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Re: Oregon's Final Coastal Coho Assessment

COMMENTS OF PACIFIC RIVERS COUNCIL

I. SUMMARY

A. Viability Assessment

Reliance by NOAA Fisheries on Oregon's viability model as the basis for a no-list decision is an invitation to controversy and litigation.

Oregon's viability assessment is biased toward data sets certain spawning reaches where redd counts were conducted multiple times, resulting in data that fail to account for the extent of local extinctions. Reaches with deteriorating water quality or lack of fish or redds were dropped from the protocol. Oregon is essentially counting strong coho populations, and making conclusions about habitat adequacy based on the productivity of habitat that comprises but a fraction of the habitat that historically supported coho. The true measure of robust populations and their resilience is their ability to re-populate vacated habitat, not solely the increase in numbers within surviving populations. It is in fact just this process of local and unremitting attrition of range that jeopardizes the species. This is a serious, major oversight in the state's analysis. Although Oregon's data show that in some streams where coho remain, they can bounce back when ocean conditions improve, the state's analysis fails to demonstrate any such recovery in streams where coho once existed but do not today--a central theme of the primary data presented in Pacific Rivers Council's original coastwide petition for listing over ten years ago.

Oregon's conclusion that coho are viable is based on the assumptions that genetic fitness of the overall population has not been compromised since the 1990s population crash and that future freshwater and marine habitat conditions cannot get any worse. However, there is ample reason to believe that both of these assumptions are incorrect. First, the genetic fitness of the surviving population is largely unknown, but may have been greatly compromised as local populations with unique life histories have gone extinct as part of the overall population decline. Second, the future condition of freshwater and marine habitat is largely unknown but appears to be headed for the worse given current regulatory protections, population growth, and development trends.

B. Efficacy of Conservation Efforts

The assessment lacks a sound basis for its contention that habitat deterioration has stopped due to current conservation efforts. As the IMST points out in its comments (at p. 30), ODFW's 2005 monitoring report shows no consistent trends in habitat condition over the past ten years.

Nonfederal forestlands are of particular significance to the Oregon Coast ESU. The regulatory standards applicable to forest practices at the time coho were previously listed have not significantly changed since, and NOAA has repeatedly found that Oregon's Forest Practices Rules inadequate to prevent threats to coho from logging-associated freshwater habitat degradation before and since the prior listing. Barring significant changes – which do not appear at all likely – the rules are not rendered more effective by virtue of the state's unfounded declaration that coho are viable. This kind of circular logic to preserve the status quo cannot credibly be relied upon by NOAA.

In sum, Oregon's viability assessment and evaluation of state conservation efforts does not provide NOAA Fisheries with an adequate basis to find that coho salmon do not warrant listing. It is only when a state conservation plan actually removes the threats to a species through implementation of its provisions that the agency can legally determine the listing is not warranted. There is no rational basis upon which to base such a finding at this time.

II. RESPONSE TO SELECTED KEY CONCLUSIONS REGARDING ESU VIABILITY

Conclusion 1: "The Coastal coho ESU is viable, that is, coho populations generally demonstrate sufficient abundance, productivity, distribution and diversity to be sustained under the current and foreseeable range of environmental conditions. In fact, the ESU retains sufficient productivity and is supported by sufficient habitat to be sustainable through a future period of adverse ocean, drought and flood conditions similar to or somewhat more adverse than the most recent period of poor survival conditions (late 1980s and 1990s)."

This finding is not supported. PRC concurs with the IMST that the viability assessment:

- would be strengthened by a more balanced discussion of the strength and weaknesses of the methods used.
- relies on new assumptions about low abundance which have not been thoroughly reviewed scientifically nor tested.
- relies heavily on a single model in making its conclusion about risk of extinction or persistence relies on, and that a more rigorous approach would include all available scientific information.
- does not clearly describe the status of coastal coho and the conditions that affect the future trends for these fish and the habitats that support them.
- relies on a circular central argument that "the ESU is viable; hence the habitat must be adequate. Therefore, the habitat must be adequate because the ESU is viable." This leads to a false sense of security about delisting the coho ESU. A more accurate statement

would be: "the ESU might be viable, in spite of the fact that the habitat is quite marginal."
- includes conclusions that are not sufficiently supported, excludes some relevant information and is inattentive to the significance of critical uncertainties.

Furthermore, Oregon's claims regarding abundance are based upon an inaccurate reference point. The reference point for historical abundance does not start in the 1990s (as in ODFW's draft viability report) or in the 1950s (as in the final report). For example, graphing reconstructed estimates of historical abundance starting in the 1890s for the Alsea basin clearly shows that the recent abundance upswing is still far below historic numbers. Furthermore, the upswing is already dropping – last year's coastal coho return was less than half of the peak return of 2002. (Peter Bahls, Northwest Watershed Institute, July 25, 2005).

As an illustration, if the historical abundance graph were divided into colors for each unique life history or important subpopulations, we would likely see many smaller populations going extinct as the overall populations shrinks. After the 1990s drop to lowest numbers on record, the population as a whole is now probably at its lowest ever fitness for freshwater and marine survival. ODFW argues that because the coho made it through the downswing in the 1990s, they are resilient and will make it through the next one. But this outcome is not realistic if, as is likely, the overall fitness of the population has dropped.

A fundamental problem is that Oregon's viability assessment is biased toward data sets that reflect coho only in certain spawning reaches in which redd counts were conducted multiple times, which data fail to account for the extent of local extinctions. Reaches with deteriorating water quality or lack of fish or redds were dropped from the protocol. Oregon is essentially counting strong coho populations, and making conclusions about habitat adequacy based on the productivity of habitat that comprises but a fraction of the habitat that historically supported coho. The true measure of robust populations and their resilience is their ability to re-populate vacated habitat, not solely the increase in numbers within surviving populations. It is in fact just this process of local and unremitting attrition of range that jeopardizes the species. This is a serious, major oversight in the state's analysis. Although Oregon's data show that in some streams where coho remain, they can bounce back when ocean conditions improve, the state's analysis fails to demonstrate any such recovery in streams where coho once existed but do not today--a central theme and the primary data presented in Pacific Rivers Council's original petition for listing over ten years ago.

The PRC et al. petition of 20 August 1993 raised issues regarding the collapse of locally-adapted populations and local extinctions. For example, the petition suggested that:

> in-basin factors (for example, freshwater habitat) play a major role in triggering declines of individual spawning populations, and . . . [that] individual tributaries support relatively discrete populations that respond semi-independently to environmental change. This pattern is characteristic of coho populations elsewhere in their range, suggesting that declining abundance of the species is a cumulative effect of unremitting decline and extinction of thousands of local populations. (PRC et. al. Petition at p.7)

The petition also addressed local extinctions and the "stratified random" surveys of coho spawner abundance begun by ODFW in 1990. The petition asserted that:

> 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. (PRC et. al. Petition at p. 9)

Conclusion 2: "During and after the recent period of poor marine survival, coho populations generally demonstrated adequate resiliency to resist continued downward population trends, and demonstrated the ability to rebound dramatically as marine survival conditions improved."

It is not a fair characterization to claim that coho populations "generally" demonstrated the aforementioned responses when 7 of the 21 independent coho populations failed at least one of the viability criteria.

Conclusion 3: "The mechanisms for this response are most likely a combination of inherently strong density-dependent recruitment coupled with sufficient high quality habitats to sustain productivity during periods of adverse environmental conditions. This reasoning does not imply that habitat conditions are optimum for the species nor that habitat is currently sufficient to achieve broader Oregon Plan recovery goals for the ESU."

The state has provided inadequate evidence to support a claim that coho have sufficient high quality habitats. The state used some data in its analysis of density-dependent recruitment; however the data do not support the claim that sufficient high quality habitats exist. This is merely an assumption. In fact, the habitat might be quite marginal, and the "demonstrated resiliency" may be explained by other mechanisms, which helped the coho survive periods of adverse environmental conditions, <u>despite the lack of sufficient high quality habitats.</u>

Conclusion 6: "The possibility that a number of adverse environmental conditions could converge and create a catastrophic threat to ESU viability is real. The convergence of the worst marine survival conditions in the last five decades, drought and extreme floods all occurred in the 1990s. Although the impacts were dramatic the ESU remained viable through this period and rebounded quickly once conditions moderated. Oregon concludes that the life cycle of the species, its population dynamics and structure, and its broad geographic distribution all provide protection and reduce the likelihood that catastrophic events or convergence of multiple adverse environmental conditions would result in this ESU not being viable in the foreseeable future."

As stated above, there is no rational basis is there to conclude that the ESU would survive worse conditions than we just came through. We reiterate the IMST's observation of the draft assessment – the final assessment is overly dismissive of the likelihood that the convergence of multiple factors might actually occur over the long term, i.e. it does not adequately account for

the potential consequences of multiple factors affecting coho. This problem is not overcome by the presentation of persistence modeling in the final assessment – as discussed elsewhere in these comments, the model does not accurately reflect population response due to inherent biases.

Conclusion 7: "The assessment that Oregon coastal coho are viable and likely to persist into the foreseeable future is predicated on the assumption that freshwater habitat and marine survival conditions in the future will generally correspond with environmental conditions and variability evident in the past several decades. If survival associated with marine or freshwater conditions trend moderately downward into the future, then the assessment should be revisited and adjusted accordingly."

Even if it were safe to assume that habitat conditions will remain approximately the same as over the past several decades (i.e. status quo), it is a highly questionable assumption that this level of habitat is adequate to support viability. As stated above, Oregon's definition of viability appears to be predicated on a constrained, post-disturbance view of coho occupation that accepts and permanently "locks in" local extinctions and the depopulation of formerly occupied and now converted or unproductive habitats.

Furthermore, the viability assessment's reliance upon the assumption that habitat conditions will not get worse over the next 100 years ignores the high likelihood that habitat conditions will degenerate for at least the following reasons:

- Global climate change may adversely affect coho habitat.
- Increased habitat degradation is likely to result from human population expansion and increased development. Riparian areas and floodplains that were in poor shape are being even further degraded by residential development, riprapped banks, and tree clearing. Also, population growth increases demands on water and transportation systems that will directly and indirectly impact habitat in the Coast Range. Implementation of Measure 37 will not help this situation, and already is leading to exemptions from existing land use and environmental regulations and a virtual moratorium on the implementation of stronger environmental policies.
- Logging of state forest lands of the North coast is likely to continue to accelerate. For over 60 years, the North coast has been in recovery and now is being opened up to logging. Proposals in the state legislature right now appear likely to lead to unsustainable levels of harvest.
- Oregon's forest practices rules do not adequately protect coho and their habitat (see below). The existing rules are inadequate for riparian and slope protection, and are far below Washington standards, which should be seen as a minimum floor for ESA sufficiency. Significant adverse impacts persist from the extensive forest roads system.
- The "legacy" wood currently in streams and delivered to streams form landslides is rotting out, so streams may be losing wood over time, even with minimal tree buffers.
- Protection of federal lands into the future is uncertain. The Aquatic Conservation Strategy protections have been seriously reduced and protection may be removed from BLM lands. There is still too little money for addressing erosion from thousands of miles of un-maintained road: there are 2000 miles of un-maintained roads in the Siuslaw National Forest alone.

- Habitat restoration is in the very early stages. For example, in the Alsea Basin of the Mid-Coast, no comprehensive fish passage assessment has been conducted. Furthermore, a limiting factor analysis has not been conducted in any of the 60 of 217 high priority 6th field watershed in the Alsea Basin (although 5 are underway). Most of the work identified in federal studies has not been completed yet. At least $14 million in anticipated needs for further assessment and restoration is needed.

Likewise, the viability assessment's assumption that marine survival conditions will not get worse over the next 100 years also is flawed for at least the following reasons:

- Climate change can cause further loss of ocean productivity.
- The ocean's ability to support salmon is being further impacted by net-pen salmon production, which is harvesting the lower end of the food chain in the Pacific Ocean.
- Increased pollution and oil spills due to increased population growth, and potential new developments, such as President Bush's proposal for offshore net pens, would further reduce ocean habitat.

Conclusion 8: "Diligence in ongoing conservation efforts, coupled with an ongoing commitment to monitoring and evaluation for adaptive management, will ensure that viability is maintained. Improving viability to better meet recovery goals and Oregon Plan objectives will likely require additional conservation efforts focused on key limiting factors. Oregon and NOAA Fisheries, in collaboration with stakeholders, are currently developing this expanded conservation plan. A draft is scheduled for completion by the end of 2005."

As stated above, we do not accept the viability finding, so do not agree that viability will be maintained by conservation efforts. Nor do we agree that viability will be attained by such efforts.

III. PRC RESPONSE TO SELECTED KEY CONCLUSIONS REGARDING THE EFFICACY OF OREGON'S CONSERVATION EFFORTS

Conclusion 1: "Historical land, water and fish management activities that were the major contributing factors for the legacy of coho declines have been stopped."

This vastly overstates the case for land and water impacts. Agriculture continues on diked and tidegated lowlands no longer suited or available as coho habitat. Water still is over-appropriated on many streams, posing a primary risk factor for certain populations. Intensive timber harvest continues at high levels on private lands, with adverse impacts to coho and their habitats, as reflected in the report's findings of pervasive problems with lack of stream complexity and water quality.

Conclusion 2: "State and federal laws established during the 1950s through 2004 (Splash damming eliminated, gill-netting eliminated in coastal rivers, federal Clean Water Act, federal Endangered Species Act, Oregon Forest Practices Law, Oregon Fill and Removal Law, PFMC Harvest Matrix Amendment 13, Native Fish Conservation Policy, Salmon and Parks

Initiative, etc) establish a far more protective management environment than existed previously."

It is true that law and policy have changed much since the 1950s. However, aside from harvest and hatchery changes, the legal and policy context has not changed significantly since coho salmon were listed in 1998. Of particular note are the Northwest Forest Plan, which was in place at the time, and the Oregon Forest Practices Act, which has not significantly changed for the better since the coho were listed – at which time they were found to be seriously lacking by NMFS (see below).

Improvement over historical practices does not automatically lead to a conclusion that practices are adequate to ensure the survival and recovery of coho. As discussed below with regard to forest practices, history belies the statement that Oregon possesses "a willingness and capacity to modify management programs." (Final Assessment, Part I at 36).

Conclusion 3: "Implementation of the Oregon Plan beginning in 1997 demonstrated a substantial effort by the state to expand and strengthen an already considerable programmatic conservation and restoration effort – designed to improve the status and prevent any future deterioration of this ESU's viability."

Oregon's efforts are exemplary. Whether they justify a no-list decision, however, depends on their adequacy to remove threats to the viability of coho salmon in the foreseeable future. There is ample evidence in the record of the original coho listing that baseline standards for forest practices and agricultural practices allow ongoing harm to coho and its habitat, and that water allocation policies have not been significantly improved to alleviate harm to coho where instream flows are a significant problem.

Conclusion 4: "Fishery harvest rates over the last decade have been maintained by management action at extremely (unprecedented) low levels compared to the prior four decades. Hatchery programs and impacts are at the lowest levels during the past four decades. Conservative regulation of fishery and hatchery impacts is required by state and federal policies that will continue to protect and strengthen future ESU viability.

We agree.

Conclusion 7: "Reduced adverse impacts from hatchery programs across the ESU in the last two decades may not have been fully reflected in populations that were most adversely affected by historical practices. Such positive expression of current management practices may occur in the next decade or so."

This may be true, but we cannot rely now on data that is not yet available.

Conclusion 8: "New regulatory and programmatic action by DEQ, ODA, and ODF has been implemented; this action should further improve water quality and habitat supporting the ESU."

The actual magnitude of regulatory improvements is minimal, and there is no rational basis to conclude that they are adequate to remove actual on-the-ground and in-the-stream threats to coho. We note that programmatic actions such as the development of TMDL goals or SB1010 Plan objectives alone do not demonstrably lead to management changes necessary to meet these targets, however laudable.

> **Negligible Beneficial Action has been Taken by the Oregon Department of Forestry While Significant Negative Regulatory Change Has Occurred -- Forestry Programs do not meet PECE Evaluation Criteria for Efficacy**

Positive regulatory change by ODF since 1994 has been minimal with regard to private forest lands, and significant changes to the regulatory structure have actually weakened state oversight of private logging. It is true that wet-weather hauling rules have been implemented, and that these should reduce by some unknown extent, sedimentation to streams. It is also true that legislation has been enacted authorizing rules that would allow State Forester direction of minimal tree-retention in debris flow tracks, but such rules would not provide significant conservation benefit[1], and in any case have not yet been implemented.

However, significant negative rules changes have occurred in that State Forester approval of harvest plans has been eliminated in the state's attempt to evade Section 9 take enforcement via HB3264, gutting the state's ability to exercise effective oversight of logging through the approval and conditioning of written plans.

The fact is that no on-the-ground improvements detectible by coho salmon have yet been demonstrated on private forest lands. Although ODF refers to "active" engagement with EPA and NOAA Fisheries "to resolve technical issues and advise proposed changes to forest practices" the assessment neglects to mention that both agencies have repeatedly declined to sign off on the sufficiency of the current program to meet either water quality standards or to prevent unacceptable take of coho salmon.

The patent inadequacy of Oregon's Forest Practices Rules undermines the state's unfounded assumption that current habitat levels and trajectories are consistent with avoidance of coho extinction.

> **History indicates that salmon- and water quality-sufficient forest practices reform intended as part of the Oregon Plan for Salmon and Watersheds since 1997 are unlikely ever to occur**

It is evident that there is a long history of discussion over the adequacy of the state's rules to protect the needs of salmon, including water temperature, associated with the listing of Oregon's coastal coho salmon. As part of the listing process, NMFS (NOAA Fisheries) assessed the

[1] In any case, discretionary retention of 2 trees per acre at some tributary junctions will not significantly change the ecological impacts of debris flows to the benefit of fish, and will allow continued resource degradation which cannot be adequately mitigated by making smell debris-flow streams a monitoring priority. See e.g. NMFS and AFS Testimony on HB2163, April, 2001 Before the Senate Committee on Natural Resources, Agriculture, Salmon, and Water.

inadequacy of existing regulatory mechanisms, as required under ESA, finding that Oregon's regulation of private forest practices was inadequate:

> The Oregon Forest Practices Act (OFPA), while modified in 1995 and improved over the previous OFPA, does not have implementing rules that adequately protect coho salmon habitat. In particular, the current OFPA does not provide adequate protection for the production and introduction of large woody debris (LWD) to medium, small and non-fish bearing streams. Small non-fish bearing streams are vitally important to the quality of downstream habitats. These streams carry water, sediment, nutrients, and LWD from upper portions of the watershed. The quality of downstream habitats is determined, in part, by the timing and amount of organic and inorganic materials provided by these small streams (Chamberlin *et al.* in Meehan, 1991). Given the existing depleted condition of most riparian forests on non-Federal lands, the time needed to attain mature forest conditions, the lack of adequate protection for non-riparian LWD sources in landslide-prone areas and small headwater streams (which account for about half the wood found naturally in stream channels) (Burnett and Reeves, 1997, *citing* Van Sickle and Gregory, 1990; McDade *et al.*, 1990; and McGreary, 1994), and current rotation schedules (approximately 50 years), there is a low probability that adequate LWD recruitment could be achieved under the current requirements of the OFPA. Also, the OFPA does not adequately consider and manage timber harvest and road construction on sensitive, unstable slopes subject to mass wasting, nor does it address cumulative effects.[2]

Seeking to avoid listing of Oregon coastal coho salmon, Oregon Governor John Kitzhaber developed the Oregon Coastal Salmon Restoration Initiative. In April 1997, a Memorandum of Agreement ("MOA") between Oregon and NMFS that "NMFS will work with Oregon and the Department of Forestry over the next six months to develop adjustments NMFS believes are required in Oregon forest practices to provide a high probability of protecting and restoring aquatic habitat on Oregon forest lands which are important for Oregon coastal coho." MOA, § 7(f)(1). The MOA further provided that "Oregon shall make every effort to ensure that the Board of Forestry, or the Legislature consider the proposals promptly, and make a decision on the proposed changes in a timely manner and shall make any necessary changes no later than June 1, 1999." MOA, § 7(f)(3). In May 1997, NMFS withdrew its proposal to list Oregon coast coho salmon as threatened, concluding that the species would not become endangered during a two-year time frame allowed for Oregon to adopt improved habitat measures. While NMFS expressly found that the current forest practice rules do not "adequately protect coho salmon habitat,"[3] it relied on Oregon's promise to adopt new rules that would provide such protection.[4]

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[2] 62 Fed. Reg. at 24,596.

[3] 62 Fed. Reg. at 24,607-08, at 24,596,

[4] "Under the April 1997 MOA between NMFS and the Governor of Oregon . . ., NMFS will propose to Oregon additional forest practices modifications necessary to provide adequate habitat conditions for coho. If these or other comparable protections are not adopted within 2 years, NMFS will act promptly to change the ESA status of this ESU to whatever extent may be warranted." Id. at 24,607-08.

In accordance with its agreement with Oregon, NMFS recommended changes to Oregon's regulation of forest practices in February 1998.[5] Specifically, NMFS recommended riparian buffers on all streams with buffers in the coast range of 150-200 feet on fish-use streams, 100-135 feet on perennial nonfish-use streams, and 50-100 feet on intermittent nonfish-use streams. NMFS also recommended prohibiting forest practices on landslide-prone locations with a high or medium potential for delivery to streams. With respect to cumulative effects, NMFS endorsed short-term "precautionary management - i.e., the application of conservative measures to avoid individually small effects that may add to an already adverse circumstance or cumulate over time and eventually reduce salmon survival. In the longer-term, cumulative effects should be addressed as part of effective watershed analysis . . . ."[6] Oregon did not implement NMFS' proposal.

After the coho listing, Governor Kitzhaber issued Executive Order No. 99-01 modifying the framework for implementing what had become known as the Oregon Plan for Salmon and Watersheds in light of the coho listing. The Executive Order reaffirmed the role of the Independent Multidisciplinary Science Team ("IMST"), which had been established by the Oregon Legislature to provide independent scientific oversight of the Oregon Plan for Salmon and Watersheds.[7] With respect to Oregon's forest practice rules, the IMST concluded that "current rules for riparian protection, large wood management, sedimentation, and fish passage are not adequate to reserve depressed stocks of wild salmonids."[8]

The Executive Order directed the Board of Forestry to "determine, with the assistance of an advisory committee, to what extent changes to forest practices are needed to meet state water quality standards and to protect and restore salmonids." More specifically, the Executive Order directed that: "the advisory committee will make recommendations to the Board at both site and watershed scales on threats to salmonid habitat relating to sediment, water temperature, freshwater habitat needs, roads and fish passage. Based on the advisory committee's recommendations and other scientific information, the Board will make every effort to make its determinations by June 1999." [9] The Board then convened the Forest Practices Advisory Committee on Salmon and Watersheds ("FPAC") to recommend changes in ODF's regulation of forest practices.

The FPAC committee made modest recommendations to improve some aspects of forest practices on private lands in Oregon, but these did not purport to stop the State Forester from authorizing logging operations that take coho or salmon under the ESA nor did it claim to fully address water quality standards. The FPAC's final report candidly admits that: "[t]he effort did not attempt to specifically address sufficiency for particular federal laws or regulations, such as the federal Endangered Species Act or Clean Water Act."[10]

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[5] NMFS, A Draft Proposal Concerning Oregon Forest Practices at 67 (Feb. 17, 1998).
[6] Id. at 64, 57 and 91.
[7] Oregon Senate Bill 924 (1997 Or. Laws, ch. 7); Executive Order No. 99-01, at 1(k).
[8] IMST, Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Rules & the Measures in the Oregon Plan for Salmon & Watersheds, Technical Report 1999-1, at 2 (1999).
[9] Executive Order No. 99-01, at 3(c).
[10] Report of the Ad Hoc FPAC on Salmon & Watersheds to the Oregon Board of Forestry at 2 (Aug. 2000).

> **The current stream protection rules are not demonstrably adequate to meet current water quality targets set as Load Allocations for shade, which targets are designed to meet water quality standards for temperature under the state's Total Maximum Daily Load program.**

A significant proportion of the streams known to be impaired in Oregon are on private forestlands. For example, in the Nehalem basin, about 57% of stream miles impaired for temperature are on private lands. On the Siletz, the proportion is 65% for temperature, 32% for sediment and 48% for habitat modification. In the Coquille Basin, 49% of temperature-impaired miles are on private forestlands and on the Coos it's up to 70%. (from DEQ data compiled during drafting of Sufficiency Analysis, March, 2002 and Mary Scurlock Personal Communication with Tom Rosetta, ODEQ).

Many effects from forest practices, such as sedimentation, large wood depletion, hydrologic change and decreases in stream shading, are cumulative within watersheds. The current Oregon forest practice regulations and State Forester approvals authorize logging operations that degrade water quality and salmon habitat. The state's own shade study and three federal agencies support the contention that the current stream protection rules do not provide adequate assurance that stream shade targets will be met.

As recently as February 2001, NMFS, FWS and EPA jointly concluded that: "The evidence is. . . overwhelming that forest practices on private lands in Oregon contribute to widespread stream temperature problems and degraded salmonid habitat conditions" and that a "substantial body of scientific literature demonstrat[es] that Oregon forest practices likely adversely affect water quality and threatened species of salmonids . . . ."[11]

These concerns have been specifically raised numerous times by EPA in its letters approving TMDL load allocations for shade, but because of the agency's limited authority to formally "approve" implementation plans, these concerns have been brushed aside by the designated management agency for forestry, the Oregon Department of Forestry. For example, in July 2001, with regard to Tillamook Bay, the agency stated "Available data demonstrate that forest management under the Oregon Forest Practices Act reduces shade significantly below the levels necessary to achieve the load allocations [for temperature.]" [12]

As a more recent example, EPA stated in August of 2003:

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[11] EPA, FWS, NMFS, 2001. Letter from Dan Opalski, Director, EPA Oregon Operations Office, Environmental Protection Agency; Kemper McMaster, State Supervisor, USFWS and Michael Tehan, Oregon Branch, Habitat Conservation Division, NMFS to Dick Pedersen, Manager, Watershed Management, Oregon Department of Environmental Quality and Ted Lorensen, Forest Practices Program Director, Department of Forestry f the State of Oregon (Feb. 28, 2001) (3 pages) (transmitting 28 pages of comments on the state's draft temperature sufficiency analysis entitled "Review of the December 2001 Draft Sufficiency Analysis: Stream Temperature")

[12] EPA, 2001 (a). Letter from Randall F. Smith, Director, Office of Water, Region 10, to Stephanie Hallock, Director, ODEQ, Re: Approval of Temperature and Bacteria TMDLs for the Tillamook Bay Watershed (July 31, 2001) (citing shade study findings that OFPA rules allow management that reduces shade significantly below the levels necessary to achieve load allocations and stating expectations that the Forest Practices Rules and BMPs will be revised and improved to meet TMDLs)

> The preponderance of monitoring, assessment, and research efforts demonstrates that Oregon's existing forest practice rules will not adequately protect water quality or recover fisheries. The December 2000 DEQ/Oregon Department of Forestry (ODF) Temperature Sufficiency Analysis found that there are water quality impairments due to forest management activities even with Forest Practice Act (FPA) rules and BMPs in place. An October 2002 DEQ/ODF Temperature Sufficiency Analysis indicates that for some medium and small streams, current riparian management area prescriptions for western Oregon may result in short-term temperature increases. In addition, data from the DEQ/ODF CWA Section 319 shade study demonstrates that harvest allowed under FPA in RMAs [riparian management areas] can significantly reduce shade below the levels necessary to achieve the North Coast Subbasins temperature TMDL load allocations.[13]

Moreover, these problems also have been repeatedly flagged during review of Oregon's Coastal Zone Management Program. In January 2003 NOAA Fisheries and the Environmental Protection Agency informed the lead Oregon agencies for coastal zone management (the Department of Land Conservation and Development and the Oregon Department of Environmental Quality) that Oregon's Forest Practice program still needs strengthening to attain water quality goals and meet CZMA requirements. This communication reiterated the deficiencies raised in the 1998 program review:

> These areas include protection of medium, small, and non-fish bearing streams, including intermittent streams; protection of areas at high risk for landslides; the ability of forest practices to address cumulative impacts of forestry activities; road density and maintenance, particularly so-called "legacy" roads; and the adequacy of stream buffers for the application of certain chemicals.

The January 10, 2003 comments specifically find that these concerns have not been fully addressed and that the state's current Forest Practices Act program will not attain water quality targets (TMDLs). The agencies recommended that basin specific rules be developed immediately to address water quality limited basins under the state's basin-specific rules provisions at OAR 629-635-0120, but this has not occurred.

We note that ODF has continued to avoid directly addressing the question of whether its rules are TMDL-adequate. The "sufficiency analysis" was not structured to evaluate the specific magnitude or type of rule change necessary to meet those objectives. Such an assessment would be possible using available models and a more carefully designed and implemented data collection program. The analysis presented thus far primarily serves only support the conclusion that the current rules are not adequate. However, One point of progress appear to be the ODEQ's request to ODF that the forest practices rules be more explicitly linked to TMDL

[13] EPA, 2003. Letter from Randall F. Smith, Director, Office of Water, Region 10, to Stephanie Hallock, Director, ODEQ, Re: Approval of Temperature and Bacteria TMDLs for the North Coast Subbasins (August 20, 2003) (reiterating hope that watershed specific practices will be created to ensure OFPA rules meet TMDL targets)

adequacy. A cursory analysis comparing the shade study data on post-harvest shade with the TMDL targets that have been set in numerous basins indicate they are not adequate. Further, the data underlying the sufficiency analysis also indicate the approximate magnitude of the improvement in FPA rules that may be needed to meet water quality standards. For example, ODF/ODEQ found that stream shading levels along small fish-bearing streams subjected to harvest under FPA rules were significantly lower than those along similar, but unharvested streams. The underlying data suggest that median basal area values for the riparian trees left along the harvested streams were more than 2.5 times the minimum allowed under current rules. This means that the small stream sites in the study showed significant reductions in shading (and presumably increases in stream temperature) even though they were harvested less aggressively than allowed by current rules. It also suggests that increasing the FPA vegetation retention requirement along these streams by a factor significantly more than 2.5 would be needed to protect small fish-bearing streams against significant shade reductions and, presumably, increases in stream temperatures.

In sum, as of July 2005, the Board of Forestry has not yet revised its forest practice regulations to fully protect listed coho salmon or meet water quality standards, nor have even the modest regulatory changes recommended by the FPAC committee been adopted. Since 1997, the most substantive rule change that has occurred is the rule governing wet-weather hauling. Although four minor rule changes made it part-way through the ORS 527.714 process, further work has been deferred pending information related to Measure 37. All progress to implement the legislative authorization for leave-trees along debris flow tracks on Type N streams has been deferred indefinitely. (*See e.g.* April 29, 2005 Board of Forestry Agenda Item 6, Attachment 5, page 2).

> NOAA Must Rely on Acts, not Aspirations

PRC reiterates NMFS comment that NMFS, EPA, and U.S. Fish and Wildlife Service (USFWS) have stated that current BMPs do not fully protect water quality or provide riparian functions important to water quality and fish. Oregon still does not adequately acknowledge this uncertainty, nor the fact that EQC adopted revised water quality standard for temperature in 2003 and that if the BMPs were not meeting all of the water quality standards before (as stated in the sufficiency analysis), it is unclear how they could they be meeting the new standards, which in some areas are more stringent.

The final Oregon assessment essentially dismisses the federal agencies' input by disputing its basis and stating that further information is needed from the agencies to support a rule change under Oregon Law. This argument appears to have devolved into an unproductive standoff, with Oregon digging in its heels to defend the status quo.

The ODF further argues that "It is a misrepresentation of the Sufficiency Analysis findings to say that it states that "BMPs were not meeting all of the water quality standards" by quoting actual langauge from the report. We note that the sufficiency analysis' actual data strongly support the finding that the BMPs are not adequate -- despite the ODF's successful attempt to water down the language of the final report's conclusions and the recommendations. It is significant that

earlier drafts of the sufficiency analysis – based on the same data – very clearly stated the following conclusions:

> Stream shade is consistently found to be reduced at FPA treated areas when compared to control areas. . . The data collected by ODF in 1999 demonstrates that FPA treatments do cause a measurable increase in pollutant loading from forestry, as a non-point source of pollution. System potential is not attained in this case. (Draft Sufficiency Analysis, April 2000, page 5).

> **IMST Consistency Should be the Floor for Stream Protection Rules**

The IMST's recommendations constitute a sufficient basis upon which to base minimum regulatory changes, which changes would make progress towards achieving the levels of protection deemed adequate by NMFS in its 1998 proposal. In order to be fully consistent with the Team's 1999 recommendations, the rules must provide equivalent riparian protection to all perennial streams.[14] The team found current Conifer Retention Targets inadequate, calling for more certainty that large trees will be retained through large tree retention and higher basal areas requirements:

> "During harvest, disproportionately removing the larger diameters from the RMA should not be allowed. The size class distribution and density of conifer-dominated riparian forest should eventually reflect that of an older forest (160 years and greater)." (IMST Report Addendum 1, 11/3/99 and IMST at 44-45).

In contrast, the current targets are loosely based on the goals to attain 140-year old forest characteristics halfway through the next rotation and to not include large-tree safeguard.

The team specifically recommended that "minimum retention on small and medium streams should be at least what is now required on large fish-bearing streams (IMST at 45) (i.e. 100 ft2/acre) The Team further also recommended that at least the same protection should be provide to nonfish bearing perennial streams as for those that bear fish. We note that even the large-stream retention targets allow harvest down to well under a third to a quarter of the conifer basal area that is characteristic of truly mature riparian forests.

Yet, even at their zenith several years ago, ODF proposals consistently fell short of IMST recommendations in at least the following ways:

> (1)They do not treat non-fish bearing streams the same as fish-bearing streams when determining buffer-width protection, nor do they provide a 50-foot buffer on a portion of the non-perennial network. (Recommendation 3, page 43.) Nonfish streams would not

[14] "Within existing RMAs, the width is adequate for recruitment of large wood but the density of large conifers is not, especially on small streams." (IMST at 32) (Note, however, that to extent that current widths do not include the entire floodplain, they are not adequate, as per IMST at 31).

receive commensurate protection and none of the non-perennial network receives any significant riparian protection under any rule change or voluntary measure currently being considered.
(2) There is no increased protection for 100-year floodplains and islands. (Recommendation 4). The languishing 50-year CMZ protection proposal (Rule Concept #5 in BOF parlance) would be voluntary and does not ensure that the full floodplain will be protected.
(3) There is no increased basal area and tree-retention requirements for medium and small streams regardless of fish presence. (Recommendation 5).
(4) There is no enhanced certainty of protection for core areas. (Recommendation 7).
(5) Trees are not retained on "high risk slopes" and in likely debris torrent tracks to increase the likelihood that large wood will be transported to streams when landslides and debris torrents occur. (Recommendation 13).
(6) There is no method proposed for evaluating the effectiveness of management practices on landslide-prone slopes (Recommendation 14).
(7) There is no stated goal of "emulation of the historic range and distribution of conditions at the landscape level." (Recommendation 1).

> **Management of Unstable Areas Should not Contribute to Alteration of Landslide Regime – Rate, Timing, and Content of Slide Materials are all Relevant**

PRC recommends that areas at high risk of shallow-rapid slides and which are likely to deliver to stream channels be designated as unsuitable for timber harvest.

Logging and roadbuilding on areas at high risk for both shallow-rapid and deep-seated landslides increases the frequency of slides and changes their natural timing and characteristics, causing significant degradation of aquatic ecosystems. Landslides degrade aquatic habitat by increasing sedimentation and changing stream structure, thereby disrupting and impairing essential behavioral patterns of native fishes, such as spawning, rearing, feeding, and sheltering. Injury and mortality of fish also are likely. Specifically, the adverse impacts of mismanagement on landslide-prone sites include:

- Direct kills of adult and juvenile salmon and trout from entrainment or entombment in landslide masses;
- Indirect fish kills from displacement by debris-charged flood waves into lateral areas off the main stream channel, where, isolated from mainstream habitats, fish die when floodwaters recede or when consumed by mammal or bird predators;
- Blockage of upstream habitat by landslide debris, preventing or reducing successful passage of adult salmon and trout to important spawning areas;
- Stream temperature increases beyond tolerance levels for salmon and trout from scour of standing riparian trees in debris flow tracks, reduction of canopy cover and widening of stream channels, all of which leads to excessive stream warming;
- Prolonged duration and magnitude of slide-related sediment pulses beyond levels under which native aquatic species evolved and which are inconsistent with their continued survival and recovery;

- Increased overall landslide rate to levels higher that those under which native aquatic species evolved and which are inconsistent with their continued survival and recovery.

Yet, ODF contends that current science does not support the benefits of leave areas on high risk sites to prevent harm from in-unit slides – despite a strong consensus in the scientific research that logging of unstable slopes dramatically increases the occurrence of landslides and that such logging changes the nature of in-stream effects of slides. Experts also agree that there is no available evidence to support the contention that partial logging of unstable slopes or state-of-the-art roadbuilding techniques will prevent the increased risk of failure and associated harm to aquatic ecosystems. Relevant risk include not only of increased incidence but of the changes causes by logging slide sites and the ensuing differences in stream impacts.

> Threats from Roads on Nonfederal Forestlands are not Sufficiently Addressed

Roads are well-known to have pervasive, multiple, and often overwhelming effects on freshwater ecosystems (Furniss et al. 1992, Trombulak and Frissell 2000, Gucinski et al. 2001). Roads have many physical and biological effects that can severely and permanently harm streams and their biota. The many mechanisms by which roads exact this harm are reviewed in Trombulak and Frissell (2000) and Gucinski et al. (2001). Roads are an important cause of accelerated landsliding on many slope types (Gucinksi et al. 2001, Montgomery 1994). However, across the range of types of forest lands in Oregon's Coastal Coho ESU, the more prevalent and critical cause of harm to streams is the diversion of runoff and acceleration of erosion by upland or riparian roads, and the subsequent transfer of that sediment via road drainage systems and its injection into surface waters at stream crossings (Hagans et al. 1986, Frissell 1992, Wemple et al 1996, Frissell et al. 1997). Such effects elevate sediment levels both chronically and episodically. Most existing forest roads were not built to standards designed to prevent these effects, and in fact complete prevention of these effects is impossible (Trombulak and Frissell 2000). Adverse effects can be reduced to varying degrees through careful road location, design, and execution (e.g., Madej et al. 2001, Weaver et al. 1994, Furniss et al. 1991). In most cases, substantial reduction of sediment generation and delivery from existing roads cannot be accomplished via simple generic application of "Best Management Practices (BMPs) (Espinosa et al. 1997, Trombulak and Frissell 2000), but only through considered evaluation of road locations and conditions, followed by substantial modification or obliteration of specific road segments based on their environmental harm balanced against specific management need (Switalski et al. 2004, Gucinski et al. 2001, Luce et al. 2001, Madej 2001, Wemple et al. 1996, Weaver et al. 1994).

Net road density (expressed in units such as miles of road per square mile of drainage area) has proven to be an effective indicator of the ecological impact of roads in watersheds, and has been shown in several studies to correspond approximately linearly to in-stream conditions and biological success. General observed relationships between road density and fish population and habitat status hold true regardless of variation among road segments in their condition, design, location, and presumed level of impact (Trombulak and Frissell 2000). For example, from the Federal Register Notice that listed bull trout as a threatened species [Federal Register: November 1, 1999 (Volume 64, Number 210)][Rules and Regulations][Page 58909-58933]:

> Bull trout were less likely to use highly roaded basins for spawning and rearing, and if present, were likely to be at lower population levels (Quigley and Arbelbide 1997). Quigley et al. (1996) demonstrated that when average road densities were between 0.4 to 1.1 km/km^2 (0.7 and 1.7 mi/mi^2) on USFS lands, the proportion of subwatersheds supporting ``strong'' populations of key salmonids dropped substantially. Higher road densities were associated with further declines.

In additional published research, Baxter et al. (1999) showed that bull trout populations among a group of Montana streams showed the capacity for recovery (via increases in spawning population counts over time) only in streams draining watersheds with low road densities. Streams in areas of road density greater than about 2-3 mi/mi^2 showed little or no capacity for recovery even where other factors in the life cycle of the fish (e,g,, harvest, migration survival) had improved. This is clear and direct evidence of habitat limitation associated with forest practices in headwater areas, and it strongly supports the hypothesis that forest road density is a useful measure of habitat condition. *Failing to cap or reduce road densities to relatively low levels threatens salmonid populations with extinction and clearly curtails their ability to recover.*

Yet the Oregon Plan includes *no provisions to restrict future increases in road density, nor any that ensure that future road density will decrease to levels necessary to foster recovery.* Oregon appears to assume that the implementation of forest practices under current state standards will eliminate all effects of roads, but this assumption is unrealistic and indefensible. Even the most ideal practices (short of the ideal of not building a road in the first place) can only reduce the adverse effects (Espinosa et al. 1997, Trombulak and Frissell 2000, Madej 2001, Switalski et al 2004), and where road density is moderate to high, even fully-compliant roads will cause some sustained level of impact, including increased peak flows and mobilization and delivery of sediment in excess of natural levels. Unless there are standards that mandate or encourage reduction of road density and cap road density where it is currently low *to structurally reduce the spatial extent of the road network infrastructure on a large scale*, continued loss of habitat and take will occur on an ongoing basis, over sustained times periods, and in virtually all watersheds.

Road work which is necessary for a harvest operation must comply with the FPA, yet roads which were constructed prior to the FPA requirements are described as 'legacy roads' and all reconstruction work conducted on these older roads is voluntary. The failure to adopt any provision to force repair of these abandoned/orphan roads could offset or severely limit any possible benefit derived from landowners' efforts to bring in-use roads up to standards. We note that the exemption from FPA standards for older roads does not exclude landowners from liability for harm caused by orphan, abandoned, and unmaintained roads under the ESA, Clean Water Act, and other pertinent authorities. Oregon needs to analyze the impacts occurring from the failure to properly restore, maintain, or "put to bed" orphan roads. PRC contends that in many watersheds, the impact from orphan and unmaintained roads alone may be sufficient to jeopardize populations of fishes and amphibians, and preclude recovery of listed and other sensitive species.

Additional problems with the current road standards include their target of adequacy to sustain 50-year rather than 100-year floods. Culverts, bridges and other stream crossings shall be designed to accommodate flows from at least a 100 year flood, including associated bedload and debris. (*See e.g*. Washington Forests and Fish Report and ensuing rules; NMFS 1998 Proposal for Oregon Forest Practices)

> The Oregon Plan Relies too Heavily on Voluntary Measures

It is clear from the assessment that there is no basis upon which to make a finding regarding the benefits to freshwater habitat from voluntary measures. Regardless of the philosophy adopted by the state about the social desirability of voluntary measures, the question remains as to what level of environmental protection from logging-related harm is likely to occur. Absent significantly greater financial incentives than are currently provided for voluntary management changes, there is no basis upon which to assume that more than the regulatorily-required mitigations actually will occur.

As NMFS observed in their comments: " . . since significant aspects of FPA rely on voluntary measures, the role and rate of voluntary implementation is critical." Although ODF provided additional information to better describe the role and rate of voluntary implementation in the final report, this information does not provide assurance of their efficacy. As NMFS comments pointed out, but did not adequately emphasize, market conditions are a significant determinant of forest landowner behavior. Expectations of voluntary measures should be limited accordingly.

Oregon Forest Practices reforms have devolved into a series of voluntary measures which are discussed in the report. We note that while ODF discussion is intended to "provide a deeper understanding of the purpose of the FPA, and the ODF's ideas about integrating environmental, economic and social values" what matters to aquatic species is what happens on the ground. Oregon's philosophy may be to impose the "lease burdensome pathways" to achieve environmental values, but if these pathways are not also effective, they cannot be relied upon either to justify a no-list of coho and other species, or to grant exemptions for Section 9 of the ESA. Despite discussion of desires and hopes for forest policies, as ODF admits it is the FPA and its rules that establish "the environmental bar that must be met regardless of the economic goals of the land manager." As such, it is this bar that must primarily be evaluated for its adequacy to prevent impairment of recovery of coho and other aquatic species.

Oregon notes that "[f]urther study is needed to better understand the trends in the types and numbers of actions reported," and that **"**[w]e don't know if lack of reporting is due to a need for assistance, humble attitudes, or other reasons" but that "[w]e know that landowners tell us their enthusiasm to actively place large wood has declined because they perceive federal permit processes and conditions as disincentives. The conditions seem geared to prevent or minimize

'human' disturbance even though the very actions are intended to emulate 'natural' disturbance. The state further finds that "we hope to find better ways to demonstrate the types and numbers of what is being accomplished and what these actions mean for fish and water quality." We caution NMFS that despite good intentions on the voluntary front, what is not known cannot be relied upon in a listing determination regardless of why the information is unknown or actions are not being taken.

In sum, it is clear from the assessment that there is not an adequate basis upon which to make a finding regarding the benefits to freshwater habitat from voluntary measures. Regardless of the philosophy adopted by the state about the social desirability of voluntary measures, the question remains as to what level of environmental protection from logging-related harm is likely to occur. There is no basis upon which to assume that more than the regulatorily-required mitigations will actually occur.

> **Habitat Improvement on Agricultural Lands is not Documented; ODA Programs Require Significant Strengthening**

Although the state could not rely on CLAMS analyses in considering what is likely to happen to riparian vegetation on agricultural or urban portions of the landscape, it nonetheless concludes that modest improvement in riparian vegetation is likely to accrue on agricultural lands under current rules, acknowledging that considerable uncertainty exists regarding specificity of improvement.

The Agricultural Water Quality Management Program in Oregon in conjunction with DEQ technical assistance and incentives for voluntary action do not comprise an adequate salmon conservation program for agricultural lands. To our knowledge, the IMST's recommendations to ODA have not been fully implemented. IMST, Recommendations 8, 9, 14, 16 of Technical Report 2002-1: Recovery of Wild Salmonids in Western Oregon Lowlands at pages 129-130 (recommending salmonid effects analysis from lowland land uses; changes to ODA programs to specifically address factors contributing to salmon population declines; reduction of agricultural causes of sedimentation; prevention of eutrophication impacts;)

> **The sufficiency of state lands plans to prevent adverse impacts to coho salmon has not been demonstrated**

Despite the intent of the Oregon Plan to execute an federal HCP for the Tillamook and Clatsop State forests, no such plan has yet made it to the stage of a formal proposal. The Elliott State Forest is in the process of a multi-species HCP, but its adequacy to protect coho has not yet been determined.

PRC finds that unacceptable risks to coho salmon are posed by state land management practices, particularly 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 dowstream adverse effects on coho salmon. *(See e.g*. PRC Scoping Comments to FWS and NOAA Fisheries on Proposed Elliot State Forest HCP, July 12, 2005)

Conclusion 9: "A new analysis of water use in the ESU indicates that permitted water use is not and will not become a primary limiting factor of ESU viability."

The analysis referred to here on "unnested consumptive use" has been thoroughly critiqued by WaterWatch of Oregon, whose comments we hereby incorporate by reference. In sum, the state looked at consumptive use reach by reach, which method is not cumulative from the headwaters down to that reach, and then used that consumptive use as a numerator over the total modeled streamflow (again without upstream consumptive use subtracted) for the watershed above and including that reach. The result is a series of predictably small fractions of total streamflow for each consumptive use, analysis that does not relate to the instream circumstances being experienced by aquatic species in downstream reaches.

We note that the state identifies water quantity as the primary "Risk Factor Bottleneck" to the Upper Umpqua population's viability, which the State assessed as "fail", indicating that the state's current water quantity programs have not been effective in preventing low instream flows from becoming a factor for decline for the coho. Part 3B at 7.

Conclusion 10: "Restoration work (including fish passage) in the ESU during 1997-2003 exceeded any previous level of effort."

This finding, although encouraging, on its own is irrelevant to the effort's sufficiency or efficacy to maintain or restore habitats and populations. We note that PRC's evaluation of restoration in the Alsea Basin concludes that priority restoration needs continue to be unmet on both federal and nonfederal lands. For example, of the 60 watersheds identified as High Priority in the Mid Coast, none has even completed a "limiting factors analysis" much less executed on restoration plans designed to address these factors. (Draft Report to Pacific Rivers Council by Peter Bahls, Northwest Watershed Institute, April, 2004). Some analysis of how efforts measure up as against total needs is needed in order to provide an informative measure of the extent of restoration work.

Conclusion 12: "Primary habitat-related threats to coho viability are being addressed through ongoing conservation efforts."

See above comments related to threats from logging and agriculture.

IV. FUTURE ESU VIABILITY

Future ESU Condition Finding 1: Watershed councils have been established throughout the ESU; these will complement future conservation and restoration efforts by Soil and Water Conservation Districts, private landowners, and state and federal agencies.

We refer NOAA to PRC's January 2000 report by C. Huntington and S. Sommarstrom entitled "An Evaluation of Selected Watershed Councils in the Pacific Northwest and Northern California", which indicates key ways in which watershed council effectiveness may be limited. tributes.

Regarding ecological effectiveness, the report found that although a substantial majority of observed restoration projects were clearly or likely beneficial to salmonids or restoration of stream processes, most projects also were ranked less than ideal from an ecological benefits standpoint. Some projects were judged to be of questionable conservation value and a small number were a clear waste of money. Projects that focused on riparian restoration, road treatments, resolution of critical fish passage problems, or on the acquisition of critical areas were consistently beneficial. Construction of livestock exclosures in lowland riparian areas was clearly one of the most beneficial council activities. The most frequent weakness with projects reviewed derived from a lack of control over environmental stressors in the watershed. Certain stressors were more frequently controlled by (or in association with) council projects than were others, with a prime example being fences to exclude livestock from streams and riparian areas. Most councils scored low for adaptive management, lacking monitoring and feedback mechanisms.

PRC strongly supports locally-driven, voluntary natural resource protection and restoration efforts as a part of the solution to ecosystem degradation, but we emphasize that local efforts are hampered in achieving higher ecological effectiveness in several ways:

- *Landscape-level changes in ongoing land use patterns are not susceptible to change through local watershed council actions (e.g. urbanization; industrial forest practices). Rather, these changes will require policy changes at the appropriate levels of government.* As stated by Huntington:

  > "Approximately 67% (54/80) of the restoration projects visited were affected to varying degrees by environmental stressors that watershed groups and landowner volunteers could not or did not control. …Where environmental stressors significantly affected the probable benefits of a given project, they were usually related to forestry activities, water diversions, urbanization, or chronic overgrazing of riparian areas upstream. Of these stressors, the selected watershed groups have generally had the most success addressing grazing problems and a couple have had some success in resolving water use issues. Resolution of conflicts between private forest practices and aquatic restoration, particularly on industrial forestlands, has historically been the domain of regulatory agencies and does not appear to have occurred within the watershed council processes examined as part of this study." (Huntington, Part I p. 15).

- *Areas that may have the most and/or best restoration opportunities may suffer from fewer resources to create technically sound plans and projects.* This disparity suggests that resources should be better allocated to ensure adequate funding in areas where high priority restoration opportunities exist.

- *Within watersheds, geographical targeting of projects to ecological priorities is limited by the available pool of volunteers.* This dynamic limits the implementation of even the most technically sound plans: "[a]lthough good planning by watershed councils can help ensure that they avoid bad projects, it is no guarantee that they will be able to implement

the ones most important to achieving their restoration goals." (Huntington, Part I, p. 23). The plain fact is that precious funds do not necessarily make their way to the greatest ecological needs.

- *Scientific and technical assistance is a critical factor in the production of strong conservation plans*, which in turn is associated with higher ecological effectiveness. Such assistance should be sustained and expanded where needed, as should the general dissemination of new watershed and aquatic science concepts through educational outreach.

- *A full range of tools for aquatic conservation and restoration are not consistently available to eliminate or reduce land use impacts at high priority sites.* Examples of key tools that are not always utilized in local efforts include acquisition of easements or fee interests in biologically critical areas. Although land acquisition may be the most effective tool to conserve ecologically critical areas (often a very small land area relatively speaking), it is not used by all councils.

We further note that despite significant efforts, the vast majority of high priority restoration needs remain unmet in watershed comprising the Oregon Coast ESU. For example, as noted above, even considering just the 60 high priority watersheds in the Mid-Coast, none have completed limiting factors analyses which are needed to guide effective restoration efforts.

Future ESU Conclusion 2: State funding to support Oregon Plan work (e.g., restoration, Watershed Council support, Soil and Water conservation District support, monitoring, assessments, etc.) is provided by Oregon Law until at least mid-2014.

Oregon does not match currently available funding with an actual list of the cost of known restoration needs. It is our information that current funding covers only the tip of the iceberg of restoration.

Despite state and federal funding efforts, the fact remains that the vast majority of restoration needs identified are unmet and that projects that may be a high ecological priority, such as roadas work, do not always get funded. Looking at federal lands there are 2600 miles of road on Siuslaw National Forest with only 600 miles needed and maintained. Of the 2000 miles planned for closure, only 200 have been closed since 1994. (Karen Bennett, USFS, 2004) Similarly, of the 49 miles of road decommissioning recommended in FEIS for Five Rivers watershed, only 11 miles have actually been decommissioned (USFS 2001).

Future ESU Condition 4: The ocean environment for coho survival improved since mid-to-late 1990s, although current conditions and future trend is uncertain.

Future ESU 5: Abundance and density of coho spawners throughout the ESU increased since 1998 to the highest average level observed in five decades, reflecting a rapid and ESU-wide response of the populations that comprise the ESU. Higher spawner numbers distributed widely across the ESU should have positive impact on the ESU as a consequence of increased input of marine derived nutrients.

More recent indications are that ocean conditions have turned downward. Drastically reduced coho returns are expected this winter. (Personal Communication with Peter Bahls, Northwest Watershed Institute, July 25, 2005).

Future ESU Finding 6: Monitoring of habitat and water quality since 1997 provides a baseline to detect future trends (positive or negative) that could affect ESU viability. The sensitivity (ability to detect change) of monitoring will increase substantially in the next 3-8 years as more data become available.

Oregon fails to substantiate its adaptive management claims that it can rapidly detect and respond to any adverse trend. For salmonid trend assessment based on redd counts, the literature supports at least 15 years of data to detect a trend. At a minimum, Oregon should propose specific quantitative criteria that will trigger a review, and triggers should be tripped by failure to detect a positive or recovery trend of a specified magnitude.

In any case, NOAA should not rely on the potential availability of future data in a listing decision. Data to date are inadequate to support a finding of no threat from habitat and water quality degradation in the ESU.

V. FINDINGS REGARDING CURRENT AND FUTURE THREATS TO ESA VIABILITY

Oregon finds that the key current threats to viability are moderate from only two factors -- ocean conditions and stream complexity -- and that ESU-wide threats from other factors have significantly diminished. This finding: (1) trivializes the severity of current risks to stream complexity, particularly from logging-related loss of riparian and upslope large wood sources and sediment from nonfederal roads, and; (2) inappropriately dismisses the magnitude of existing problems related to water quality, fish passage and water quantity, especially in specific basins.

Respectfully submitted,

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