

M E M O R A N D U M

TO: Council, SSC, and AP Members  
FROM: Jim H. Branson  
Executive Director  
DATE: November 27, 1981  
SUBJECT: Salmon FMP

*ACTION REQUIRED*

1. Review report on WDF/NBS Salmon Interception Model Workshop.
2. Inter-Council Salmon Committee meeting.
3. Status of Confederated Tribes vs. Baldrige.
4. PDT/PMT membership for tribal representative.

BACKGROUND

1. The salmon interception model workshop was held in Seattle on October 20-21. Fred Johnson reviewed the development of the model and described its function in detail. Washington Department of Fisheries personnel described the model's application and the stocks currently included in the program. There was considerable discussion about the mechanics of the model but the emphasis was on input data and use of the output. There was general agreement that mechanically and mathematically the model is sound. There was disagreement about the validity of certain assumptions and the appropriateness of certain input parameters. The discussions were generally positive and constructive. The model is already being improved to get away from the "steady-state" problems, i.e. the fact that population changes can be evaluated only over a 4-year period rather than annually. Other improvements will also be made in future months.

The SSC is preparing a list of recommendations for the use and improvement of the model.

2. The Inter-Council Salmon Committee met in Portland in mid-November. The Committee members may have a summary of the meeting.

3. In August the Confederated Tribes and Bands of the Yakima Nation brought suit against the Secretary of Commerce to ensure that more upper river fall chinook salmon return to traditional Indian fishing grounds. Judge Craig directed the parties to investigate all ocean fisheries including the Southeast Alaska fisheries. A technical group and a policy group have begun this analysis and established a schedule for development and approval of regulations for the 1982 season. The preliminary technical analysis will be available at the joint Council/Board meeting in January 1982, and the final report will be ready for the March meeting.

General Counsel will review the case and discuss the Council's role in the procedure.

4. The Columbia River Intertribal Fish Commission has petitioned the Council to put a member of their scientific staff on the PDT and PMT. They have submitted the resume of Willis "Chip" McConnaha, fishery biologist, for SSC review and Council approval. The SSC may have a recommendation on this matter. A letter from CRITFC is included as Agenda Item E-1(a).

JOHNSON, MARCEAU, KARNOPP & PETERSEN  
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OCT 23 1981

October 19, 1981

ACTION	ROUTE TO	INITIALS
	Exec. Dir.	J
	Deputy Dir.	
	Admin. Off.	
	Asst. Sec.	
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	SPDT Asst. 2	JG
	SPDT Asst. 3	
	Rec. Mgmt.	
	Sec./Tr. Kr.	
	Sec./Typist	

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Mr. Jim H. Branson  
Executive Director  
North Pacific Fishery  
Management Council  
P. O. Box 3136 DT  
Anchorage, AK 99510

Dear Mr. Branson:

Thank you for your letter of September 22nd concerning tribal representation on the NPFMC's Salmon Plan Development Team. There are several reasons why I believe it is important that the Columbia River treaty tribes obtain immediate representation on the SPDT.

First, as your letter points out, it is not clear at this time whether the 1981-82 work of the SPDT will include management decisions affecting Columbia River stocks. That means SPDT work may well include discussion of Columbia River stocks. In anticipation of that possibility, the Columbia River tribes believe it is important both as a practical matter and as a step toward compliance with Judge Craig's August 4th Order that a tribal representative be placed on the SPDT at the earliest possible date.

Second, even if the SPDT itself is not involved this season in management decisions affecting Columbia River stocks, I am sure that in the following years it will resume its central role in the development of the salmon plan. There seems little point in postponing tribal participation to future years.

Third, I understand that upon the completion of the salmon plan each year the SPDT reorganizes itself as the Salmon Plan Maintenance Team. It appears to the treaty tribes that the work of the maintenance team this year and in future years will be very important with respect to the protection of Columbia River stocks. Thus, the treaty tribes believe it is vital that a tribal representative be placed on both the Salmon Plan Development Team and the Salmon Plan Maintenance Team and that such representation begin as soon as possible.

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The Columbia River treaty tribes have given careful consideration to the selection of a representative to the SPDT and the SPMT. Enclosed is the resume' of Willis E. McConnaha, staff biologist at the Columbia River Inter-Tribal Fish Commission, who is our nominee for the salmon plan teams. In addition to being exceptionally well qualified for the work of the salmon teams, Mr. McConnaha has attended numerous NPFMC meetings in the past two years on behalf of the tribes and consequently is very familiar with the workings of the Council and the fisheries issues in Alaska. We appreciate your consideration of Mr. McConnaha's resume' and look forward to favorable action on his nomination.

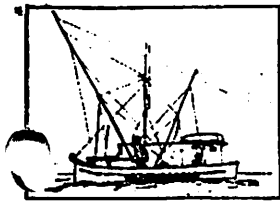
Sincerely,



HOWARD G. ARNETT

HGA:ll  
Enclosure

cc: Robert Strom, Esq.  
Catherine Wilson, Esq.  
Tim Weaver, Esq.  
Fish and Wildlife Committee - Warm Springs  
CRITFC



Alaska  
Trollers  
Association

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ACTION	ROUTE TO	INITIAL
	Exec. Dir.	3
	Deputy Dir.	
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	Staff Asst. 1	
	Staff Asst. 2	
	Staff Asst. 3	
	Eq. Maint.	
	Rec./Dist.	
	Sec./Typist	

TO: North Pacific Fishery Management Council,  
Scientific & Statistical Committee  
Board of Fisheries

FROM: Earl E. Krygier  
Logbook Biologist

DATE: November 3, 1981

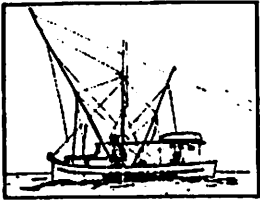
RE: WDF Model

I recently attended the WDF model workshop in Seattle on October 20 & 21, 1981. The following are my comments which may be useful in evaluating future proposals generated from the model.

The working model consists of at least three components: 1) the basic model which is a simple and reasonably adequate accounting device (but not a predictive tool). The other components are input devices which drive the model and determine output. These consist of: 2) pre-season run forecasts and 3) constants (catch-to-escapement ratios, fishing effort, mortality, etc.) to which "scaling factors" are supplied by management (WDF). These latter two components comprise our major objections to the WDF model.

It is unacceptable to put forth any type of model for acceptance by the scientific community which does not allow adequate review as to scientific method. Even at the WDF model workshop, verbal documentation was difficult to obtain in any statements other than generalizations. Points 2 and 3 listed above are the major components which can affect the output; yet there is a lack of adequate documentation which would allow other scientists to duplicate step-by-step and arrive at the same conclusions or, in this case, input numbers.

Specifically, I would like to comment on some facets of the model and the input data which are problematic, especially with Alaska and the Columbia upriver "brites". 1) Pre-season abundance forecasts determined by jack/adult ratios, average survival to adults, low stream flow and other unspecified factors are extremely tenuous and may be off by an order of the magnitude evidenced in the 1981 WDF pre-season forecast of Puget Sound and Washington coastal coho. The ability to forecast chinook is even more tenuous, yet this is an important input character.



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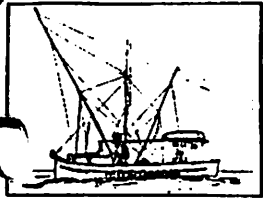
2) Catch-to-escapement ratios determine in-river run size. This constant and the associated percentage split between Alaska, Canada and Washington are defined by WDF in the model and results in their estimation of the breakdown in the fishery (i.e., if we assume a 6:1 catch-to-escapement and the abundance forecast is for 600,000 fish and if the modeler assigns 5% to Washington, 60% to B.C. and 35% to Alaska, the model then assigns 210,000 fish to Alaska, 360,000 to B.C. and 30,000 to Washington without any "real data" input).

3) The model ignores transitional effects and assumes that total annual escapement serves as an index of future production. The stochastic nature inherent in the model ignores the more recent major influence of downstream migrant loss and the effect on final population size in the Columbia River due to low-flow, passage through turbines, delays in out-migration and predation at low water conditions (see Faurot, 1979 and Sims, Bentley and Johnson, 1978 in "Coastal Zone and Estuarine Studies", who reported some salmon stocks lost 80% of out-migrants under drought conditions). Annual escapement goals can serve as an index of future production only if nursery areas and out-migration pathways are reasonably stable. This problematic approach relates to the inadequacy of using pre-season abundance forecasts instead of smolts recruiting to salt water.

4) It appears that WDF is attempting to determine stock migration, transit times and transfer rates by coded wire tag (CWT) information. Coded wire tag information has specific problems in this application. First, there is mis-reporting as to area of capture and large areas are combined due to inadequacies in fish ticket data. Second, Alaska is viewed as one unit in the model, whereas B.C., Washington and Oregon are subdivided. Third, Canadian CWT data is usually two years behind and is important in annual evaluation. Finally, the model assumes all substocks migrate to Alaska then pass through B.C., rather than a more logical assumption that substocks split off in the northern migration and may never reach Alaska. To understand the real migration mechanism to determine transfer rates and substock distribution, a new long-term tagging study in Alaska, B.C. and northern Washington is needed.

5) Mortality decreases with age and is not constant over all sizes classes as is assumed.

6) The input values of hooking mortality assumes constant sublegal-to-legal ratios across the Pacific fishery. Fritz Funk (1981) reports that sublegal-to-legal ratios are considerably lower in the Alaska troll fishery than southern coastal troll fisheries. This difference has increased even more dramatically in Alaska



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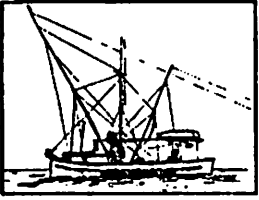
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since 1979 when the 28-inch limit was introduced, as evidenced by increased average poundage landed in 1980 and 1981 and logbook data which demonstrates that fishermen have made a substantial effort not to fish areas or times where shakers are available.

7) Induced mortality mentioned by the model explanation are hooking and cross-species effect; but not drop-out by the net fishery. Why?

8) We were told at the October 20 & 21 workshop that the March 12, 1981 paper by WDF on the model's predictions of upriver "brites" used a 54% increase of fishing effort in the Alaska fishery. Logbook data has shown that average days/boat season has ranged between 61 and 67.8 days since 1976. Due to a 10-day closure in 1980, the average days fished was 64.1 and should be considerably lower in 1981 due to the total number of days lost to closures not seen in previous years (FCZ - 122 days; state waters - 68 days). As to the increase in the number of troll permits fished, power troll increased less than 14% and handtroll permits were artificially high during permit qualifying years but dropped to 1,180 in 1981. Handtrollers took an average of only 13% of the kings and most were from inside waters. Thus, the WDF pre-season estimate of a 54% effort increase would be incorrect under normal circumstances and grossly incorrect with the 122-day closure of the FCZ in 1981. Furthermore, the model assumes that the physical characteristics of the fishery remain unchanged. This does not account for changes in Canadian fishing patterns (i.e., the large increase of fishing effort at Dixon Entrance in the past few years or that in 1981 Canadian trollers had to choose inside or outside fishing, with the larger proportion choosing outside waters.

9) The economic evaluation of the model we view as incorrect. The March 12, 1981 WDF paper indicates that a 29% chinook catch reduction off Alaska equates to a 20% fishing revenue reduction. We requested an economic impact statement from Homan-McDowell, Economic and Management Consultants (March 9, 1981) on the 15% reduction in the OY for the power troll fleet since they take the bulk of the king salmon harvest. Assuming a handtroll and net effort similar to 1980 and a similar catchability for other species and similar prices for catch, Homan-McDowell's pre-season forecast of economic impact showed that a 15% reduction in OY would yield a 19% reduction in income to power trollers. This study and that of WDF assumes that closures necessary to achieve king salmon reductions do not affect catchability of other harvestable species; this is nearly impossible.



10) The frequency of calibration and the types of data used in calibration (mostly internal) make the model of questionable value. A true calibration run should consist of a computer run on theoretical stocks, undergoing known mortalities and fishing pressure, etc. and having an expected escapement, which the model should be able to duplicate. No such calibration has ever been run.

11) If a particular stock is declining, it is not logical to assume its contribution to a relatively stable fishery is constant or increasing as output (dictated from input values) from the model suggests.

In summary, I would suggest that the use of the WDF model for Alaska allocation be rejected for the present due to the problematic nature of defining and scientifically supporting the input values which drive and validate the output. If the Councils are truly interested in passing "brite" fish to the Columbia, they should look at costs of reduction in the Alaska troll fishery and benefits to the Columbia River vs. costs of reduction of Washington net fisheries on Frazer River sockeye with trade-off reductions in the Canadian troll fleet on Columbia upriver "brites". My understanding is that the Canadians are very open to this type of trade. A reduction in interdam "loss" of "brites" (about 60,000 in 1980-81) on the Columbia might also solve the problem.