregious in this regard. Immature Chinook are subject to troll gear for one or more years prior to maturation and this, combined with historical high harvest-rates, have driven the majority of Chinook stocks to grow faster and mature at younger ages and smaller sizes than is optimum for their life history. Current harvest regimes and recently reduced harvest rates have not (and likely will not) permit the majority of depressed Chinook stocks to recover the age and size distributions that are required for populations to rebuild and recover the resilience they once possessed. This issue is relevant to Importantly, this has significant consequences for ecosystem processes that need to be incorporated in PI 2.3, regarding EPT species and PI 2.5, regarding ecosystem structure.

Finally, while it is true that the definition of "stock" used in the assessment is extremely important, the definition given in the draft AT is circular and not explicit enough to be biologically meaningful. The second sentence in the definition is particularly problematic. If "not every component with a defined goal need be an individual stock, but can be part of a collection of such components within a stock", then the AT still lacks a useful definition of what a "stock" actually is.

PI 1.1.2 Limit and target reference points -- We support the additions to this PI.

PI 1.1.3 Stock rebuilding – While we strongly support the additions made to this PI, we ask that the title of this PI be amended as follows: *Where the wild stock or wild stock components are depleted, there is evidence of* ***wild*** *stock rebuilding.*

PI 1.3.1. SG60 – 100

The language of these SGs implies that the burden of proof is on the wild stocks that may be harmed by enhancement activities to show that they are not negatively affected. Given the current state of the scientific research on the impacts of hatchery programs and practices on wild salmonids there should be a

strong presumption that enhancement activities harm wild stocks through genetic introgression, competition in rearing habitats and juvenile migration corridors, and predation, as well as mixed-stock fishery impacts that ostensibly target harvestable hatchery stocks.

As noted above, the Hatchery Science Review Group (HSRG), which has conducted (US) federally mandated and funded reviews and assessments of hatchery programs in the Columbia River basin, in Puget Sound, and the Olympic Peninsula of Washington State, has made very basic recommendations regarding performance standards pertaining to the maximum proportions of hatchery-origin (F1 generation) spawners (pHOS, “proportion of hatchery-origin spawners”) that should be allowed on spawning grounds in the wild. These pHOS standards should be adopted and included in the Tree as minimum standards that all enhancement programs that produce fish caught in Alaska fisheries should comply with.

For example, SG60A for PI 1.3.2 might read “Practices and protocols are in place for specific wild stocks that require the attainment of pHOS standards for segregated and integrated programs as recommended by the HSRG.”

Mark-Selective Fisheries

Adopting standards for pHOS also requires that all enhancement programs externally mark a sufficient percentage of all annual releases of fish to enable fisheries targeting enhanced stocks to be mark-selective. This should be required for all Chinook and coho programs that can easily adipose-clip hatchery smolts before release. It is critical that readily identifiable external marks be placed on hatchery Chinook and coho to provide the conditions whereby managers can require the safe release of all non-target wild stocks. No enhancement activities whose primary or sole purpose is to provide fish for harvest should be certified as sustainable unless it can assure with high probability that harvest directed at these fish do not result in the death of non-target wild stocks. This requires mass marking combined with selective fisheries gears that can safely release non-target wild stocks. This will also, of course, require research and monitoring at appropriate scales to provide robust estimates of release mortality. At minimum, the certification process must begin this process by adopting and requiring the attainment of HSRG pHOS standards.

Fisheries that harvest non-target wild stocks in the course of targeting enhanced stocks but that are not mark-selective should at best receive only provisional certification with a condition that the fishery be mark-selective within five years.

Support for mark-selective fisheries will require the certification process to modify the Default Assessment Tree for PI 2.1, incorporating explicit references to mark-selective fishing gears and techniques.

PI 2.1.1 – SG60A – It is unclear how the phrase “if not” could be used in a 60-level scoring guidepost. It is our understanding that if a fishery does not meet even one individual 60SG, the entire fishery fails certification.

PI 2.3.2. The Alternative evaluation table for PI 2.3.2 should be adopted. The appeal to “national and international requirements” in the other version is less specific than the reference in the alternative to management strategies “designed to ensure” that the fishery does not hinder recovery. This formulation also makes clear the intention of the PI.

PI 2.4.3. This should be stated as in CM3.16 (Table CM20) of the Consultation Document: Draft annex CM: Modifications to the Default Assessment Tree for Salmon Fisheries: “Information is adequate to determine the risk posed to habitat types by the fishery/enhancement activities and the effectiveness of the strategy to manage impacts on habitat types”. This would require evaluation of the impacts of salmon hatchery facilities on freshwater habitats in which the facilities are located, as well as the impacts of enhancement program on the structure of marine food-webs. The risks posed by enhancement activities and the fisheries that target the production from those activities cannot be adequately accounted for without accounting for both of these kinds of impacts.

PI 2.5.2. for reasons similar to those given above for 2.4.3, the language used in CM3.19 (Table CM22) should be used, specifically the term “…at a local scale” should be included in SG60B.

PI 2.5.3. Prefer the language of CM3.19 (Table CM23) explicitly including knowledge of the impacts of enhancement activities on the ecosystem in addition to the impacts of the fishery.

PI 3.2.2. This PI and associated SGs needs to include specifics regarding the parameters - such as pHOS - that need to be monitored in order to detect and assess the impacts of hatchery production on wild stocks and the marine and freshwater ecosystems of which they are a component. In addition to pHOS, growth rates of juvenile wild and hatchery fish in the marine environment and smolt-to-adult survival rates are among the kinds of parameters that need to be monitored.

PI 3.2.3. CM4.9.1 from the Draft Annex CM should be included in this PI. Given the large and controversial role that private salmon hatcheries have in

subsidizing several Southeast Alaska fisheries, inclusion of CM4.9.1 is a minimal requirement for adequately evaluating the role of these hatcheries.

General comments on the importance of considering wildlife and ecosystem values in the MSC Assessment tree

The MSC assessment tree needs to recognise the importance of salmon in sustaining other marine, freshwater, and terrestrial animals. This includes their value as food for wildlife and the input of nutrients from carcasses to food webs. The implementation of 'ecosystem objectives' remains incomplete largely because it means allowing more salmon to return to rivers to spawn.
Single species fisheries models that use Maximum Sustainable Yield as the touchstone of their management objectives have been criticised for their management shortcomings and failure to address wildlife and ecosystem objectives. Although more than a hundred wildlife species use salmon (Cederholm et al. 2000), harvest rates in salmon fisheries rarely consider wildlife food requirements. Salmon are a dominant prey for killer whales, salmon sharks, pinnipeds, grizzly bears, and wolves (Darimont et al. 2008). As the public's awareness grows of the importance of salmon to non-human predators, there is increasing demand to incorporate considerations for these animals into management objectives. In recent years, there have been specific instances of starvation in BC killer whale, bald eagle, and grizzly bear populations as a likely consequence of failed and declining salmon abundance. The critical importance of salmon to these and other species has been elucidated in several examples. The success of the BC/Washington endangered population of southern resident killer whales and BC's northern resident killer whales is linked to the abundance of Chinook. Chinook comprise over 80% of their summer and fall diets and its availability is an important factor in the death, birth, and survival rates of these whales. Ultimately, food availability is considered a limiting factor in the recovery and survival of these populations (Ford et al. 2010; Ayres et al. 2012).

High salmon consumption by grizzlies translates to higher reproductive success, higher densities, larger individuals, and overall healthier populations. This is because bears can become more selective on lipid-rich eggs and brain tissue with higher salmon abundance. This selectivity translates to benefits to other species as well. The carcass leftovers provide energy and nutrients for scavengers and riparian fertilisation. Conversely, when salmon are scarce, bears produce fewer cubs, if any, and eat more of a fish. Less discarded salmon enters the surrounding ecosystem with fewer benefits for other species.
Reproductive success is also enhanced for black bears and American Dippers when spawning salmon are abundant. Female mink and river otter shift the timing of reproduction so that lactation coincides with the availability of spawning salmon (Ben-David 1997). Coastal wolves shift from a diet of deer to a diet of salmon during annual spawning runs when salmon are an especially important

food source for pups, lone wolves, and old wolves that are unable to kill larger prey (Darimont et al. 2008).

In addition to the energy directly supplied to specific species, spawning salmon also deliver enormous annual pulses of marine-derived nutrients to terrestrial and aquatic food-webs. These nutrients propagate through food-webs and influence primary producers, invertebrates, fish, and wildlife (Hocking and Reynolds 2012). There are also arguments that salmon management objectives should change considerably when spawning rivers are situated within parks or protected areas (Darimont et al. 2010). There is good reason to question whether a protected area can be truly 'protected' when its foundation species, in this case Pacific salmon, are not safeguarded. In places where parks were set aside to protect key wildlife such as grizzlies, black bears, and wolves, poor salmon returns impact the health of these species and parks that were set aside often to protect these species. Yet recommendations to reduce the harvest on the runs have never been seriously considered, even though the benefits of salmon could sustain the species and park being protected.

The public's understanding and willingness to consider wildlife in salmon management is growing, as is the value of spawning fish. Despite recognition of the importance of salmon to individual and population health in many wildlife species, no progress has been made to adjust harvest or increase escapement objectives for salmon. Incorporating wildlife objectives into salmon management assessments will help secure food for grizzlies, resident killer whales, coastal wolves, and many other salmon-dependent species, and is an overdue consideration in management.

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