**INDEPENDENT
MULTIDISCIPLINARY
SCIENCE TEAM
(IMST)**

October 30, 2000

Don McIsaac
Executive Director
Pacific Fisheries Management Council
2130 SW Fifth Ave, Suite 224
Portland, OR 97201

Dear Don,

Enclosed is testimony of Stan Gregory to PFMC. While given by Stan, it is the position of the IMST on this matter. We hope this information will be helpful to ODFW and the PFMC in the review of Amendment 13.

Sincerely yours,

Logan A. Norris
Chair, IMST

Enclosure (Testimony of Stanley Gregory to PFMC)

cc: with enclosure
Director Jim Greer, ODFW
Kay Brown, ODFW
ODFW Commissioners
Roy Hemmingway, Manager, Oregon Plan
IMST

State of Oregon

**John Buckhouse
Wayne Elmore
Stan Gregory
Kathleen Kavanagh
James Lichatowich
Logan Norris, Chair
William Pearcy**

Testimony of
Stanley Gregory, Ph.D.
Independent Multidisciplinary Team
Oregon Plan for Salmon and Watersheds

To
Pacific Fishery Management Council

October 31, 2000

I am Dr. Stanley Gregory, a member of the Independent Multidisciplinary Science Team (IMST), part of the Oregon Plan for Salmon and Watershed. The mission of the Oregon Plan is the recovery of depressed stocks of wild salmonids, and the role of the IMST is to provide scientific oversight for this effort. I am here today representing the IMST.

The IMST has examined the management of salmon harvest under the Oregon Plan for Salmon and Watersheds. Previously, we identified specific issues that we feel need to be included in the PFMC process and reported these to the Oregon Department of Fish and Wildlife. The OCN Working Group invited IMST members to observe the 2000 Review of Amendment 13 to the Pacific Coast Salmon Plan.

The purpose of my testimony today is to reinforce with PFMC some key aspects of the 2000 Review of Amendment 13. These are the same points we made with ODFW earlier.

We previously concluded that:

> **Reductions of harvest impacts under Amendment 13 have been substantial and have been essential to prevent extinction of coho salmon stocks along the Oregon Coast and lower Columbia River.**
>
> **The life-cycle model and spawner monitoring surveys have strengthened salmon management in Oregon.**
>
> **The state of Oregon and PFMC have not explicitly defined recovery of depressed salmon stocks and criteria for evaluating recovery.**
>
> **Because OCN coho salmon stocks have declined to such low numbers and spawners have not replaced themselves in recent years, we continue to recommend adjusting fisheries impacts to the lowest levels possible.**
>
> **The IMST strongly endorses the development of critical conservation measures to be added to the harvest impact matrix of Amendment 13. In addition, indicators of extreme conditions may be needed as practical limits when severe conditions are observed.**
>
> **The Year 2000 Review of Amendment 13 of the Pacific Fisheries Management Council is an important opportunity for the State of Oregon to evaluate management directions and future directions for salmon harvest management.**

Specific Recommendations

The following recommendations were made by IMST to ODFW as they represent the State of Oregon in this matter to PFMC. I reiterate these today to reinforce their importance directly with PFMC.

1. The IMST recommends that ODFW advocate that new criteria be incorporated into the matrix of Amendment 13 to include "very low" OCN coho salmon parent spawner abundance and "very low" marine survival.

   This will strengthen the criteria designed for protection or recovery of populations under extreme conditions. Under these conditions, no directed coho fisheries should be allowed and fishery related impacts should be reduced to the lowest levels possible.

2. The IMST recommends that ODFW advocate the applicability of (a) the minimum sustainable escapement (MSE) concept to augment the use of (b) the number of OCN ocean recruits in setting harvest impacts.

   This could provide a safeguard against loss of stocks during periods of low freshwater or ocean survival. The National Research Council (1996) recommends this methodology to minimize extinction risks of a population or metapopulation and to enhance recovery. Because spawner abundances have been extremely low and recruitment for all three recent brood years (1995, 1996, 1997) has been below replacement, fishery impacts should be as close to zero as possible until established signs of recovery are observed.

3. The IMST recommends that ODFW advocate that decisions to change harvest levels incorporate elements of stock abundance over longer periods of time and include consideration of the spatial distribution of stocks.

   The timeframe and spatial distribution of OCN coho salmon stocks is a critical aspect of measuring recovery. Harvest policies should be revised to require responses over sufficient time to indicate real population trends. We offer the following criteria as possible examples to be incorporated into the decision process whereby harvest levels are changed.

   Criterion 1. Stock Abundance. Stock abundance has achieved a defined minimum sustainable escapement before harvest impacts can exceed 10-13%.

   Criterion 2. Duration of Recovery. Stocks have achieved greater than 1:1 spawner-to-spawner replacement for each brood year over at least three brood cycles.

Criterion 3. Spatial Distribution. Stocks have achieved two consecutive generations of recovery (spawning recruits/parental adult of >1.5) with seeding above level 2 (75% seeding of available habitat).

4. The IMST recommends that ODFW advocate initiation of a scientific review of the Fisheries Regulation Analysis Model (FRAM) used to estimate harvest levels on OCN stocks components.

   Such a review might be incorporated into the Year 2000 review of Amendment 13.

5. The IMST recommends that ODFW advocate adherence to the policy that links decisions on ocean harvest to the status of the weakest stock component.

   Oregon currently adheres to this requirement, but pressures to allow fishing by sport or commercial fishermen create challenges for following this policy.

6. The IMST recommends that ODFW advocate determining the relationship between the response of salmon juveniles and their food webs to carcass abundance.

   Criteria should be developed that consider the impacts of harvest management on carcass abundance and distribution. Strategies for stock recovery need to recognize the role of food resources and carcasses in production of smolts in freshwater habitats. As an example, management criteria could identify minimum numbers of spawners per mile of stream to provide the food base necessary to support young salmon.

7. The IMST recommends that ODFW support PFMC review of hook & release mortality or impacts.

   This is a key factor for impact analysis of indirect fisheries (e.g., impacts of chinook fisheries, impacts of sport fisheries for marked hatchery coho salmon). Analysis of hook & release mortality should continue after 2000 because uncertainty is high and ocean conditions are highly variable. Hook & release mortality rates may vary with ocean temperatures and productivity, therefore setting fixed rates may lead to additional problems in the future.

8. The IMST recommends that ODFW advocate determination of the degree to which plausible extremes in hook and release mortality and in spatial and temporal variation can influence the risk of extinction.

   Hooking mortality and encounter rates are variable, and sensitivity analysis can help evaluate their impact on probability of extinction. Current reviews have discarded upper and lower quartiles of research results. These extreme values may not represent average conditions, but they could have undesirable consequences under specific sets of conditions. The model could be used to test

the effects of extreme rates to determine the consequences of the plausible boundaries around the average rates determined in the review process. Extreme rates can also be incorporated into a randomized version of the Monte Carlo runs as a form of sensitivity analysis. Highly sensitive parameters should be strengthened by monitoring, especially by double-index tagging.

9. The IMST recommends that ODFW advocate that PFMC use an explicit analytical process that incorporates monitoring results, harvest records, and the life-history model as part of the decision process for harvest levels.

   This analysis should link spawner surveys, habitat surveys, marine survival or impacts and model projections. It should also be spatially explicit to the greatest degree allowed by the data and model structure.

10. The IMST recommends that ODFW advocate that PFMC incorporate dynamic and changing landscape conditions in the analytical process to reflect potential habitat restoration, human-related degradation, and natural disturbances.

    Use of dynamic conditions for both ocean and freshwater environments will provide more realistic projections of future population trends and risks of extinction. Such integration also recognizes regional goals to protect and restore watershed conditions along the Pacific Coast.

2000 Review of Amendment 13 to the Pacific Coast Salmon Plan

The 2000 Review has directly addressed several of the IMST's recommendations to the State of Oregon for issues related to PFMC management decisions. Following are brief comments on the important recommendations of the 2000 Review Report and their relation to our recommendations to ODFW and via this testimony today to PFMC.

In particular, the IMST strongly endorses the development of precautionary criteria for conditions of extremely low spawner abundance. Addition of the "Very Low" and "Critical" parental spawner categories to the matrix greatly strengthen the management of impacts on coastal coho salmon. These additions are consistent with the original framework of the Salmon Management Plan and incorporate aspects of the concept of "minimum sustainable escapement" that was recommended in a recent review of salmon management by the National Research Council.

The IMST has consistently supported the application of management decisions based on the status of the weakest subaggregate, which the 2000 Review has continued to endorse. A significant change is the elimination of the provision for limits on moving to higher harvest impacts when a basin exhibits less than 10% full seeding. IMST recognizes the arguments provided for the elimination of basin criteria, and the lack of precision in basin estimates of spawners is a valid concern. This change in Amendment 13 may be justifiable at this point and the additional levels of protection

within the matrix may minimize undesirable impacts, but the IMST recommends continued development of methods and information to effectively manage salmon at the scale of basins or river networks. The IMST encourages the PFMC to consider future actions that would strengthen basin-level estimates of spawners and additional local data that would permit protection of smaller basins and their stocks in the future.

The IMST has found the Nickelson/Lawson model to be scientifically rigorous and strengthens the PFMC process. We strongly encourage state and federal agencies to integrate current and future habitat condition with the modeling of fishing impacts, ocean survival, and salmon populations. At present, the model incorporates dynamic ocean conditions and changing fisheries, which is a strength. Unfortunately, the future projections do not incorporate dynamic changes in habitat, either as a result of watershed restoration or future habitat degradation. A more dynamic view of habitat could be incorporated based on readily available land use/land cover information and projections of land use policies.

The 2000 Review addresses the most critical recommendations of IMST. We would be negligent if we did not point out that several IMST recommendations were not addressed in this review—longer timeframes required before major changes in harvest impacts, incorporation of ecosystem functions of carcasses in management targets, review of the FRAM model, use of dynamic landscape information in model projections. The IMST recommends that the OCN Working Group could provide an updated assessment in the near future and possibly incorporate issues that emerge from the regional response to their report.

Public Comment Item B-3

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Mr. Jim Lone, Chair
Pacific Fisheries Management Council
2130 SW Fifth Ave., Suite 224
Portland, OR 97201

30 Oct., 2000

Dear Mr. Lone:

We hear that the Council is considering managing ocean salmon fisheries in 2001 for a 0 to 8 percent take of OCN coho. We understand and share the Council's concern over the very low numbers of returning OCN adults; however, we submit that once the Council has provided for a 90% escapement of coho from ocean fisheries, it can do no more to expedite coho recovery by further restricting fisheries. In fact, **further restrictions in ocean fisheries may be counterproductive by giving the impression that steps are being taken while the real obstacles to coho recovery are not being addressed.**

Ocean conditions are also blamed for the failure of OCN stocks to replace their parent numbers, let alone recover, and it is true that during the 1997 El Nino ocean conditions were poor. However, by summer 1998 ocean conditions were greatly improved, at least in the southern half of Council-managed waters (which is the area OCNs inhabit, according to the Salmon Technical Team). Surface temperatures off Eureka, for example, were at least fifteen degrees lower in late summer '98 than a year earlier. These colder temperatures have recurred in '99 and '00. This statement can be confirmed by checking with the Weather Service for buoy temperature records.

If fisheries are allowing 90% + escapement, ocean conditions are much improved, and OCN coho still aren't replacing themselves, it should be obvious that the fundamental problems inhibiting recovery have not been addressed. These fish will become extinct if this situation continues. Nothing this Council can do will prevent that, even total closure of fisheries. **We believe that much of the fundamental problem is poor freshwater**

habitat caused by a variety of destructive inland land-use practices, a situation which can and must be addressed by NMFS and the States of Oregon and California if these fish are to survive. It's past time for this Council to tell these agencies to get off its back and take care of the business of protecting inland habitat. On behalf of PCFFA we ask your full support for a strong Council effort to make this happen.

Sincerely,

GHS/lt

Glen H. Spain
For PCFFA

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