♦Pacific Rivers Council♦
♦Coast Range Association♦Oregon Wild♦Native Fish Society♦

28 July 2009

National Marine Fisheries Service
Chief, Protected Resources Division
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232
Fax: 503–230–5441

Re: Oregon Coast Coho Status Review, RIN 0648–XO28

Dear Chief:

Please accept this letter as input on the status review of Oregon Coast Coho salmon now underway by your division. We speak on behalf of Pacific Rivers Council, the Coast Range Association, Oregon Wild and the Native Fish Society.

In sum, we have no knowledge of credible information that would mitigate in favor of changing the conservation status of Oregon Coast coho from "threatened" within the meaning of the federal Endangered Species Act ("ESA" or "the Act"). However, we are aware of information pertaining to threats to coho recovery that indicates management practices on Oregon state forestlands do not avoid take within the meaning of the Act. Furthermore, these practices are inadequate to meet the Act's jeopardy standard and therefore are insufficient for the State to obtain federal assurances through a habitat conservation plan. We are also aware of new information pertaining to road density within the ESU that is associated with degraded aquatic habitat conditions.

We further renew our long-standing request that that NMFS analyze spatial variation on coho spawner counts.

Background

Conservation and fishing organizations including the undersigned first petitioned to list the Oregon coast coho under the ESA in 1993. Since then, the coho's listing status has fluctuated, but as of May 12, 2008, the Oregon coast coho are listed as threatened under the ESA. The National Marine Fisheries Service (NMFS) first listed the coho in 1998 in response to a court decision. However, in 2001 a federal judge invalidated the listing based upon flaws in NMFS's hatchery policy, which applied in general to salmon stocks, not just to the coho. The Oregon coast coho were officially removed from the list in 2004 as a result of the judge's decision. However, at the same time NMFS proposed to relist the coho. NMFS withdrew this proposal in 2006 in reliance upon an assessment by the State of Oregon that concluded the coho were viable. PRC and other conservation groups filed a lawsuit challenging NMFS's decision to withdraw the proposal, and in October 2007, the judge held that the decision not to list the Oregon coast coho was arbitrary and capricious, contrary to the best available science, and a violation of the

ESA. In particular, NMFS did not rely upon the best available science when it relied upon Oregon's viability assessment. In response to the court's decision, NMFS issued a final rule listing the Oregon coast coho effective May 12, 2008.

I. Uncertainties noted in 2008 Listing Rule

In the context of this status review, we would like to address two of several areas of uncertainty identified by NMFS in the 2008 listing rule:

>*Freshwater Habitat Status.* "Our current record lacks the information and analyses necessary to assess the present status of freshwater habitat conditions and functional processes in the ESU; NMFS concluded that it had insufficient evidence to conclude that coho were threatened on the basis of habitat destruction alone.

> *Efficacy of conservation measures.* "We lack the data necessary to resolve the benefits realized by coho populations from aggressive habitat conservation efforts by Oregon given the considerable variability in other environmental processes.x

A. Habitat condition and trend.

We are not aware of information that would change NMFS' 2008 listing determination on this basis.

B. Efficacy of Conservation Efforts

NMFS has solicited information on ongoing efforts to protect and conserve Oregon Coast coho salmon, as well as information on recently implemented or planned activities and their likely impacts.

We are aware of several items that bear negatively on planned conservation activities:

1. *Board of Forestry decision to abandon 2001 NW Oregon State Forests Management Plan in favor of increased timber harves*t.

Recently proposed changes to management of the Tillamook and Clatsop State Forests will cause unacceptably high risks to coho salmon. Even prior to the June 2009 Board of Forestry decision to seek increased timber production, NMFS and EPA had raised concerns that salmon are at risk from: failure to adequately address the existing road system, the low level of protection for smaller streams and the continued harvest of unstable slopes where wood-depauperate slides are likely to have downsteam adverse effects on coho salmon, among other issues.

Other concerns raised by independent experts and conservation groups would appear to be exacerbated by the state's current course of action including: (1) Road-related impacts to streams and aquatic habitat, as indicated by instream conditions, high road density and high levels of road-to-stream hydrologic connectivity; (2) Culverts, bridges and other stream crossings are not designed to accommodate flows from at least a 100 year flood, a requirement which has

been called for by NMFS and the USFWS as part of salmon- and ESA-sufficient forest management elsewhere in the region.

2. Failure of Oregon to secure NMFS' assurances for the Elliott State Forest.

This development indicates that management of SW Oregon state forests is not adequate to support the findings required under Sections 10 and 7 of the Endangered Species Act. NMFS has expressed unresolved concerns about the State's management strategies with regard to "stream temperature, wood delivery, fine sediment delivery, increased road mileage, unstable slope protection, and the certainty of proposed compensatory mitigation." Letter from Kim Kratz, NMFS to Jim Young, Coos District Forester (July 21,2009). We also commend to you the concerns raised by PRC about the Elliott State Forest management plan's shortcomings with regard to aquatic species, and incorporate by reference PRC's comments submitted to NMFS in this regard. (Letters dated July 12, 2005, October 21, 2005, and November 20, 2008, available at http://www.pacificrivers.org/protection-defense/copy_of_comment-letters).

We note that in 2008 the EPA commented that that the Elliott State Forest Plan (which is very similar to that for the Tilllamook and Clatsop in terms of stream protection) -- falls short in several respects: (1) the identification and management of small headwater streams and associated landslide-prone areas; (2) the adequacy of basal area targets to maintain shade and wood supplies around perennial fish bearing streams, and; (3) the potential for roads in the action area to impact aquatic resources by increasing sediment yield to action area streams, landslide frequency, and rates of runoff. EPA, Cover Letter from Christine Reichgott & "Region 10 Detailed Comments, Elliott State Forest Draft HCP and DEIS," (2008) (EPA Ref: 05-028-FWS)(7pp); see also EPA, Memorandum from P. Leinenbach to T. Kubo, "Estimates of effective shade conditions resulting from DEIS Alternative 2, Riparian Buffer Treatment proposed for the Elliott State Forest in Oregon," (February 5, 2008) (54 pp).

3. Continued failure to address threats from management of private industrial forest lands

The role of state lands is all the more important for coho because current forest practices rules for private forests are inadequate to prevent continued and significant harm to salmon and aquatic habitats. Key problems include, but are not limited to inadequate limits on logging and roadbuilding on landslide-prone slopes and along small streams. Current rules fail to adequately limit cumulative watershed effects, including those leading to altered sediment regimes, the timing and magnitude of peak flows, large wood supplies and water temperature. These impacts are harmful to salmon, trout and other aquatic and riparian-dependent species.

We are not alone in our concerns about the adequacy of forest practices policies. In addition to the environmental community, independent scientists and professional societies, the federal regulatory agencies have continued to find that current state- promulgated forest policies fall short of fully protecting fish and water quality. In one recent example, the EPA and NMFS re-stated its finding that in order for Oregon's Coastal Zone Management program to be approved it must identify and apply additional management measures for stream impaired by forestry and forest roads in particular. (NOAA and EPA, "Preliminary Decisions on Information Submitted

by Oregon to Meet Coastal Nonpoint Program Conditions of Approval, June 12, 2008", 12 pp). In fact, private forest practices' impacts on water quality are the focus of a CZARA lawsuit now being litigated.

In its June 12, 2008 decision, the EPA states: "Oregon still lacks adequate measures for protecting riparian areas of medium, small and non-fish bearing streams, high risk landslide areas, and for addressing the impacts of legacy roads. A broad body of science continues to demonstrate that the FPA rules do not adequately protect water quality. . . we recommend adoption of a road mapping and abandonment program." The agency goes on to call for increased harvest limitations on riparian and high landslide risk areas.

PRC filed an ESA take lawsuit in 2002 challenging the Oregon State Forester's approval of three categories of logging practices that harm coho and are routinely authorized on the industrial forestlands of Oregon's North Coast. The issues from this case today remain unresolved due to the delisting of the coho in 2004.

II. New road density information

Copious available evidence (reviewed in Carnefix and Frissell 2009, http://www.pacificrivers.org/science-research/resources-publications/road-density-as-indicator/download) highlights the adverse impacts of roads to both aquatic and terrestrial systems and species, the consistent relationship between road density and the extent and severity of such impacts, the resulting utility of road density as an indicator of human disturbance through its integration of direct road impacts with impacts of activities associated with/dependent upon existence and use of roads (e.g., logging, grazing, mining, invasive species introduction and spread, fire ignitions, etc.), and hence the validity of road density reduction as a restoration and recovery target. Multiple lines of convergent evidence support two robust conclusions (Carnefix and Frissell 2009):

1. There is no "safe" threshold of road density below which roads can be assumed to have no detrimental impact; rather, ecological harm is expressed beginning with the first road segment.

2. By the time road density reaches 1.0 miles per square mile, very substantial impacts at the level of risk of local extinction of populations of sensitive species are evident.

Within this context, NMFS should adopt road density as a threat indicator and ensure that a robust assessment of road densities within the range of Oregon coast coho, trends of increase, no change, or decrease (e.g., through road removal programs of public land management agencies and/or private landowners), and correlation of this road density data with spatially explicit coho status (as recommended in the "Evaluation of Spatial Variation Needed" section below, and crucially including all historic coho habitat, even that which may be deemed "unoccupied" at a given time/survey). To be valid, such analysis needs to be done at a scale and resolution best approximating coho geographic/demographic population structure, e.g., one or a few 6th-field Hydrologic Units comprising a single tributary drainage or mainstem reach – which is also the most scientifically defensible scale for defining largely discrete, functionally interbreeding demes ("populations" in the biological sense).

A preliminary stab at the road density side of this question using a BLM roads GIS dataset (Roads (Ground Transportation Roads Publication) 1:24,000, http://www.blm.gov/or/gis/data.php) (see attached data table) at the 6th-field HUC-scale (OR BLM-USFS Hydrologic Units, 1:24,000, http://www.oregon.gov/DAS/EISPD/GEO/alphalist.shtml) confirms that nearly all subwatersheds within the Oregon coast coho ESU geographic range are far above any reasonable threshold of adverse impact to salmonids (e.g., only 4 of 401 subwatersheds – 1% – have road densities less than 1 mile/square mile) as is the average (4.29 miles/square mile) – which has to be accounted for in the status review as an ongoing/increasing threat, especially in the absence of assurance of anything resembling range-wide – or even substantial – or mandatory correction of this situation.

An important caveat: unless this BLM roads dataset is truly state-of-the-art in thoroughness and completeness beyond any ever done previously by a government agency, conditions in the real world are almost certainly worse than these data suggest (i.e., numerous road segments are physically present on the landscape, but not captured in the inventory – with Forest Service roads GIS data, these omitted roads typically sum to roughly 30-50% of the inventoried miles) (PWA 2005, Lee et al. 1997).

III. Evaluation of Spatial Variation Still Needed

In the original listing petition led by PRC, we requested that NMFS do a thorough analysis of spatial variation in coho spawner counts, critically including an assessment of local extinctions or extirpations during the period of record in Oregon's coho surveys (the 1950s-present). This was also elaborated in PRC's comments on the Oregon Plan and in our litigation record pertaining to Oregon's modeling of coho population dynamics. The crucial relevance of such an analysis to any credible review of Oregon coast coho status continues unabated and, as noted below, its feasibility extends the mystery of why it has not been done to date. From the 2006 Scientists' Comments of Chris Frissell, Gary Carnefix, Jack Williams and Peter Moyle on the draft Oregon Plan, organized by PRC (Frissell et al. 2006, pp. 8-10):

> **. . . 3) Failure to Empirically Validate Key Extinction and Recolonization Assumptions** Empirical data are available to shed light on local extinction and its reversibility, but the Assessment is silent about the use of such information to validate or calibrate the model performance. Historical ODFW coastal spawner suveys [sic], going back to the mid-1950s, can be used in tandem with more recent surveys to assess persistence, recolonization, and patterns of contraction and expansion of occupied habitat within the range of the species. In fact, the 1993 petition presented a very preliminary look at such information, which appears to go unanswered in Oregon's assessment. The 1993 petition (pp. 9-10; Frissell, unpublished analysis of ODFW spawner count data) offered a preliminary examination that revealed evidence of progressive loss of spatial distribution, or occupancy of putatively suitable habitat, over time:
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> > "Stratified random" surveys of coho spawner abundance were begun by ODFW in 1990 to determine whether the standard and supplemental survey sites used by

> harvest managers to assess overall coho abundance in coastal Oregon were truly representative of coastal Oregon coho populations (Jacobs and Cooney 1991; Pearcy et al. 1992)."[sic] The new ODFW surveys are largely consistent with the analysis in Brown, et al., (in press [published 1994]), as are the results: the new data are consistent with a pattern of widespread local extinction. Whereas just 4 of 48 standard and supplemental survey streams (8.3%) showed zero counts in 1991-92, zero coho were observed in 52 of 187 random survey streams (27.8%) (ODFW, unpublished data). In the 1990-91 season (Jacobs and Cooney 1991), 81 (50.6%) of 160 random survey streams had zero counts. Since the random surveys were conducted in habitat thought to support coho salmon historically, the data indicate that the standard surveys and models used in coho management (Pearcy et al. 1992) greatly underestimate the extent of vacant habitat. This quite likely reflects a cumulative trend of local population extinctions. More careful analysis of historical surveys should be undertaken to compare current and historic distribution of coho populations in coastal Oregon.

Walters and Cahoon (1985) offered similar evidence of attrition of productive or detectable populations over time from coastal BC, and provided a defensible and uncomplicated protocol for analysis of survey data. The paper provided a lucid discussion of why such a trend of loss of what they aptly referred to as "spatial diversity" indicated erosion of the productive capacity and resilience of salmon species. The authors further point out that even if the pattern is in part attributable to loss of resolution or systematic biases in survey programs, they still should be considered threatening to the health of the species at stake – a lesson which, despite some significant reforms in recent years, still bears repeating judging by assumptions made unchecked in Oregon's Coho Assessment.

Brown et al. (1994) performed a similar investigation using salmon survey data in California, and their analysis, like Walters and Cahoon's (1985) look at BC salmon and Frissell's preliminary look at Oregon coastal coho data, showed a clear pattern of local extinction within the range of coho in California. There is no evident biological or environmental reason why such a pattern manifest among salmon both north and south of Oregon would not also occur in Oregon. Hence, we are puzzled that the Assessment does not even hint that such an analysis has been made for Oregon (the spatial coverage and dispersion of the field data for Oregon, both in the historical and the recent data sets, are probably far better than the data available for the BC or California studies). Direct empirical examination of these data – for specific spawning segments of rivers and streams, NOT aggregated – would refute the core assumption of the Assessment model that local extinction is either a rare event or is so rapidly reversed through recolonization that it functionally does not occur at all under prevailing conditions.

The field survey data offer a large data set to directly test two hypotheses: 1) that local populations do not go extinct (reaches with coho present do not decline to 0 counts); and 2) that locally vacant habitat patches are rapidly recolonized via dispersal (reaches that start a period of years with 0 counts end it with >0 counts). Presumably there has been some recovery seen since the run of severe ocean survival years in the 1990s, but was such recovery manifest in a reappearance of populations that were entirely lost during the poor years, or was it based on rebound of that set of populations that did not quite diminish to the vanishing point? Where is the

evidence that rules out the possibility that each such episode of poor survival years leads to spatial attrition of the species, such that in aggregate, rebound may occur, but it occurs based on fewer and fewer populations? This is exactly the scenario Walters and Cahoon (1985) cite as indicating profound erosion of resilience and, ultimately, of productive capacity and persistence of a salmon species.

Subsequently, Schindler and Rogers' (2008) documentation of asynchrony in population dynamics in southwest Alaska sockeye salmon highlights the importance of maintaining habitat diversity for salmon conservation, and hence affirms the critical importance to a credible and valid status review of such an assessment of "spatial diversity" (sensu Walters and Cahoon 1985) and local extinctions: "variation observed in population dynamics at local scales may be an underappreciated property of naturally complex systems."

Thank you for your consideration of these comments.

Sincerely yours,

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