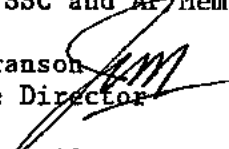


M E M O R A N D U M

TO: Council, SSC and AP Members
FROM: Jim H. Branson 
Executive Director
DATE: January 2, 1981
SUBJECT: Adoption of Salmon Proposals

ACTION REQUIRED

Adopt salmon preferred alternatives.

BACKGROUND

The Council must decide on preferred alternatives for amending the troll salmon FMP so that the DSEIS and DRA can be sent to Washington by January 19. A major concern of trollers has been the lack of adequate data for public review. By postponing final decision until the March meeting and opening a period for written comments, the public would have greater opportunity to review the existing data and analysis. The proposed schedule is included. E-1(a).

A summary of the proposal package is provided with the major concerns and public comments for each item (E-1(b)). A summary of the public hearings and written comments along with all letters received are available from Council staff for review.

A summary of limited entry options is included as Item E-1(c). Due to the limited time before the 1981 season opening, it may not be possible to have any limited entry proposals in place in time to have permits available by April 15. Permits would have to be available prior to the season opening.

Also, if the Council does chose to address FCZ limited entry, they should openly address the pertinent section of the FCMA. This section is included in the discussion.

TENTATIVE PLAN REVIEW AND IMPLEMENTATION SCHEDULE FOR THE
1981 HIGH SEAS SALMON OFF THE COAST OF ALASKA FMP
AMENDMENT BASED ON THE COUNCIL ADOPTION DURING JANUARY 5-8
JOINT MEETING WITH THE ALASKA BOARD OF FISHERIES

January 8	NPFMC adopts Amendment
January 19	F/CM receives DA, DRA, DSEIS, DPR
January 30	DSEIS filed with EPA
February 6	EPA publishes notice of availability Begin NEPA 45-day comment F/AKR and F/CM conduct official agency review of DA and prepare draft decision documents
March 23	End NEPA 45-day comment
March 26-27	NPFMC approves Amendment at public meeting
April 6	F/CM receives final Amendment Begin official Secretarial Review (24 days)
April 20	F/CM receives final FSEIS
April 23	Fish Policy Group approves/disapproves Amendment
April 30	End 24-day Secretarial review AA approves Amendment
May 1	FSEIS filed with EPA
May 6	EPA publishes notice of FSEIS availability NEPA 30-day comment begins A approves Amendment
May 15	Emergency Regulations filed with FR Proposed regulations filed with FR 60-day FCMA comment begins Fishery begins
June 5	NEPA 30-day comment ends
June 29	Emergency Regulations repromulgated with FR
July 14	60-day FCMA comment on proposed regulations ends
July 17	Final Regulations published APA 30-day cool off waived

SUMMARY OF SALMON PROPOSALS

I. MANAGEMENT OBJECTIVES

The PDT has proposed to replace the existing six Objectives of the Salmon FMP with eight new Objectives. The present Objectives are as follows:

A. Present Objectives

1. Control the expansion of the salmon troll fishery in the Fishery Conservation Zone.
2. Allocate the salmon resource among user groups without disrupting present social and economic structures.
3. Regulate the catch of salmon to assure adequate escapement for spawning.
4. Reduce the catch of salmon with potential growth to increase the poundage yield from the troll fishery.
5. Make cost effective the public investment in the high seas salmon fishery.
6. Promote the eventual development of a Pacific Coast salmon fishery management plan.

The proposed Objectives in some cases are merely rewording and clarification of the existing ones, and in other cases make substantial changes. The proposed Objectives are as follows:

B. Proposed Objectives

1. Manage the troll fishery in conjunction with other Southeast Alaska fisheries to obtain the number and distribution of spawning fish capable of producing the optimum total harvest on a sustained basis from Southeast Alaska salmon stocks.
2. Allocate the total allowable salmon harvest to the various Southeast Alaska user groups as directed by the Alaska Board of Fish and Game, and North Pacific Fisheries Management Council.
3. Decrease directed and incidental harvest of smaller, immature fish and reduce sublegal chinook hook/release mortalities where possible, consistent with allocation decisions and with the objective of maximizing benefits to user groups.
4. Control and reverse recent trends of expanding effort and catch in outer coastal and offshore Southeast Alaskan waters to accomplish conservation goals of Objective 1.

5. Develop fishery management plans and techniques which will allow full utilization of salmon returning to supplemental production systems while providing necessary protection for intermingling natural runs which must be harvested at lower rates.
6. Manage the coho and chinook salmon fisheries to ensure compliance with U.S.-Canadian fisheries agreements, any other treaty or resource sharing requirements and conservation obligations.
7. Contribute to the development of a coastwide management plan for chinook salmon.
8. The Council shall adopt the management principles contained in the Southeastern Alaska-Yakutat Chinook and Coho Salmon Troll Fisheries Management Plan. The following proposals by the ADF&G staff to the Board of Fisheries should be considered as well:
 - a. Provide greater flexibility for scheduling a 10 day closure during the early portion of the coho season;
 - b. Formalize the Board of Fisheries policy for the allocation of the coho catch between hand troll (20%) and power troll (80%) gear types;
 - c. Establish a policy of returning the outside/inside distribution of the coho catch to the levels of 1976-77.

C. Summary of Public Comments on Proposed Objectives

Very little testimony was received on the proposed management objectives. Most comments were directed to Objective 6, specifically the reference to "any other treaty..." etc. Everyone who addressed this in oral or written testimony wanted it deleted.

Scott Stafne had serious reservations about all the proposed objectives due to what he called "sweeping regulatory changes" and less-clear wording. He noted that Objective 4 adds the word reverse to the problem of expanding effort.

II. REGULATORY PROPOSALS

The regulatory proposals were discussed in greater detail in the proposal package sent out on October 21, 1980. Since that time, additional data in analysis has become available, and considerable public comment has been received. A complete summary of data on harvest levels, escapement and effectiveness of present regulations is provided in the staff reports by Alaska Department of Fish and Game.

A. Problem: Continued Increased Effort in Catch of Depressed Chinooks .
Offshore

1. Optimum Yield

- a. Status Quo: 286,000 to 320,000 chinook salmon
- b. (PDT proposal) 10% reduction

The ADF&G staff is suggesting that, in light of the depressed status of chinook stocks all along the coast, a 10% reduction in OY would be a necessary step toward rebuilding these stocks. The proposed time and area closures in both state and federal waters will reduce the harvest of mature Alaskan chinooks. If OY is not reduced along with this, the average size of harvested chinooks would very likely decrease due to heavier fishing on immatures. Also, according to the Washington Department of Fisheries Model for Salmon Fishery Regulatory Analysis, a 10% reduction in the harvest in Southeast Alaska would make a detectable difference in escapements in Columbia River stocks. It should be pointed out at this point that we are actually talking about reducing ABC. In the present FMP, OY equals ABC. We are talking about reducing catch based on the biological needs and not socioeconomic considerations, and therefore we must make the reduction in ABC. OY will then be reduced accordingly.

There has been considerable public testimony on the proposed 10% reduction. Many fishermen feel that in light of the 1980 season, a 10% reduction would be a greater economic burden than they could bear. There was no public testimony in favor of the 10% reduction. All public comments suggested at least maintaining the status quo and many fishermen felt that an increase in the harvest levels would be justified. The Columbia River Intertribal Fish Commission suggested that a greater than 10% reduction in harvest in Southeast Alaska would be appropriate.

2. Chinook Season

- a. Status Quo: April 15 through December 30
- b. (PDT proposal) May 15 through September 30

The ADF&G staff has estimated that based on the proposed delayed opening and early closure in inside waters, there would be an increase of about 4,500 to 4,700 Alaskan king spawners. This is a step toward meeting the minimum chinook salmon escapement goals that have been set for Southeast Alaska streams. Although this delayed opening is geared primarily towards saving Alaskan chinook spawners, Washington Department of Fisheries feels that this proposal would benefit escapements to Washington

streams and specifically would benefit the Columbia River upriver bright stocks. The earlier closing date in September is designed to end the season concurrently with the coho season. This will also help keep the chinook harvest within the OY range.

The bulk of the public testimony, written and oral, was opposed to any reduction in the chinook season. This may have been due in part to the misunderstanding that the reduced season is primarily a means of keeping the harvest within the OY range, and not in addition to the proposed changes in OY. However, since so many people are opposed to the 10% reduction in OY, they would likewise be opposed to any change in the chinook season.

3. Coho Season

- a. Status Quo: June 15 through September 20
- b. July 1 through September 10

The PDT did not propose any change in the coho season for 1981. However, the PDT would go along with any shortening of the season as long as it did not eliminate the 10 day peak season closure in July. Written comment was evenly divided between the status quo and the July 1 to September 10 proposal. At the public hearings there was testimony for and against the proposed season reduction with several fishermen considering the early September closure detrimental and others considering it of little consequence due to poor condition of fish at that time. Most of the testimony was aimed at the 10 day closure in July which many fishermen considered an economic disaster. Many fishermen felt that this mid-season closure was not effective in getting more coho spawners into the streams, but rather only prevented outside fishermen from catching them.

- c. Allow fishing for other species during closures.

Under the FMP and state regulations, closures can be made for individual species. The PDT feels that any reduction in this flexibility would be detrimental.

4. Area Closures

- a. (PDT proposal) Close the outer FCZ beyond a geographic baseline measured from the surf line.
- b. (PDT proposal) Exempt the Fairweather grounds.
- c. Close the entire FCZ.

d. Status Quo (entire FCZ east of Cape Suckling open)

The PDT proposal to close the outer FCZ was made in September with the request for public comment on what the traditional fishing areas are. Very little testimony was received on this proposal and the testimony that was received indicated that troll fishing generally occurs everywhere within the 100 fathom line or possible within the 70 fathom line. This is generally 12 to 15 miles off the coast except in the Yakutat area where the 100 fathom line extends many miles off and the Fairweather grounds. Most people who testified on this proposal felt that the regulation was unnecessary, difficult to enforce, and that there was little increased fishing effort in off-shore areas. They felt that weather was a primary factor limiting fishing in outer districts. No one testified in favor of an outer FCZ closure. No one testified in favor of closing the FCZ with the exception of a Columbia River Intertribal Fish Commission statement at the September Council meeting. Many fishermen requested that areas west of Cape Suckling be opened at least for two months during the summer. They felt that this would reduce the crowding and competition in Southeast areas and would make additional fish available for harvest.

5. Gear Restrictions

- a. Status Quo: 6 lines north of Cape Spencer, 4 lines south of Cape Spencer for power troll.
- b. (PDT proposal) 4 operating gurdies for power troll, 2 gurdies or 4 sport lines for hand troll.

The PDT feels that standardizing effort throughout the Southeast Alaska - Yakutat area would simplify enforcement and standardize effort. Several hand trollers testified that 2 gurdies were sufficient for hand trollers due to the larger number of permits available. Other said 4 were necessary. Most fishermen who testified felt that 6 lines were necessary for power trollers, especially when fishing outer districts, and that the 6 lines could be used for bottomfish or tuna. The majority of the testimony was for the status quo.

c. Treble Hook Ban

The PDT did not take a stand on the issue of treble hooks. There is very limited data available on the effects of treble hooks versus single hooks, and the studies which have been done to date utilized sport fishing gear rather than commercial fishing gear. Most fishermen feel that there is not a shaker problem in Alaska, and that due to fuel and other costs fishermen must find areas where they don't have to waste time on small fish. Testimony was split very evenly for and against the proposal.

B. Reporting Requirements

1. Status Quo: Fishermen should report catch within five days after landing out of state.
2. (PDT proposal) All fishermen submit fish tickets or equivalent document before leaving Alaska waters with salmon on board.

The PDT feels that the present regulations do not provide sufficient data for in-season management due to the time lag in receiving data from out of state. Some form of immediate reporting is necessary. Public testimony on this was quite evenly divided, and many fishermen felt that due to rising fuel costs it is no longer economical to transport fish out of Alaska. Other fishermen did not want the inconvenience of having to go to an ADF&G department office to submit the required information.

C. Heads-on Landing Requirements

1. Status Quo (PDT proposal): All troll-caught salmon will be landed with heads-on.
2. Heads will be retained on fin-clipped fish only.

The PDT feels that the data generated by the coded wire tag studies is essential for managing the fishery. Most fishermen who testified on this agreed that the coded wire tag data is important and that they are willing to cooperate to ensure that the program is successful. They feel that the economic and quality burden borne by freezer boat operators is unjustified and unnecessary. Suggestions were made that if the proper forms were provided fishermen would record the pertinent data including exact location that the fish was caught and store it with the head from the fin-clipped fish. They felt that this would generate more and better data than under present regulation. This would also allow storage of the heads and data when ADF&G personnel were not available to collect them.

LIMITED ENTRY PROPOSALS

The 1981 Salmon Amendment proposal package which was sent out in October 1980 contained a discussion of considerations which should be made prior to deciding on a limited entry plan. Among the considerations were the following:

1. Is limited entry worth the financial cost?
2. What is the goal?
3. Should it be taken in increments or all at once?
4. Should limitation address both hand trollers and power trollers?
5. What criteria for inclusion in the FCZ fishery should be set?

The PDT feels that limited entry is not a true conservation issue. Harvest levels can be controlled effectively through time and area closures and using the OY range as a harvest ceiling. However, there are not enough available fish to support the available fishermen. Limited entry could be used to reduce the number of fishermen in the FCZ so that the remaining fishermen could be supported by the troll fishery. There is inadequate socioeconomic data available to determine how many fishermen could make a living from trolling. Therefore, some arbitrary number would be set in hopes that trollers could fish with fewer time, area and gear restrictions. Any fisherman eliminated from the FCZ fishery could still fish in state waters. The value of state limited entry permits would likely decrease somewhat if separate FCZ permits were established.

There are some questions about how FCZ limited entry would affect competition and total harvest. Some people feel that the main impact would be to increase competition in state waters. If limited entry does not increase the share of fish per fishermen and is not a conservation tool, there may be little additional justification for any system.

Most fishermen testified against FCZ limited entry for power trollers. Most favored government buy-back as a means of reducing fleet size. And most favored limited entry for hand trollers.

Limited entry is specifically addressed in Section 303(b)(6) of the FCMA. This section states that:

(An FMP may) establish a system for limited access to the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account --

- (a) present participation in the fishery,
- (b) historical fishing practices in, and dependence on, the fishery,
- (c) the economics of the fishery,
- (d) the capability of fishing vessels used in the fishery to engage in other fisheries,
- (e) the cultural and social framework relevant to the fishery, and
- (f) any other relevant considerations ...

It is important that the Council openly acknowledge this provision and address these criteria. The Council is free to choose which of these items will be utilized in the limited entry regulations. In order to have some form of limited entry in place for the 1981 season action must be taken immediately, but probably the most appropriate is to establish interim measures for 1981 only.

POSSIBLE INTERIM MEASURES

OPTION A

All fishermen holding a current power troll permit from the State of Alaska, or FCZ permit, as of April 14, 1981, will receive a 1981 FCZ permit which will not be transferable.

All fishermen holding a current hand troll permit from the State of Alaska as of April 14, 1981, will receive a 1981 FCZ permit if they can produce the following evidence of FCZ participation:

- (1) fish tickets showing fish caught in outer districts during a base period before state law restricted hand trollers from fishing in the outer districts, or
- (2) fish tickets showing deliveries from outer districts in 1979 and 1980 where hand trolling was allowed.

OPTION B

Hand trollers and power trollers will be subject to the same management regime. All Alaska and FCZ permit holders will be allowed to fish in the FCZ in 1981. The permission to fish in the FCZ will extend through 1981 only.

OPTION C

Hand trollers and power trollers holding a current Alaska or FCZ permit as of April 14, 1981, who can show participation in the FCZ during the base period, based only on fish tickets, will be allowed to fish in the FCZ until the end of 1981. This permission to fish will not be transferable during 1981.

EXAMPLES AND DISCUSSION

OPTION A

The Council should first decide whether interim measures should address only hand trollers or all trollers. Because power trollers have been subject to limited entry under the state system, FCZ limited entry could be postponed. Hand trollers could be addressed first. It is the opinion of the General Council, Alaska Region, that "there does not appear to be any reason why the Council would be prevented from approaching the problem in this way." This is essentially the recommendation that the Secretary of Commerce made both times he disapproved the hand troll ban.

Under the option, all Alaska power troll permit holders and the two FCZ permit holders would receive a 1981 FCZ permit. This permit would be good only for the person who held the Alaska permit on April 14, 1981. If not all power trollers fished in FCZ waters in 1980 or earlier, this FCZ permit system could allow increased effort in the FCZ. It avoids the problem of false reporting on fish tickets, however.

Hand trollers would be distinguished from power trollers. Hand trollers would need to hold a current Alaska permit (as would power trollers) but would also need to show proof of participation in the FCZ. Because state regulations prevented hand trollers from fishing outside in 1978-1980, hand trollers should show that they fished the FCZ prior to this time and would have continued to do so if allowed. The Council has the option of determining what is required as proof of participation in the fishery. Because state and federal waters were not distinguished on state fish tickets, the best approximation would be fish tickets from all outside areas. This liberal approach to determination of FCZ participation is the best available at present.

The base period could be manipulated considerably. The most recent fish tickets which preceded the exclusion of hand trollers from outside waters would be 1975-1977. The Council could choose any combination of these years as the base period. Thus, the following examples might be considered:

OPTION A-1:

- (a) all power troll permit holders as of April 14, 1981, would receive a 1981 FCZ permit, and
- (b) all hand troll permit holders as of April 14, 1981, who can show fish tickets for 1980 and from outer districts for at least one year from 1975-1977.

OPTION A-2:

A 1981 FCZ permit would go to:

- (a) all power troll (Alaska or FCZ) permit holders as of April 14, 1981, and
- (b) all hand troll permit holders as of April 14, 1981, who can show fish tickets for 1980 and from outer districts for at least two of the years from 1975-1977.

OPTION B

This option allows all troll permit holders as of April 14, 1981, to receive a 1981 FCZ permit. This is basically the same as 1980 except that it would include hand trollers who would then have no legal barriers to fishing in the FCZ.

This option is the least painful in terms of the sociopolitical impacts but is the least effective in controlling offshore fishing effort increases. The benefits are that it:

- (1) establishes an FCZ entry system, and is a preliminary step to more limited entry in the future;
- (2) is the least expensive to implement;
- (3) can probably be in place by the beginning of the 1981 fishing season; and
- (4) treats hand and power trollers alike, thus avoiding any legal problem of distinguishing them.

The main drawbacks are that it:

- (1) would not control or reduce the expanding offshore effort, and is therefore not consistent with either the existing or proposed objectives of the FMP;
- (2) would allow hand trollers who have never fished outside the opportunity to establish a foothold in the FCZ; and
- (3) might tend to further increase the competition between power and hand trollers.

OPTION C

This option combines aspects of Options A and B. All trollers must show past participation in outer districts during the base period. Several options are available, among which are:

OPTION C-1:

A 1981 FCZ interim permit would be available to each person holding a current Alaska (including hand troll) or FCZ troll permit as of April 14, 1981, who can show:

- (a) at least two fish tickets from any districts in 1980; and
- (b) fish tickets from outer districts from any two years from 1975-1977.

As in OPTION A, the base years can be manipulated. The benefits of this proposal are:

- (a) it would control and possibly reduce fishing effort offshore;
- (b) it treats all trollers alike; and
- (c) it eliminates only those fishermen who have not fished in the FCZ in prior years.

Some of the major problems are that:

- (a) it establishes a different permit system than already in place under state law;
- (b) if the number of boats allowed in the FCZ is high, increased total effort may occur; and
- (c) it would be difficult to enforce unless FCZ and non-FCZ permitted boats could be easily distinguished.

North Pacific Fishery Management Council

Clement V. Tillion, Chairman
Jim H. Branson, Executive Director

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Telephone: (907) 274-4563
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October 21, 1980

Dear Reviewer:

The North Pacific Fishery Management Council will be holding public hearings on the draft amendment package to the Southeast Alaska Troll Fishery Management Plan.

The amendment package is enclosed for your review and comment. The proposed amendment includes amendments to the objectives of the FMP and also the proposed regulatory options for the 1981 fishery.


Additional copies of the amendment package are available on request from the North Pacific Council.

Public hearings have been scheduled as follows:

<u>Date</u>	<u>Place</u>	<u>Time</u>
11/13/80	Baranof Hotel, Juneau, Alaska	10 a.m.
11/13/80	Centennial Building, Sitka, Alaska	9 a.m.
11/14/80	Marine View Hotel, Ketchikan, Alaska	9:30 a.m.
12/06/80	Sheraton-Renton Inn, Seattle, Washington (800 Rainier Avenue S., Renton, WA)	9:30 a.m.
12/09/80	Anchorage Westward Hilton, Anchorage, AK	9 a.m.

Written comments must be received by the Council office by 5 p.m., December 15, 1980. Although the public comment period is scheduled to end December 15, it may be extended to early January.

Sincerely,


Jim H. Branson
Executive Director

1981 MANAGEMENT RECOMMENDATIONS AND CONSIDERATION
FOR THE SALMON TROLL FISHERY IN THE FCZ
APPROVED BY THE COUNCIL FOR PUBLIC REVIEW

I. INTRODUCTION

The Fisheries Conservation and Management Act of 1976 requires that stocks of salmon be managed uniformly throughout their range. The Southeast Alaska troll fishery extends into the waters of both State and Federal jurisdictions, and the management objectives and regulations of both zones should, therefore, be compatible. The intent of the FMP is to manage the salmon resources off the coast of Southeast Alaska in a manner that is consistent with the State of Alaska's management regime and FCMA National Standards while promoting conservation and allowing utilization of the resource for food production.

This document, prepared by the PDT and Council staff, is intended to open public discussion of the proposed amendment package to the Troll Salmon FMP and 1981 regulations. These proposals refer specifically to the FCZ and not to waters managed exclusively by the State of Alaska. The proposals are in two parts. The first is a set of objectives which would replace the objectives in the existing FMP. The second part contains proposed fishing regulations designed to meet the objectives. The Salmon Plan Development Team has presented a package of proposals, the reasons why they feel these are necessary, and what the proposed regulations are expected to accomplish. Other proposals submitted during the September Council meeting have not been fully evaluated by the PDT but are also included for public discussion. The public is invited to comment on this entire document in the hopes that active communication among all interested parties will lead to optimum utilization of the salmon resources.

Management of the salmon fishery must be a cooperative effort between resource managers and user groups alike. Management's primary goal is to maintain fish harvests at the most optimal level possible. This includes protecting and rebuilding fish runs that have been too heavily impacted by harvest pressure and environmental degradation, and also supplementing natural production to further increase the number of fish available where it is consistent with management objectives. To meet this goal it is essential that management measures take into account both the resources and resource users.

The complexity of the salmon troll fishery makes it difficult to evaluate the status of the fishery at any particular time. To predict future status is even more difficult due to data inadequacies and changing environmental conditions, harvest patterns, and effort levels. Effective management of the salmon resource requires a high degree of in-season management flexibility in conjunction with established pre-season regulations. In-season evaluation is critical to respond to unexpected variations in run size and harvest patterns. Without this flexibility it would be necessary to manage the fishery more conservatively in order to protect against downward variations in run vitality.

The salmon Plan Development Team has identified the following fishery and resource management problems that the NPFMC should consider in formulating proposed regulations for the 1981 fishing season.

Chinook Management

The majority of natural chinook salmon stocks from all sources harvested by the Southeast Alaska troll fishery are depleted to such an extent that they are currently producing far below either maximum or optimum potential harvest on a sustained yield basis. Escapement levels of Southeast Alaska chinook stocks remain far below historic levels. With the present effort and catch by the troll fishery on these stocks minimal improvements, if any, in escapement levels can be expected. Rebuilding of these stocks will not occur unless more fish survive the fishery to spawn.

Although the 1980 troll fishery was regulated to prevent the chinook harvest from exceeding the OY range of 286,000 to 320,000 fish, substantial conservation problems continued to occur. Escapement of natural chinook runs to Southeast Alaska systems in 1980 reflected only limited, non-uniform improvement although no net fisheries targeted on these stocks.

In addition, unusually high chinook catches during August and September resulted in the upper end of the OY range being reached by September 20. The troll fishery was closed more than a month prior to the scheduled closure of October 31. Disruption of the Southeast Alaska historical winter fishery was averted only by deliberately exceeding the upper end of the OY range. Conservation problems were also encountered on many non-Alaskan stocks including the upper Columbia River 'Brite' chinook stocks which are known to contribute to the Southeast Alaska troll fishery. These problems are recognized by managers and fishermen alike.

Coho Management

Coho stocks harvested by the troll fishery off Southeast Alaska have declined in abundance from historical levels. Recent increases in fishing effort in the coastal and offshore fishing areas have reduced the manageability of the fishery and intensified allocation problems between offshore and inshore salmon fisheries.

II. PROPOSED MANAGEMENT OBJECTIVES

The NPFMC proposes that the following objectives be considered as an approach to rational management and a positive step toward solution of these problems. These would replace the objectives in the existing FMP.

- A. Manage the troll fishery in conjunction with other Southeast Alaska ~~stocks~~ fisheries to obtain the number and distribution of spawning fish capable of producing the optimum total harvest on a sustained basis from ~~and~~ Southeast Alaska salmon stocks.
- B. Allocate the ~~total allowable salmon harvest~~ ^{optimum yield} to the various Southeast Alaska user groups as directed by the Alaska Board of Fish and ~~Game~~, and North Pacific Fisheries ~~Management Council~~.
- C. Decrease directed and incidental harvest of smaller, immature fish and reduce sublegal chinook hook/release mortalities where possible, consistent with allocation decisions and with the objective of maximizing benefits to user groups.

- D. Control and reverse recent trends of expanding effort and catch in ~~outer coastal and offshore~~ Southeast Alaskan waters to accomplish conservation goals of Objective 1.
- E. Develop fishery management ~~plans and~~ techniques which will allow full utilization of salmon returning to supplemental production systems while providing necessary protection for intermingling natural runs which must be harvested at lower rates.
- F. Manage the coho and chinook salmon fisheries to ensure compliance with U.S.-Canadian fisheries agreements, any other ~~treaty or~~ resource sharing requirements and conservation obligations.
- G. Contribute to the development of a ^{designated} coastwide management plan for chinook salmon.

In addition, the following should be considered for inclusion as long-term goals to coordinate management of the troll fishery throughout the State and Federal jurisdictions.

- H. ~~The Council shall adopt the mangement principles contained in the Southeastern Alaska-Yakutat Chinook and Coho Salmon Troll Fisheries Management Plan. The following proposals by the ADF&G staff to the Board of Fisheries should be considered as well:~~
 - 1. ~~Provide greater flexibility for scheduling a 10 day closure during the early portion of the coho season;~~
 - 2. ~~Formalize the Board of Fisheries policy for the allocation of the coho catch between hand troll (20%) and power troll (80%) gear types;~~
 - 3. ~~Establish a policy of returning the outside/inside distribution of the coho catch to the levels of 1976-77.~~

III. REGULATORY PROPOSALS

Specific regulatory alternatives for the 1981 fishery have been submitted by the salmon Plan Development Team, Council members, the Advisory Panel and individuals and are listed below. The proposals made by the salmon PDT are identified as such. The intent of the Council is to put these proposals out for public review and discussion. Based on public testimony and any new information, the Council will approve final regulations at a joint public hearing with the Alaska Board of Fisheries in January.

A rationale for each PDT proposal is included to provide background information and discussion. A discussion of the intent and/or effects of other alternatives is included where possible.

A. Optimum Yield

1. (PDT proposal) Reduce OY by at least 10%. Actual harvest may be even less than this.
2. Status quo

B. Limited Entry

1. Open access with time and area closures.
2. Status quo with time and area closures.
3. True moratorium with time and area closures.
4. Reduce effort levels each year with interim time/area closures.
5. Reduce effort level immediately to level where minimal time and area closures are necessary.

C. Time and Area Closures

1. Season
 - (a) (PDT proposal) Chinook season May 15 - September 20
 - (b) Coho Season July 1 - September 10
 - (c) Allow fishing for other species during closures
 - (d) Status quo (same as 1980)
2. Area
 - (a) (PDT proposal) Close outer FCZ except Fairweather Grounds
 - (b) Close entire FCZ
 - (c) Status quo

D. Gear Restrictions

1. (PDT proposal) 4 operating gurdies for power troll; 2 gurdies of 4 sportlines for hand troll
2. Ban treble hooks

E. Reporting Requirements

1. (PDT proposal) All fishermen submit fish tickets before leaving Alaska.
2. Status quo (report catch within 5 days after landing)

F. Heads-on Landing Requirements

1. (PDT proposal) Status quo (heads on all fish)
2. Heads on fin-clipped fish.

IV. DISCUSSION OF REGULATORY PROPOSALS

A. Optimum Yield

1. (PDT proposal) The maximum OY range for the 1981 chinook fishery by all commercial gear types shall be 257,000-288,000 fish, 10% less than 1980. This shall be considered a ceiling rather than a goal and the actual harvest may be less than the upper OY limit, and possibly below the OY range depending on the strength of 1981 runs.

Discussion: The salmon PDT seriously questions whether or not the current chinook OY of 286,000 to 320,000 is appropriate as a harvest ceiling in view of the status of contributing stocks. Assessment of the current status of coastwide natural chinook stocks plus preliminary assessment of 1980 spawning levels of these stocks indicate that they continue to be depressed with Southeast Alaska stocks among the most seriously depressed. It appears likely that final analysis of the 1980 season data will show that the 1980 catch of approximately 320,000 (the upper end of the OY range) was too high in the sense that escapements continue to be below levels needed for maximum production in some systems and below levels needed to rebuild the more seriously depressed natural stocks.

There is at present no way to predict the degree of improvement in escapement levels expected to result from a specified reduction in OY. A sound management approach is to reduce the harvest by increments until a measurable improvement is observed. As data becomes available from coded wire tag studies, more selective harvest on healthy natural and hatchery stocks may be possible.

The application of the OY concept to the Southeastern Alaska salmon fishery has created important problems with respect to (i) inadequacies in data which prevent a direct approach utilizing common analytic techniques in developing seasonally adjusted OY's, and (ii) interpretation and application of the OY concept, as developed in the original FMP, to the Southeastern troll fishery where both Alaskan and non-Alaskan stocks make significant contributions to the harvest. The current chinook OY range of 286,000 - 320,000 fish was established to stabilize fishing effort and catch in response to steadily increasing effort and known depressed stocks. The salmon PDT has recommended at least a 10% reduction of this range. This is in part to provide additional protection to depressed chinook stocks and in part to ensure that the interception of non-Alaskan stocks is not increased by management measures designed to increase escapements of mature Alaskan chinook.

The PDT recommends that in view of (i) inadequacies in current data, (ii) the overriding need for a significant response to serious conservation problems, and (iii) the unique character of this Southeast Alaskan troll fishery in terms of contributions of both Alaskan and non-Alaskan stocks that:

- (a) Seasonally developed OY's be interpreted as ceilings or upper limits to harvest rather than catch targets or quotas; and
- (b) Alternative methods of developing specific seasonal OY's be recognized.

2. Maintain OY at the 1980 level.

Discussion: The option of maintaining the present OY would disrupt the troll fishery less in the immediate future but would be contrary to the goal of rebuilding depleted chinook stocks to a level producing optimal harvest.

B. Limited Entry

The chinook salmon resource in the FCZ includes stocks of fish from Oregon, Washington, Canada and Alaska river systems. Many wild stocks of chinook salmon from the west coast, including Alaska, are depleted. The states of Alaska, Washington, and Oregon and the Pacific Fishery Management Council have adopted regulations designed to protect and rebuild chinook salmon runs. To continue to allow increased troll effort on mixed stocks of chinook off Alaska would directly negate these actions as depressed stocks would be subject to even greater fishing pressure. Therefore some form of limiting offshore effort and catch is needed. The salmon PDT does not recommend any specific limited entry alternatives. However, any increase in the number of participants in the FCZ fishery has to result in further stock depletion unless compensated for by additional time/area and efficiency restrictions.

Before choosing a particular limited entry scheme it is necessary to decide if limited entry is more efficient or desirable than other means of reducing fish harvest. Any limited entry system will be costly, disruptive and extremely difficult to implement, especially before the 1981 season. The mechanisms to deny access to fishing the FCZ must be established carefully. The cost efficiency should be compared to existing methods such as time and area closures. In deciding whether or not to choose limited entry as a means of reducing harvests, the following questions should be addressed:

1. Is limited entry worth the cost, both financially and socially?
2. What is the goal of limited entry?
3. Why is limited entry more desirable than other methods of reducing harvest?
4. At what level of effort will it be possible to remove time and area closures? Is it worth it?
5. Since all hand trollers now have access to the FCZ, is there really any alternative to limited entry?

If limited entry is the preferred alternative, the next step is to determine what level of harvest capacity (i.e. number of gear units) is the ultimate goal.

The Ultimate Goal of Limited Entry

- Option A. Reduce harvest capacity to the point where OY cannot be exceeded (time/area closures may be necessary).
- Option B. Reduce offshore effort to the point where enough fish are transferred to inside waters, and to take pressure off depressed non-Alaskan stocks (time/area closures may still be necessary).
- Option C. Reduce harvest capacity to the point where no weakened stock can be overfished (time/area closures no longer necessary).
- Option D. Reduce effort to some historic or traditional level (time/area closures will be necessary).
- Option E. Maintain the current effort level (time/area closures necessary).

After the ultimate goal is established it is necessary to establish the starting point, that is, how many gear units should be allowed in the first year. The alternatives for this initial entry level range from unlimited entry to going straight to the ultimate goal. If effort is to be reduced, the mechanisms to deny access to the fishery must be established. The means to reduce the number of gear units to the desired level must also be established. The FCMA requires that certain standards be considered in determining eligibility for any limited entry system.

The following discussion attempts to clearly lay out the alternative in how to establish the initial entry level, what general mechanisms are available, and some of the other considerations involved in reducing the number of gear units. These are listed in order of increased rate of denying access to the FCZ. The first three options do not set a specific number of permits which will be available initially, but only set qualifications. Any fisherman with those qualifications would receive a permit, regardless of the number.

The Initial Number of Permits

- Option 1. Open access with extensive time and area closures.

This is actually unlimited entry and anyone could fish in the FCZ. Only Alaska permit holders could land fish in Alaska, however. This option is considered unacceptable because it could greatly increase fishing effort in the FCZ.

- Option 2. Status Quo.

This would allow all Alaska permit holders (including hand trollers) to fish the FCZ. Because of the potential increase in fishing pressure immediately, this option is not recommended. Extensive closures may be required to limit harvest.

- Option 3. True Moratorium.

This allows all current permit holders access to the FCZ fishery if they meet certain criteria such as

- (a) made two or more landings from the FCZ during 1980, or
- (b) made landings in prior years but for some reason were unable to fish during 1980.

This does not set a specific number of permits which will be available but allows all eligible fishermen to receive FCZ permits. The actual number could (and probably would) exceed the number eligible to fish the FCZ in 1980. An example of how this would work was proposed by the Council Chairman in September.

A limited entry policy for the FCZ will be established to parallel the state system. A lower number of permits would be available than under the state system, but they would be available to both hand and power trollers meeting the following criteria:

Any person currently holding an Alaska or FCZ permit who made at least two deliveries from an outer district in each of two years from 1973 to 1978, and also made two or more deliveries from an outer district in 1979 or 1980 will be eligible for a fully transferable FCZ permit. This permit would be tied to the existing Alaska permit and not severable.

Any person currently holding an Alaska or FCZ permit who made two deliveries from an outer district during both 1979 and 1980 will be eligible for a non-transferable FCZ permit.

Eligibility will be based primarily on fish tickets. Affidavits alone are not enough.

A buy back program shall be instituted to reduce fishing pressure.

The percentage of the total West Coast salmon production which has traditionally been harvested off Southeast Alaska (based on the 1970-1979 average or some more appropriate period) will be the guideline for future salmon harvest levels. Any increase in production from non-Alaska sources will be subtracted from the total biomass estimated before OY is computed. Thus, an increase in production in Canada, for example, will not be included in the OY for the S.E. Alaska fishery.

If the immediate goal is to limit or reduce the number of permit holder, a specific number of permits can be made available. These would then be divided among qualified fishermen.

Option 4. Sets the number of permits which landed fish from the FCZ in 1980 as the initial number of permits available in the future. If this number is less than the number of qualified applicants (as it certainly would be), the means of denying some fishermen must be established. This initial limitation could be achieved by

- (a) lottery
- (b) a ranking (point) system
- (c) auction
- (d) 1980 participants only

If this number of permits will be reduced in the future, interim measures to ensure stock protection will be required. Interim relief to fishermen should also be considered. The means of reducing the number of permit holders must also be established. These mechanisms include:

- (a) yearly lottery with fewer permits available each year
- (b) non-transferable permits
- (c) government condemnation of permits
- (d) permit expiration date
- (e) buy-back system
- (f) "use it or lose it"
- (g) ranking system
- (h) some combination of these

Option 5. Sets the initial number of permits equal to the ultimate desired number. This option would cause the most immediate upheaval of any of the options listed, but would not require interim measures. The means of determining who qualifies for permits and then distributing permits among those eligible would be similar to Option 4. The impact of this immediate displacement of a large number of fishermen will be moderated by ability of Alaska permit holders to continue to fish State waters.

C. Time and Area Closures

1. (PDT proposal) The chinook troll season shall open May 15 (one month later than 1980) and will close September 20 or any date concurrent with the normal closure of the coho season.

Discussion: This proposed regulation is designed to curtail expanding early and late season effort in the troll fishery and contribute to conservation of mature Alaska chinook salmon. The proposed spring opening date compliments ADF&G staff proposals to the Board designed to improve the spawning escapement of Alaskan chinook stocks and curtail further increases in early fishing effort inside the surfline. The ADF&G staff is proposing to delay the opening of State coastal waters until May 15, close the outer coastal fishing areas within the surfline from March 1 until the offshore season opening date of May 15, and to close the corridors from coastal to inside fishing areas for an additional 15 days from May 16 until June 1.

The early chinook season closure is designed to help reduce the total pressure on all fish stocks and has the additional management benefit of synchronizing the coho and chinook seasons. The 1980 season was closed early to prevent the chinook harvest from exceeding the OY range. Although the shorter season will reduce the total harvest, it is doubtful that this regulation alone will keep the harvest level from exceeding the OY range.

2. (PDT proposal) Fishing shall not be allowed seaward of a baseline measured from the surfline as described in the Alaska commercial fishing regulations. The location of this line shall be established

at the traditional limit of troll fishing as determined during public testimony. As an additional option, the Fairweather Grounds could be exempted from this proposal.

Discussion: Several problems have been encountered recently due to increasing fishing effort in offshore areas. One result of increasing competition for limited supplies of fish is that fishermen are fishing farther offshore in greater numbers. In this offshore area there is a greater degree of mixing of salmon stocks from many sources, and it is impossible to selectively harvest healthy stocks while protecting depressed stocks. This seaward shift in effort is more a result of competition than of need--there is plenty of room and effort in inside waters to harvest the OY. The offshore shift not only makes it impossible to protect weak stocks, but also makes it more difficult to monitor catch and effort.

The intent of the proposal is not to eliminate traditional fishing areas. The intent is to curb the expanding offshore effort and contain it within the boundaries of the traditional troll fishery. Public testimony is needed to determine these traditional boundaries. It is presently felt that the baseline would be 5-15 miles from the surfline. The Fairweather Grounds could be exempted from the regulation.

3. (Submitted by Council member.) The FCZ shall be closed to salmon fishing January 1 through December 31.

Discussion: A complete FCZ closure would simplify federal management of the salmon fishery and offer greater protection for non-Alaskan stocks. The action would displace boats into state waters, placing the total management burden on the State. Fishing effort in state waters would intensify, and without a reduction in the total OY it is possible that this could result in increased pressure on certain Alaska stocks.

4. The coho season shall open July 1 and close September 10.

Discussion: This proposal (submitted but not necessarily endorsed by the Advisory Panel) is intended to reduce the coho season 25 days. During the early part of the existing season (June 15 - July 1) there is an average weight gain of about $\frac{1}{2}$ pound per fish, making each fish more valuable. Some improvement to escapement may also occur although the PDT feels that relatively few coho are caught before July 1. Fishermen feel that between July 1 and September 10 the fish are in better condition than either before or after.

5. Fishing closures shall be directed at individual species, and fishing for other species shall be allowed unless a specific conservation problems exists.

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5. Fishing closures shall be directed at individual species, and fishing for other species shall be allowed unless a specific conservation problems exists.

Discussion: This proposal (submitted but not necessarily endorsed by the Advisory Panel) would prevent across the board closures where

conservation is not an issue. The proposal would allow fishing for chinook, chum, etc., during closures to protect coho, for example. Both State and Federal management agencies have the latitude to make single-species closures already. Fishermen have testified that because trolling can be species-specific, total closure of the troll fishery is not justified unless conservation of all stocks is required.

D. Gear Restrictions

1. Power troll vessels fishing in the FCZ shall use or mount no more than 4 lines and 4 gurdies and hand troll vessels shall use or mount no more than 2 gurdies or 4 sport lines.

Discussion: The PDT believes that gear uniformity between the FCZ and State waters for both power and hand troll vessels is necessary to facilitate enforcement of gear restrictions. This proposal would bring the number of lines and gurdies allowed to be mounted and usable on power troll vessels into conformity with an ADF&G proposal (4 gurdies on power troll vessels). Present State law restricts the number of lines power trollers can fish to no more than four and hand trollers are restricted to no more than two gurdies or four sport lines in State waters.

This action is designed to: (1) provide for efficient enforcement of line and gurdy limitation in both the FCZ and State waters; (2) contribute to preventing expanded effort in the troll fishery. A side benefit of this would be to standardize effort.

2. Maintain status quo.
3. Power troll vessels will have no more than 4 mounted gurdies which are spooled with line which can be used to fish, but that can be used for stabilizers.

Discussion: Fishermen have testified that the extra two gurdies allowed on vessels are often used to pull stabilizers.

4. The use of any hook with more than one point shall be prohibited in the troll fishery. Possession of treble and double hooks on troll fishing vessels shall be prohibited.

Discussion: Shaker hooking mortalities are a concern of managers and fishermen alike. Studies have been made to determine how to unhook a fish to inflict minimal damage. Fishermen have testified that these techniques are ineffective for treble hooks, and common sense dictates that treble hooks are more dangerous to a hooked fish than are single hooks. There is no data to indicate how widespread the use of treble hooks is or the degree of hooking mortality associated with treble hooks. Therefore, the degree of protection to immature fish from the proposal cannot be estimated.

E. Reporting Requirements

1. An Alaska fish ticket or the equivalent document must be submitted by fishermen prior to transporting salmon out of the Alaska area.

Discussion: At present, salmon are being transported to various buying stations out of the State and those catches are not reported. Although present regulations require that reports must be submitted within 5 days of the landing date, only a few reports have been received. The enforcement problem is compounded further by the inability to receive landing documents from Washington state in less than 15 days after a fisherman leaves Alaska even if certain confidentiality requirements are waived. In order to fully develop the capability for in-season management, managers need this information in a complete and timely manner.

2. Maintain status quo.

Discussion: The PDT feels that the present system cannot meet the needs of in-season management.

F. Heads-on Landing Requirements

1. The present regulation requiring that all chinook and coho salmon be landed with heads on shall be extended through 1981.

Discussion: The PDT recommends no change in the present regulation requiring that all chinook and coho salmon be landed with heads on. Power trollers with freezing capacity have increased their proportion of the total troll salmon catch in recent years. Preliminary indications are that the heads on regulation produced better mark recoveries from freezer boats than under the previous regulations. The PDT emphasizes that while tags recovered from freezer boats represents a small percentage of total tags recovered in Southeast Alaska they may represent a fairly high percentage of tags recovered in areas fished predominantly by freezer boats.

The importance of the coded-wire tag data is recognized by most trollers. Because manpower is not available to monitor all landings, cooperation of the troll fleet is essential in this study. Although the number of tags involved in freezer boats is relatively small, these tags are a major source of information from many areas fished largely by freezer boats.

2. (Submitted by the Council for public review) The heads must be retained on all adipose fin-clipped salmon caught in the Alaska area.

Discussion: Freezer boat operators have testified that the existing regulation puts a greater burden on them than on other fishermen, and this burden is excessive. The quality of the product also suffers during the head removal process and re-glazing. Cooperation among fishermen to retain the heads of tagged fish would eliminate the need for this regulation. Some public testimony has indicated

that this spirit of cooperation exists and that the cost to product quality is not worth the burden of regulation when fishermen are willing to help make the coded-wire study successful voluntarily.

Original Idea of Hokuten Trawlers
Association.

1. Background

Problems regarding salmon interference by Japanese vessels have been reaching a real active stage as Western Alaska natives requiring a strong salmon saving issue lately. Their activites are not only limited in Regional Council level, they submitted a request for ammending PMP to NMFS in Wash.D.C. in August, 1980. (Salmon petition)

This action by natives resulted in holding some hearings in September. NMFS has been considering about whether PMP should be ammended immediately at present situation.

We also asked Mr. Steve Johnson to present our comment on this matter based upon Japanese united concensus, came up by HOKUTEN Trawlers and Japan Deep Sea Trawlers Association.

On Nov.3rd, 1980 Salmon litigation has been brought up by Alaskan natives to distric court of Alaska.

Under above circumstances, Japanese fishery association has responsibilities to work out a solution. Basiclly, however, we set the first priority on salmon research for incidental by-catch to know it's actual state.

First of all, we are requesting Japanese Fishery Agency to share 1981 budget for research project, but on the other side of the same coin, we have been asked by Japanese Gorvernment to implement a pre-research for them first.

Also, Mr. Johnson recommended us to implement some type of research within a framework of Japanese industry's research level, and suggested us to explain the projects of the plan to U.S. Gorvernment.

The followings are our first measurement to start the pre-research project by HOKUTEN Trawlers Association, which had been discussed at Internal meeting namely North Pacific Trawlers Council on Nov. 13th, 1980.

2. Obj-ectives

In order to prepare a research project by Japanese Gorvernment in next year, we decided to implement our pre-research for salmon incidental by-catch and analyze the real state.

After we come up with data bases, we prepare to ask U.S. cooperation of the project.

*by Hokuten - active as of
Nov. 20. -*

3. Research period End of Nov.1980 to March 31, 1981.

The first half starts from the end of Nov. till Dec.31, 1980 and this period is expected as a Main Research, and it's followed by later half of period Jan.1st till March 31st, 1981.

4. Details

(1) Research vessels

All the HOKUTEN vessels which operate in Bering Sea Area II . (Area 52)

(2) Research Net

One haul per a day with concerning about depth of water and timing etc. are not unbalanced.

(3) Researching objects

- * Location (hauling location) Latitude, Longitude
- * Time (hauling time) Latitude, Longitude
- * Depth of water when the vessel haul the gear
- * Length of rope _____ m
- * Depth of gear bottom _____ m *Trawling depth,*
- * Gear specification Height of opening
Trawling speed

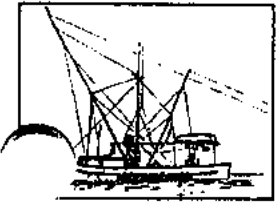
- * Water temperature Surface, Bottom
- * Trawling hours
- * Number of incidental salmon alive _____ dead _____
- * Catch amount _____ mt
- * Researching table (attaced page)
- * Reporting system

On everyday, vessel must report to HOKUTEN office via radio station by noon, in accordance with the followings:

Vessel name, date, location of hauling gear, time of hauling gear, depth of water, depth of gear bottom, length of rope, height of opening, trawling speed, operation hours, water temperature (surface, bottom), numbers of insidental salmon (alive, dead), catch amount.

5. Objects for anaysis of Salmon Incidental by-catch.

- * Salmon school propotion according to horizontal, vertical, water depth..
- * Incidental rate by operational hours.
- * The differnce of incidental catch by water temperature.
- * " " by trawling speed.
- * " " by gear type.
- * others



Alaska
Trollers
Association

ALASKA TROLL LEGAL FUND PRESENTATION

NPFMC & Board of Fish, Jan. 7, 1980

1. Opening statement. Lewis Schnaper [executive director of
Alaska Trollers Association]
2. Critique of W.D.F. Model and harvest distribution of Columbia
River Brite stock. Ron Gowan [Ron is a consultant to ATLF;
an instructor at U.W. College
of Fisheries, PhD candidate
and former NMFS employee]
3. Comments on proposal to delay opening and shorten season
Bruce Bachen [Bruce is head of ATA Logbook
program, a M.S. fisheries
biologist]
4. Recalculation of OY--Memo 3. Bruce Bachen
5. Comments on proposal to reduce OY by +10%. Bruce Bachen
6. Presentation of The Socioeconomic Impact of the Salmon Power
Troll Fishery in Southeast Alaska.
Eric McDowell [Eric is an M.B.A. with 15
years experience analyzing
Alaska's economy]
7. Comments on proposal to return coho effort to inside waters.
Bruce Bachen
8. Scientific basis for ban on treble hooks. Bruce Bachen
Practical effects of treble hook ban. Stan Reddekopp [Stan first
fished in Alaska in 1947, is
President of ATA and a FWG
highliner]
9. Comments on limited entry proposals. Lewis Schnaper
10. Comments on hand troll situation. Lewis Schnaper
11. comments on proposal to ban six-lines north of Spencer. Schnaper/
Reddekopp
12. Comments on proposal to set seaward line. Schnaper
13. Comments on single species closures. Schnaper/reddekopp
14. Comments on heads-on landing requirements. Schnaper
15. Comments on reporting requirements. Schnaper
16. Comments on State Proposals. Schnaper
17. Closing statement. Scott Stafne [attorney for Troll Legal Fund]

Dundee

ANALYSIS OF ALASKA TROLL FISHERY
MANAGEMENT NEEDS AND OPPORTUNITIES
FOR UPPER COLUMBIA RIVER "BRIGHT" FALL CHINOOK SALMON

by
Salmon Harvest Management Division
Washington State Department of Fisheries

December 23, 1980
Olympia, Washington 98504

INTRODUCTION

A summary of technical information on important chinook stocks originating in the Columbia River and Washington coast was presented at the November 24, 1980, joint NPFMC-PFMC salmon subcommittee and formally to the Council at the December 12, 1980, NPFMC public hearing in Renton, Washington. A copy of this material is appended here for reference. Since presentation of this material, the Washington Department of Fisheries (WDF) has been using the National Bureau of Standards-Washington Department of Fisheries Catch Regulation Analysis Model in an effort to evaluate alternatives for Alaska troll fishery management. Written and oral descriptions of the model, its purpose, data input, calibration, analysis capabilities, and assumptions were also presented at the December 9, 1980, Salmon Plan Development Team and the December 10, 1980, SSC salmon sub-group meetings in Anchorage, Alaska.

SUMMARY OF HISTORICAL DATA

Several important facts about chinook stocks in the Southeast Alaska troll fishery can be concluded from available data. Results from historical high-seas tagging, recent coded-wire tagging (CWT) experiments, and available age composition data all indicate this fishery (particularly in outside areas), is most heavily dependent upon non-local chinook stocks. High-seas tagging studies further concluded Columbia River fall chinook historically were the most important component of the catch. Ocean catch distribution of pertinent CWT experiments demonstrates that the Alaska troll fishery is the single most important U.S. harvester of the upper Columbia River bright fall chinook stock.

The trend in recent years has been one of depressed chinook stock condition for several major stocks, including upper Columbia River brights. Severe restrictions have been placed upon Washington coastal and in-river fisheries to protect upriver fall chinook runs and satisfy allocation requirements. Despite these measures, insufficient natural runs of brights are returning to the river to provide reasonable in-river fishing and desired spawning escapement. Due to different ocean distributions of bright and other Columbia River fall chinook stocks, additional restrictions to Washington coastal and Columbia River fisheries will return more hatchery fish but will do little to provide additional protection for upriver brights.

A review of historical high-seas tagging data provides some perspective on Canadian interceptions of fish escaping the Southeast Alaska troll fishery. While these data are old (early 1950's) and represent early 1950's fishing intensities, transfer of fish to terminal areas and spawning escapement was greater than Canadian interceptions.

Since these results were first presented, WDF has been attempting to quantify management objectives for Columbia River brights and to evaluate possible long-term Alaska troll fishery management measures to achieve these. The remainder of this report addresses these issues.

ALASKA TROLL MANAGEMENT OBJECTIVES FOR UPPER COLUMBIA RIVER BRIGHTS

1. Meet minimum spawning escapement requirements.
2. Provide sufficient ocean escapement to allow full in-river harvest of co-mingled natural and hatchery stocks.
3. Reduce Southeast Alaska troll harvest rate to return to status quo (i.e., historic harvest sharing).
4. Minimize Canadian interceptions of fish saved from the Southeast Alaska troll fishery.

SPAWNING ESCAPEMENT REQUIREMENTS FOR UPPER COLUMBIA RIVER BRIGHTS

The in-river run size goal to achieve spawning escapement is defined as the sum of:

1. Adult spawning escapement needs past McNary Dam, and
2. Inter-dam losses which occur between Bonneville and McNary Dams.

The spawning escapement objective for this stock is 40,000 adults counted at McNary Dam, the last hydroelectric project downstream from spawning grounds in the Columbia and Snake Rivers.

An estimate of additional numbers of fish needed for inter-dam losses can be made by examining observed losses in recent years as indicative of expectations in the near future. In recent years, loss statistics have been:

<u>Year</u>	<u>Number of fish</u>	
	<u>McNary escapement</u>	<u>Loss</u>
1978	27,300	14,100
1979	31,200	11,600
1980	29,000	30,500
Mean	<u>29,200</u>	<u>18,700</u>

Above Bonneville Dam = 1.8 BPH were caught for each 1.0 URB caught.

Below Bonneville Dam = 4.8 BPH were caught for each 1.0 URB caught.

In 1980, 70% of the URB harvest occurred above and 30% below Bonneville Dam. Therefore, the weighted, river-wide incidental catch rate is:

$$(1.8)(0.7) + (4.8)(0.3) = 2.7 \text{ BPH:1.0 URB.}$$

As in-river fishing patterns and relative run size strengths of these two stocks change from 1980 conditions, a revision of this statistic will also be appropriate.

HISTORIC SHARING OF THE HARVEST

In the Alaska troll situation, where resource status is depressed for several major stocks, including upper Columbia River bright fall chinook, constant harvest at the upper optimum yield limit (the actual occurrence in 1978, 1979, and 1980) has changed the share this user group harvests of the resource. The NBS-WDF model was used to quantify the extent of this change for upper Columbia River brights. At stock and effort levels existent during 1974-76 (the base period in the model) and during 1980, the model estimates long-term proportions of upriver bright harvest being made by the Alaska troll fishery:

long-term effect under stable conditions existent in	Alaska proportion of the U.S. harvestable surplus ^{1/}
1974-76	51%
1980	80%

^{1/}Defined as the sum of Alaska catch, lower U.S. ocean catch, and harvestable excess in the Columbia River.

To date, examination of historic loss data has not revealed a satisfactory understanding of the relationship between losses and run size. Therefore, the most recent three-year average is used here as reflective of expectations in the next few years. As run size changes, however, there may be a need to revise this loss statistic.

Adding this average loss to the 40,000 fish McNary Dam goal, a total in-river goal then becomes 58,700 adult fish measured at Bonneville Dam, the first dam in the river. This goal should be considered the minimum for meeting spawning requirements and does not allow any in-river harvest.

IN-RIVER INTERACTION OF COLUMBIA RIVER FALL CHINOOK

Columbia River fishing for upriver brights cannot be separated from the harvest of upriver Bonneville pool hatchery and lower river (below Bonneville Dam) fall chinook stocks. Any contemplated harvest of these other two co-mingled stocks will necessarily also induce a harvest of brights. Because upriver brights are managed for natural production, the limited harvestable surplus of brights has also limited harvest of these other co-mingled stocks. This situation is expected to continue in the foreseeable future. In the analysis which follows, it was possible to translate the in-river interaction of Bonneville pool and upriver bright stocks into a meaningful management objective. The 1980 harvest of Bonneville pool stock occurring with fishing limited by upriver bright needs during 1980 was examined as indicative of expectations in the next few years.

Bonneville pool hatchery stock (BPH) to upriver bright (URB) catch rate can be developed from the fishing patterns and stock compositions observed in 1980 as follows:

ANALYSIS OF ALASKA TROLL FISHERY REGULATION

The NBS-WDF model was used to examine management alternatives for the Alaska troll fishery in light of the objectives presented above. While some analysis of season restrictions is presented, the assumption is made that an upper harvest ceiling will be placed on this fishery to directly control maximum harvest. Because several chinook ages are in the fisheries, the NBS-WDF model predicts long-term effects of regulation changes under a stable set of regulations throughout the life of a brood. For this reason, the full impact of a regulation change made in any one year will not be realized until all age groups have been fully exposed to this regulation change. Thus, predicted effects of a catch reduction in 1981 would not be fully realized until 1984.

In the results which follow, it was necessary to assume time closures in one part of the season would not cause effort shifts to other time periods, thereby increasing the harvest rate in these other times. This is not a very realistic assumption since it can well be expected that a closure during May would probably cause an effort increase in June. Thus the net effect of this assumption is that these model results are optimistic estimates of benefits accruing from time restrictions in this fishery.

Table 1 presents results of model simulations to achieve the first three objectives quantified above. Under 1978-80 average inter-dam loss conditions, the long-term impact of no restrictions (0% reduction) in Alaska troll harvest is predicted to be continued low level returns to the Columbia River with little harvestable surplus available for in-river fishing. In addition, harvest of some Bonneville pool fish would have to be foregone thus creating a hatchery surplus. The proportion of the harvest taken in Alaska would remain at 80%. In 1980 there was an unusually high and, at

this point, an unexplainable inter-dam loss of upriver brights. Reasons for this large loss are now being explored. Despite the facts that pre-season run size forecasts were correct and the desired in-river harvest in mixed-stock fishing was not exceeded, spawning escapement at McNary Dam was only 29,000 adult fish, or 11,000 short of the 40,000 goal. These increased inter-dam losses account for most of this shortage.

For a long-term 10% catch reduction, the impact by 1984 is predicted to cause small Bonneville pool stock surplus problems but only a modest movement toward returning to the old Alaska troll harvest proportion. As the relative run size strengths of Bonneville pool and upriver bright stocks change, the magnitude of the hatchery surplus problem will also be changing.

Under stable 1980 conditions, the model estimates a long-term 48% catch reduction would be necessary to return to the 1974-76 harvest proportion of 51%.

The model was used to examine time closures as a means for minimizing interceptions of saved upper Columbia River bright fall chinook. To do this, monthly time periods (excluding the important coho fishing months of July and August) were closed for the entire Alaska troll fishery. The transfer rate through remaining times and fisheries was then computed. Savings from a closure in May, for example, would be after interceptions in subsequent Alaska and Canadian fishing. The results were:

<u>Time period</u>	<u>Transfer rate through Alaska and Canadian fisheries to southern U.S. ocean fisheries and the Columbia River</u>
April closed	24%
May closed	30%
June closed	42%
September closed	16%
All months closed	52%

The assumption that a time period closure will not cause effort shifts into another time period is not probable. For this reason these transfer rates are somewhat optimistic. To benefit this south-migrating stock, however, it appears savings made during the summer will be transferred at a greater rate than savings made in the spring.

1981 MANAGEMENT

Because the NBS-WDF model results presented here are projections of long-term regulation effects on a single brood, translation to immediate needs in 1981 is difficult. Since the effect of a 1981 regulation will not be completely realized for 4 years, 1981 management for any objective specified here must be substantially more restrictive than these results indicate. For example, if management objectives are to completely eliminate Bonneville pool hatchery surpluses and reduce the Alaska share of the harvest to 70%, these results indicate a long-term 20% catch reduction will accomplish these by 1984. The regulation will have an effect on immature and mature components of the brood in 1981, 1982 and 1983. To accomplish the objectives in 1981, however, a greater reduction is needed since the regulation will only have an effect on mature fish in 1981.

WDF is currently exploring means of assessing immediate (1981) effects of 1981 harvest reductions. As these results become available, they will be presented to the Council.

Table 1. Predicted long-term effects of various Alaska troll chinook catch reductions (from 1980 levels) on Columbia River fall chinook and assuming stable stock size at 1980 levels (number of fish X1,000).

Percent catch reduction	Upriver brights		Bonneville pool stock				Alaska proportion of the harvest
	Run size	Harvestable excess	1980 incidental catch rate	1980 harvestable excess	Incidental harvest	Hatchery surplus	
0%	76.7	18.0	2.7	65.7	48.8	16.9	80%
10%	82.1	23.4	2.7	65.7	63.2	2.5	75%
20%	87.2	28.5	2.7	65.7	65.7	0	70%
30%	92.4	33.7	2.7	65.7	65.7	0	64%
40%	98.0	39.3	2.7	65.7	65.7	0	57%
48%	102.7	44.0	2.7	65.7	65.7	0	51%

$\frac{1}{2}$ 2.7 Bonneville pool fish for each 1.0 upriver bright.

Handwritten notes:
 1980 level of Bonneville pool stock
 1/2 x 2.7 = 1.35
 1.35 x 1000 = 1350 fish

Washington

CONTRIBUTION AND STATUS OF WASHINGTON COASTAL AND
COLUMBIA RIVER ORIGIN CHINOOK SALMON STOCKS
OF IMPORTANCE TO THE SOUTHEAST ALASKA TROLL FISHERY

Presented at the November 24, 1980, meeting of the
North Pacific and Pacific Fishery Management Councils
Salmon Subcommittee in Portland, Oregon

by
WASHINGTON DEPARTMENT OF FISHERIES
SALMON HARVEST MANAGEMENT DIVISION

Contribution of Washington Coastal - Columbia River Origin Chinook
to the Southeast Alaska Troll Fishery

Two sources of data are available to explore directly the question of stock origin in the southeastern Alaska troll fishery: old, high-seas adult tagging experiments in the fishery; and results of hatchery and wild juvenile fin marking and coded-wire tagging experiments.

The importance of Columbia River chinook to the troll fishery along the coast of southeastern Alaska had been established by the U.S. Bureau of Fisheries in a 1927 tagging operation off the west coast of Baranof Island. Of 38 recoveries from 382 tagged chinook, 22 were reported from the Columbia River (Rich and Ball, 1935). Data from 1950-52 taggings by the Alaska Department of Fish and Game were summarized by Parker and Kirkness (1956) as indicating that the Columbia River probably was the single largest source of chinook salmon for the southeastern Alaska troll fishery and the Fraser River the second largest, with all major streams from southern Oregon to southeastern Alaska contributing to a lesser degree. A quantitative basis for this summary is the distribution of the stream recoveries of 84 tagged fish:

Columbia River - 54%

Fraser River - 23%

Oregon coastal streams - 7%

Washington coastal streams - 7%

Other British Columbia streams - 7%

In connection with U.S.-Canada consultations on salmon problems of mutual concern in the early 1970's, U.S. fisheries scientists estimated that (1) 35% of the combined coastal-offshore catch of chinook salmon by U.S. trollers in southeastern Alaska originated from British Columbia coastal

streams, (2) 63% of the Canadian troll chinook catch in offshore waters of southeastern Alaska originated from Washington and Oregon rivers, and (3) about 2% of the total U.S. troll catch of chinook in southeastern Alaska originated from Canadian sections of streams which drain to the sea through southeastern Alaska. These estimates were derived from various kinds of information, including the 1927 and 1950-52 tagging data (Natural Resource Consultants, 1980).

The geographic range of coded-wire tagged chinook salmon stocks found in coastal and offshore waters in recent years is very similar to the range indicated by recoveries from early high-seas tagging studies in outside waters between Cape Fairweather and Dixon Entrance during 1950-52, i.e., from southeastern Alaska to Oregon. Analysis of coded-wire tagging data leading to estimates of the contributions of various stocks to troll catches in southeastern Alaska in recent years remains to be completed, but some results are now becoming available. Observed recoveries indicate non-southeastern Alaska stocks contribute heavily to the catch, with stocks originating to the south of prime importance. These data are also providing insight into the harvest impact of the southeastern Alaska troll fishery.

The ocean distribution, as determined from computer modeling of West Coast salmon fisheries (Johnson, 1978), of the two major upriver Columbia River fall chinook stocks is shown in Figure 1. These stocks are commonly referred to as Bonneville pool and upriver "brights." The Bonneville pool stock is shown to contribute significantly to Washington coastal and British Columbia ocean fisheries while bright stock is shown to contribute significantly to British Columbia and southeastern Alaska troll fishery.

The Spring Creek National Salmon Hatchery's stock distribution has been used to model Bonneville pool stock ocean distribution. This stock is essentially hatchery-produced and originates from five Bonneville pool hatcheries. The eggs from this brood stock are freely exchanged between Bonneville pool and lower river hatcheries.

The upriver bright Columbia River fall chinook stock is produced (1) naturally in the mainstem Columbia River, essentially in that region known as the Hanford Reach (between McNary Dam pool and Priest Rapids dam), (2) naturally in the lower Snake River (this stock is being considered for Threatened or Endangered listing), and (3) artificially by hatcheries on the mainstem Columbia River above McNary Dam. Priest Rapids Hatchery stocks (WDF station) are representative of the upriver bright stock being reared artificially.

Three brood years of Priest Rapids Hatchery-reared brights have been microtagged (1975, 1976, and 1977). Fishery recoveries of these broods first became available in 1978 and will continue through 1982. The observed tags recovered for the 1975 brood year in the 1978 and 1979 coastal fisheries is shown in Table 1. Observed tag recoveries have been used since catch/sample expansions are not available for all fisheries. Also, 1980 coded-wire tag recovery data are currently unavailable for Alaska and Canada.

For this reason, ocean distribution is modeled for upriver Columbia River fall chinook brights as shown in Figure 1 by using a composite of three complete Trask River (Oregon coastal) brood years of marked fish recoveries. When the first Priest Rapids Hatchery brood year tag recovery data are complete, the actual percentages harvested by each ocean fishery may change but the general ocean distribution pattern will not. This

conclusion is made, and Trask River stock was chosen to model the upriver bright stock based on the following facts:

1. age structure of upriver bright and Trask River stock is similar, i.e., high proportion of 4's and 5's in terminal run;
2. ocean distribution of 3's is similar, i.e., contribution to northern British Columbia and southeastern Alaskan troll fisheries; and
3. high proportion of 3 year olds in escapement are males, i.e., 80-96% at Priest Rapids and 100% at Trask River (1969-70 returns).

Distribution of southern Washington coastal fall chinook stocks was modeled from a composite of 1971-72 brood Willapa Bay coded-wire tag releases (Nemah and Willapa hatcheries). These results (Figure 2) also demonstrate a far northerly ocean distribution similar to upper Columbia River brights. The distribution of northern Washington coastal stocks, if represented by Willapa Bay tagging experiments, would be a conservative measure of northerly distribution. This is because Willapa Hatchery stocks at one time were interbred with Puget Sound chinook stocks which are known to have a more southerly distribution.

A third, more general, source of data on stock composition is from fishery age composition data. Since Alaska origin chinook are all spring run the contribution of one component of non-Alaska chinook populations to troll catches in coastal and offshore waters, namely fall-run chinook, can be estimated from age composition data. Such data show the following percentages of fall-run fish in the total troll catches of chinook in southeastern Alaska during 1974-77 (Natural Resource Consultants, 1980):

1974 - 55%
 1975 - 54%
 1976 - 48%
 1977 - 56%
 Average - 53%

In a similar vein, scale samples have been previously used (Kissner, 1974) to estimate local versus non-local stock contributions in several southeastern Alaska areas. In 1973, estimated contributions were:

<u>Ocean/Fishery</u>	<u>Percent Non-Alaskan</u>
Juneau/troll	47%
Fairweather grounds/troll	virtually 100%
Ketchikan/troll	72%

Outside age composition in 1950-52 as sampled by Parker and Kirkness (1956) was 80-90% fall chinook. All of these data imply heavy reliance of the outside Alaska troll fishery on southern-origin fall chinook.

STOCK STATUS

This report summarizes the most current information available for the 1980 Washington coastal and Columbia River chinook salmon fisheries. All information is preliminary and subject to revision.

Preliminary Status of the Washington Ocean Fishery for Chinook Salmon

Preliminary 1980 chinook salmon catch statistics for the Washington coastal troll and recreational fishery are presented in Table 2. The total troll/recreational catch of chinook salmon for 1980 is estimated to be 170,100 fish. This is the smallest catch in recent history, only 35% of the 1971-75 base average. Both the troll and recreational catches were lower

than 1979, the previous record low. Although analysis is not complete, it presently looks like the highly unusual circumstance of three consecutive weak brood years has been experienced in the fishery (1975, 1976 and 1977 broods).

Preliminary Status of Columbia River In-River

Fall Chinook Commercial Fishery and Runs

Prior to the consideration and adoption of the 1980 fall chinook commercial fishery regulations for the Columbia River by the Columbia River Compact, WDF Harvest Management Division committed over three man-years of staff time in reviewing the status of Columbia River fall chinook stocks and past in-river management practices. This work resulted in the joint Oregon-Washington staff report made to the Columbia River Compact on August 14. After consideration of the joint staff analysis and recommendations, the Compact adopted the following regulations for treaty Indian (above Bonneville Dam) and non-Indian (below Bonneville Dam) fisheries for fall chinook:

Non-Indian

Zone 1 for 1-24 hour period from September 2 at 6 p.m. to September 3 at 6 p.m.

Treaty Indian

Bonneville, Dalles and John Day pools for 5-24 hour periods from 12:00 noon September 2 to 12:00 noon September 4 and 12:00 noon September 8 to 12:00 noon September 11.

This is the least amount of fishing time ever allowed for either the lower river fishery or the upriver treaty Indian fishery.

In addition, Washington adopted regulations allowing commercial fishing in five small tributary river-mouth areas to harvest lower river stocks which would be surplus to hatchery needs due to the one-day fishery on mixed stocks in the mainstem Columbia River.

These fisheries resulted in the following estimated harvests, presented by area and stock.

1-Day Zone 1 and Greys Bay Terminal Area Chinook Catch

Bonneville Pool Hatchery Stocks	24,100
Upriver bright stock	<u>2,200</u>
Total Upriver Stocks	26,300
Lower River Stocks	<u>39,500</u>
Total Mixed Stock Harvest	65,800

5-Day Treaty Indian Chinook Catch

Bonneville Pool Hatchery Stocks	22,500
Upriver bright Stock	<u>7,500</u>
Total Mixed Stock Harvest	30,000

It is likely that the spawning escapement as measured at McNary Dam (40,000 goal) will be less than 30,000 adults. Given the present preliminary analysis of upriver bright contributions to the two commercial fisheries (Indian and non-Indian), it is likely that the 1980 upriver bright run size was less than that required to achieve the spawning objective before any in-river fishery was allowed. Total run entering the river is currently estimated at only 60,000 fish. This conclusion is reached since considerably more adult fish need to be counted over Bonneville Dam to achieve 40,000 adults at McNary Dam.

Recent Columbia River fall chinook harvests, escapements, and total run sizes by stock are presented in Table 3, Figure 3.

General Status of Washington Coastal In-River Chinook Commercial Fisheries and Runs

There are two Washington coastal fall chinook stocks managed entirely for hatchery returns, the Willapa Bay and the Quinault runs. Both of these are not considered underescaped and sufficient returns have occurred in recent years to allow limited fishing. The remaining coastal stocks^{1/} are managed for wild production and have generally followed the same trends as Columbia River upriver brights. Escapement objectives have often not been met and allowable harvest of these stocks is frequently taken as an incidental catch with other fishing.

Management Considerations

Besides the obvious possibility of not achieving desired escapement objectives in 1981, WDF has concerns for the constraints this problem has placed upon our ability to harvest co-mingled stocks. This is the problem of differing allowable harvest rates for mixed stocks and it has been developing in recent years (Figure 4) where the difference between allowable rates has been growing larger for Columbia River upriver fall chinook stocks.

The 1980 in-river fishery is a prime example of this problem (Figure 5). A 30% allowable harvest rate on upriver brights presented the management constraint of also limiting harvest on co-mingled Bonneville pool stocks

^{1/} Major components are Grays Harbor Falls, Quillayute Falls, Queets Falls, Hoh Falls, Hoh Springs, Queets Springs, and Soleduck Springs.

which could have sustained an 85% harvest rate (based on pre-season forecasts. Potential harvest of approximately 110,000 fall chinook originating in the lower river and Bonneville pool hatchery complex would have been foregone to completely protect upriver bright escapement. In other words, for each bright fall chinook which cannot be harvested due to escapement problems, potential harvest of 3-5 other fall chinook is lost.

Despite the severe restrictions placed upon Washington coastal and in-river fisheries to protect and allocate Columbia River chinook, insufficient natural runs are returning to the Columbia River to provide for reasonable in-river fisheries and spawning escapement. Additional restrictions to the Washington coastal fishery can return more hatchery fish to the river but will do little if anything for the upriver bright stock.

A question of concern in considering curtailment of the Alaska troll fishery is the relationship of terminal area/escapement benefits to increased interceptions by Canadian fisheries south of Alaskan waters. Tag recovery results, presented in Parker and Kirkness (1956), offer some insight into this question.

An attempt was made to select tag recovery data from southern-origin immature and mature fish. For matures, this was approximated by tabulating those recoveries from fall chinook tagged prior to August, recovered in the same year as tagged in an area outside the tagging area. In addition, only those fish 28 inches total length or larger were used to simulate the current size limit. Immature recoveries were approximated by selecting fall chinook recovered in a year subsequent to the tagging year. Once again, the contemporary size limit was simulated. The results from this tabulation (Table 4, Figure 6) indicate some interceptions occurring off Canada but

insignificant interceptions off the Washington coast. Terminal area/escapement benefits were significantly greater than these interceptions.

Additional work is in progress to analyze this problem. The primary tool being utilized is the Washington Department of Fisheries-National Bureau of Standards Catch/Regulation Analysis Model (Johnson, 1978).

Summary

A substantial body of information suggests that non-Alaskan fish account for the great majority of chinook caught in the coastal and offshore troll fishery in southeastern Alaska, perhaps 90% or more. It can be concluded that the single most important harvester of many important southern-origin U.S. chinook stocks under U.S. control is the southeastern Alaska troll fishery. In addition, it appears terminal area/escapement benefits accruing from regulation of the southeast troll fishery will be larger than Canadian interceptions. WDF will continue efforts to quantify stock composition and regulatory impacts. As these results become available, they will contribute toward inter-council, coastwide chinook management.

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Table 1. PRELIMINARY WASHINGTON, B.C., AND ALASKA MARINE RECOVERY DATA FOR 1975 BROOD PRIEST RAPIDS FALL CHINOOK CWT EXPERIMENTS

Tag code:	13 7/13			13 11/1			13 12/2		
	Age _{1/2}	Age _{2/3}	Age _{2/4}	Age _{1/2}	Age _{2/3}	Age _{2/4}	Age _{1/2}	Age _{2/3}	Age _{2/4}
Alaska	---	25	118	---	11	145	---	39	162
B.C.	23	48 ^{3/}	64	25	22 ^{4/}	72	50	75 ^{5/}	91
Wash. ocean	---	4	10	---	3	9	---	10	14
Puget Sound	---	---	2	3	2	---	2	4	---

Release data:

Code	13 7/13	13 11/1	13 12/2
No. Released	102,710	132,004	152,412
Size (#/1b)	46.0	95.0	37.0
Release Date	6/17/76	7/1/76	7/1/76
Release Site	Ringold	Priest R.	Priest R.
Stock	Priest R.	Priest R.	Priest R.

1/ Estimated

2/ Preliminary observed

3/ 26 N. of Vancouver Island

4/ 10 N. of Vancouver Island

5/ 40 N. of Vancouver Island

Note: Age 3 and 4 recoveries are preliminary observed data, not expanded for sample size

Table 2. Washington ocean catch of chinook salmon (x 1,000).

		Troll	Recreational	Total
	1971-75			
	Average	272.5	210.4	482.9
	1976	353.7	170.7	524.4
	1977	231.6	175.0	406.6
Preliminary	1978	145.1	90.1	235.2
Preliminary	1979	122.9	76.9	199.8
Preliminary	1980	116.5	53.6	170.1

Table 3. Total in-river catch and escapement of adult upriver fall chinook by stock (x 1,000).

Year	Up-river Brite			Bonneville Pool Hatchery			Total In-river Run Size
	Escapement	Catch ^{1/}	In-river Run Size	Escapement	Catch ^{1/}	Run Size	
1964	40.4	43.3	83.7	27.8	132.5	160.3	244.0
1965	41.1	72.5	113.6	11.3	105.5	116.8	230.4
1966	51.1	56.2	107.3	32.2	75.1	107.3	214.6
1967	42.9	79.0	121.9	14.7	95.5	110.2	232.1
1968	49.2	73.6	122.8	15.2	64.8	80.0	202.8
1969	55.4	89.3	144.7	19.4	106.3	125.7	270.4
1970	43.2	94.5	137.7	10.4	137.3	147.7	285.4
1971	49.0	76.3	125.3	12.7	99.2	111.9	237.2
1972	37.6	56.6	94.2	9.1	40.4	49.5	143.7
1973	46.6	106.0	152.6	17.1	89.6	106.7	259.3
1974	34.6	63.6	98.2	10.4	55.8	66.2	104.4
1975	29.6	84.3	113.9	35.2	156.4	191.6	305.5
1976	28.8	78.4	107.2	24.2	160.6	184.8	292.0
1977	37.6	58.7	96.3	21.3	82.1	103.4	199.7
1978	27.3	55.5	82.8	17.5	82.3	99.8	182.6
1979	31.2	58.8	90.0	18.3	71.6	89.9	179.9
Est. Prel. 1980	29.0	40.7	69.7	20.0	46.6	66.6	136.3

^{1/}Catch includes missing or unaccountable fish for all years except 1980.

Table 4. Recoveries of chinook tagging in three coastal areas off Southeastern Alaska, 1950-52 (data from Parker and Kirkness, 1956).

Recovery area	"Mature" falls	Immature falls	All recoveries
Oregon coastal streams	3	0	5
Columbia River	16	13	39
Washington coastal streams	3	0	6
Fraser River	13	0	18
Other British Columbia streams	5	0	5
Southeastern Alaska streams	2	0	2
Inside fisheries			
Alaska	0	1	2
British Columbia	6	1	7
Washington	3	0	4
Ocean fisheries			
Alaska	5	9	25
North British Columbia	3	2	7
South British Columbia	7	5	16
Washington coast	1	0	2
Oregon coast	0	0	2

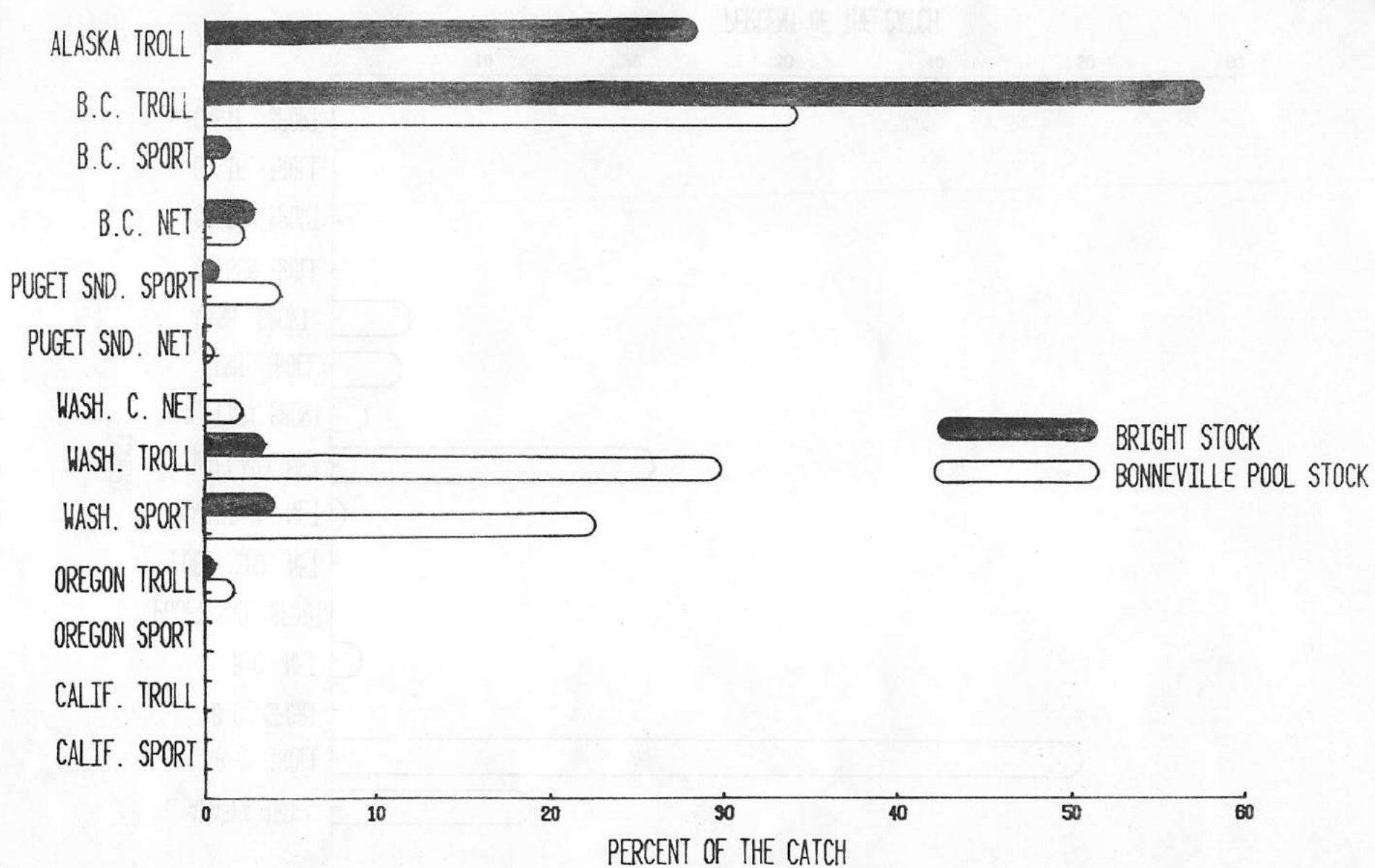


Figure 1. Ocean catch distribution of Columbia River fall chinook.

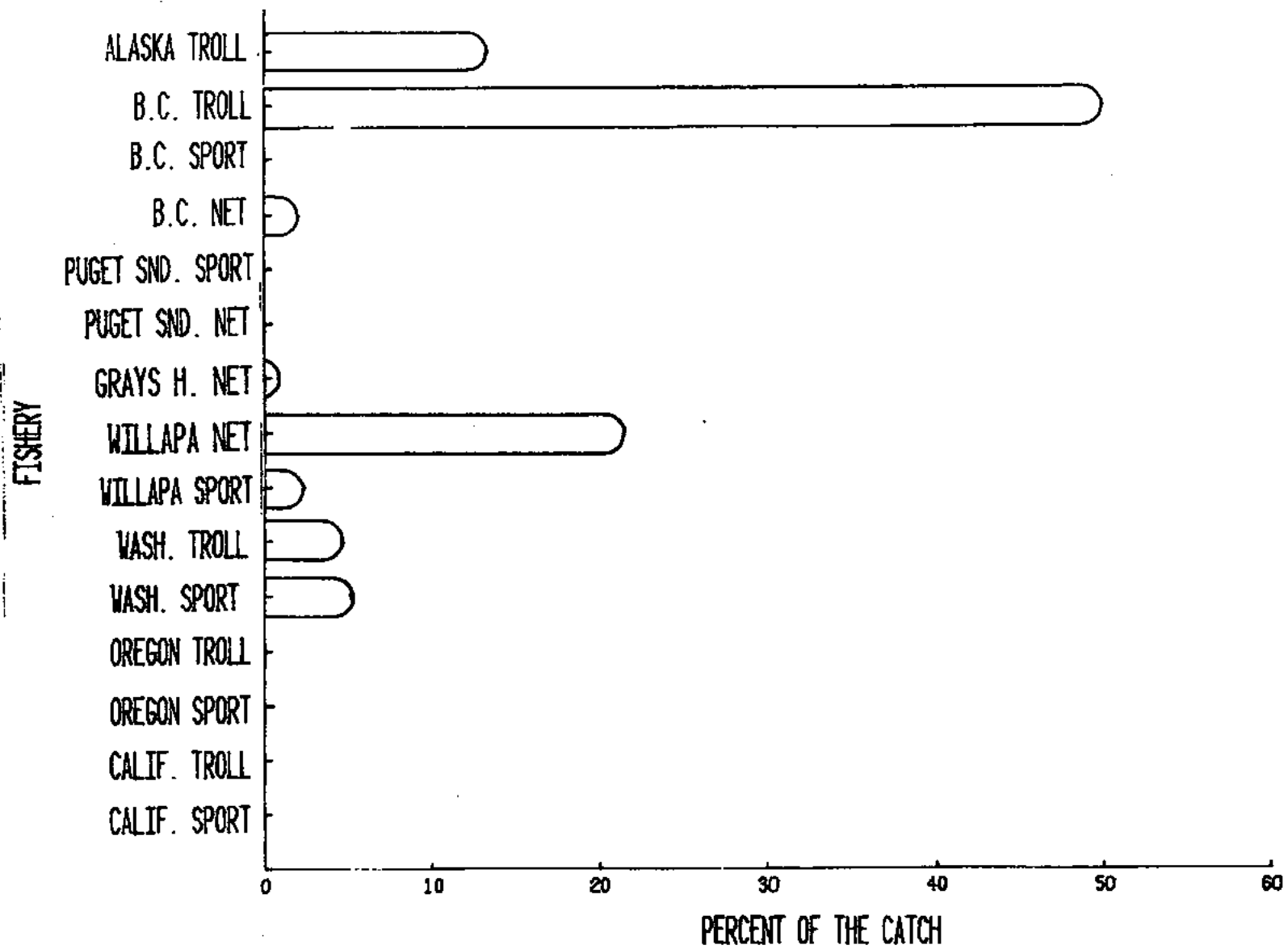


Figure 2. Catch distribution of Willapa Bay chinook.

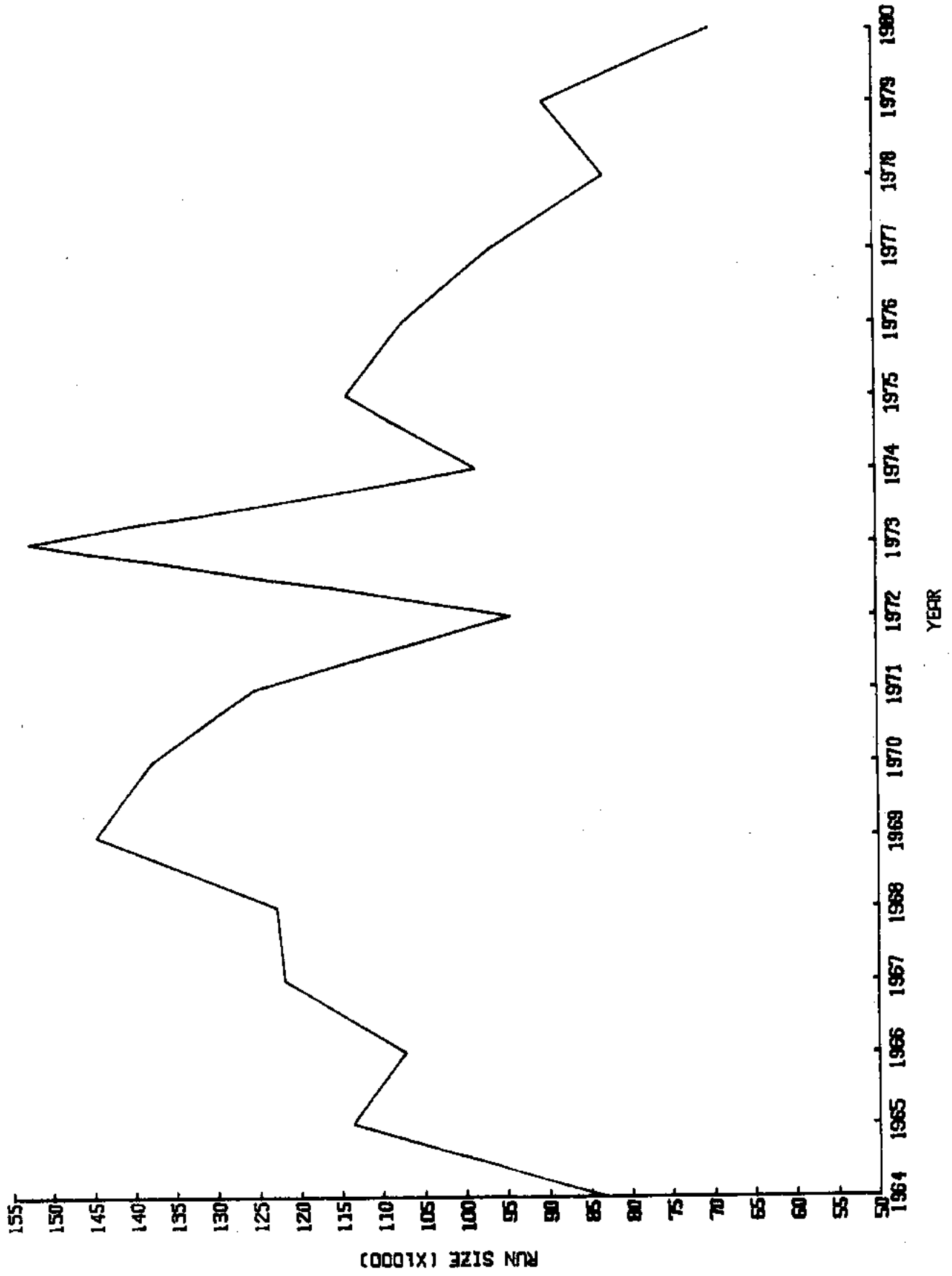


Figure 3. Terminal run size of upper Columbia River brights.

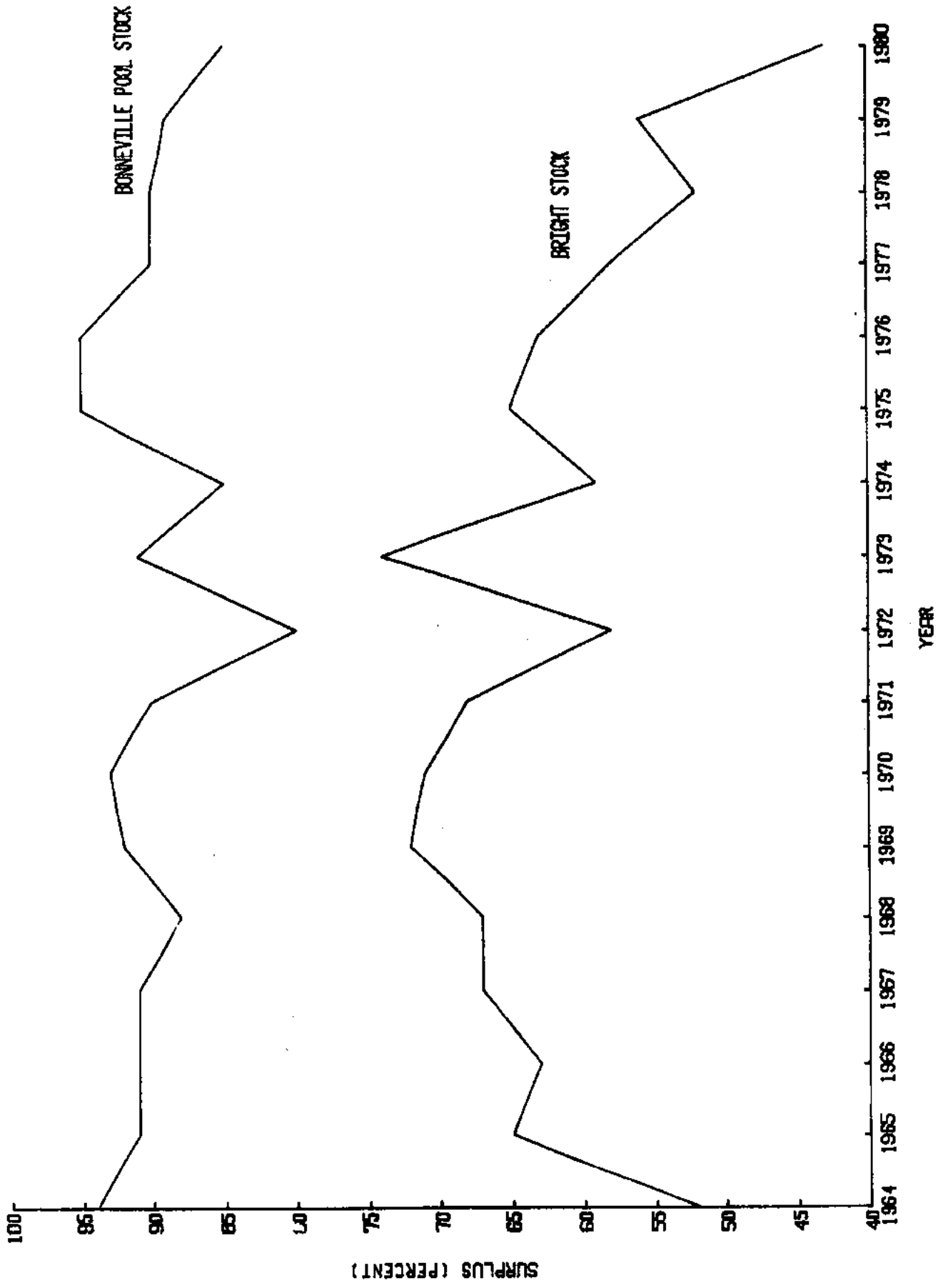


Figure 4. Allowable surplus of upper Columbia chinook over fall chinook.

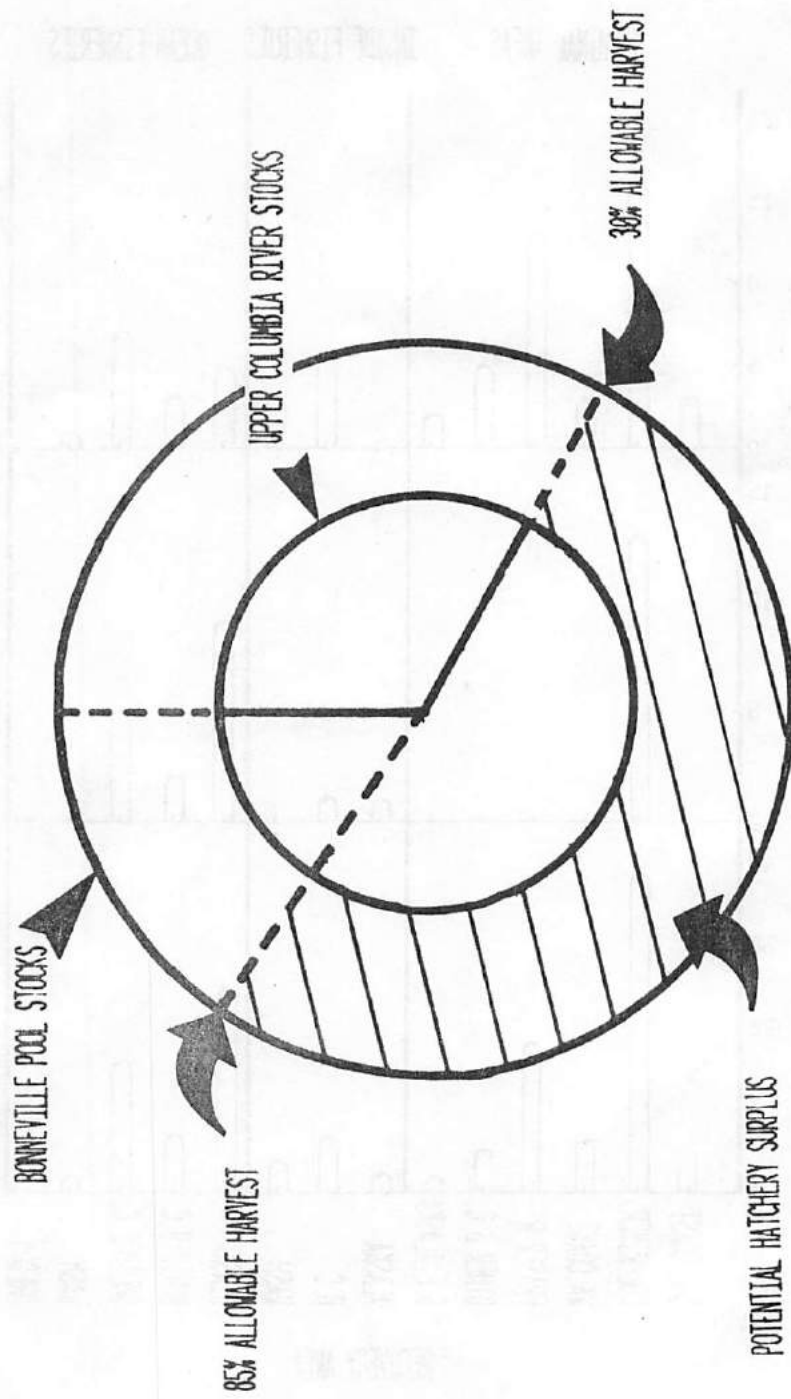


Figure 5. Effects of differing harvest requirements on mixed upper Columbia River chinook stocks.

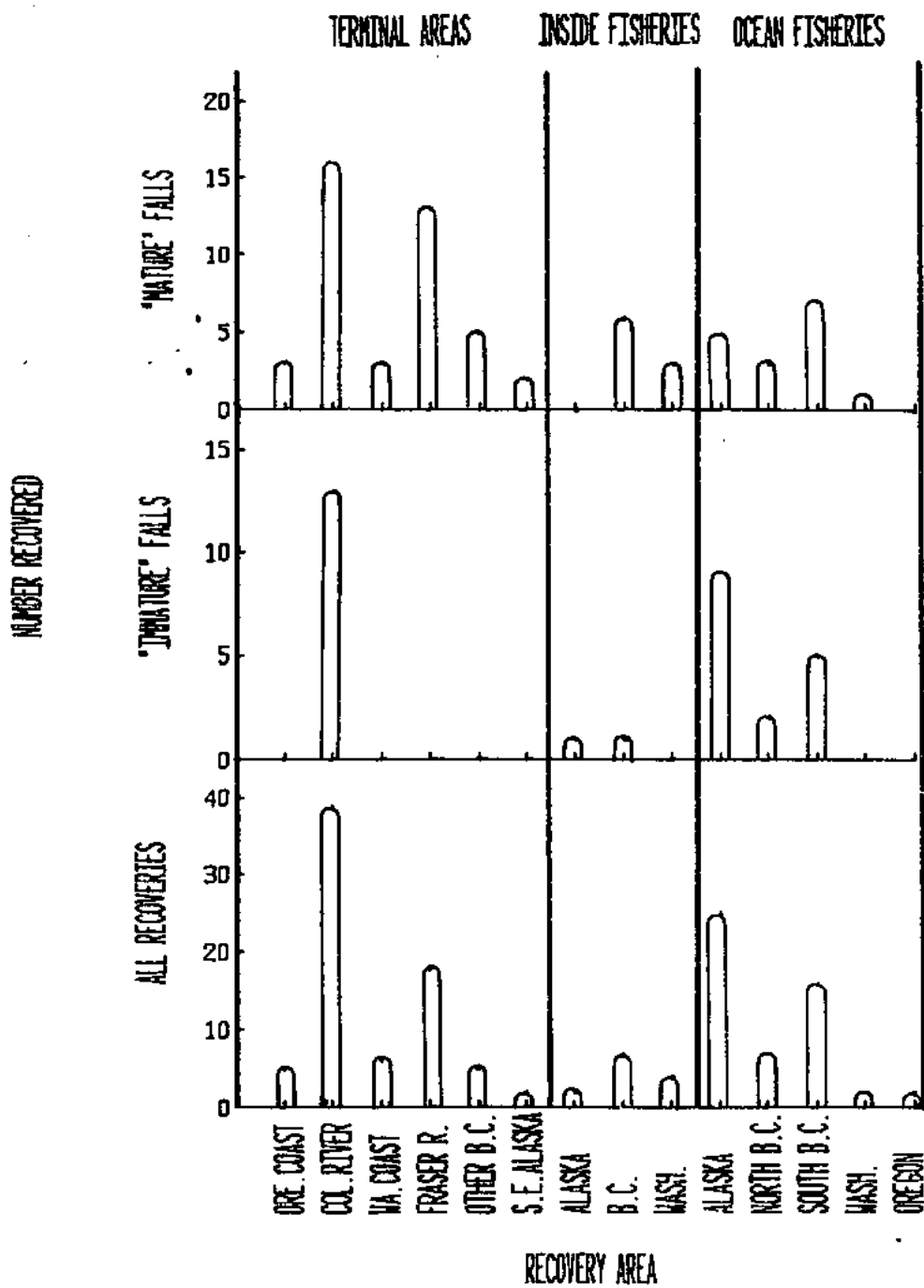


Figure 6. Recoveries of chinook tagged in the southeastern Alaska troll fishery, 1950-52 (Parker and Kirkness, 1956).

Tim Glock's
copy



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FILE NO. 502-10.8(18)

DATE: January 5, 1981

TO: GC - Eldon V.C. Greenberg
GCF - Jay S. Johnson
F/AKR - Robert W. McVey
NPFMC - Jim H. Branson
NPFMC Members

FROM: GCAK - Michael A. D. Stanley

SUBJ: Legal Analysis of Proposed Amendments to the Fishery
Management Plan for High Seas Salmon Troll Fishery Off
Alaska

INTRODUCTION

At the September 1980 meeting of the North Pacific Fishery Management Council (Council), several proposed amendments to the Fishery Management Plan for the High Seas Salmon Troll Fishery off Alaska (FMP) were presented to the Council for consideration. These amendments had been developed by the Salmon Plan Development Team (PDT), members of the Council, the Council staff, and the Advisory Panel to the Council. The Council authorized the holding of public hearings on these proposed amendments, which are intended to take effect in 1981.

The proposed amendments address six management measures, stating various alternatives for each. There are also proposed a new set of management objectives to replace those in the existing FMP. The Council is expected to consider the proposals at its meeting during the week of January 5, 1981, which will be a joint meeting with the Alaska Board of Fisheries (Board) intended specifically to address the salmon troll fishery both in State waters and the fishery conservation zone (FCZ). The amendments are expected to be adopted by the Council at its meeting of March 25-26, 1981. Following adoption by the Council, the



proposed amendments will be forwarded to NMFS for review and approval by the Assistant Administrator pursuant to FCMA section 304(a)-(b). Section 304(b) provides, in part:

The Secretary shall review any fishery management plan, and any amendment to any such plan, prepared by the Council and submitted to him to determine whether it is consistent with the National Standards, the other provisions of this Act, and any other applicable law.

The following discussion will first describe the proposed amendments and summarize the rationale for each. The compliance of the proposed amendments with the National Standards, with other provisions of the FCMA and with other applicable law will then be discussed in turn. As usual, all conclusions drawn in this memorandum are subject to the concurrence of the Assistant General Counsel for Fisheries and the General Counsel.

DESCRIPTION OF AND RATIONALE FOR THE PROPOSED AMENDMENTS

The proposed amendments to the FMP that are under consideration, and the reasons asserted in support of their adoption are as follows (the package containing a more detailed description and rationale of the proposed amendments prepared by the PDT and Council staff for the public hearings appears as Attachment A):

(1) Management Objectives. The Council proposes to replace the set of management objectives in the current FMP with a reformulated set of management objectives which should be "considered an approach to rational management and a positive step toward solution of these [chinook and coho] problems [discussed in Attachment A]." The suggested management objectives appear in the attachment and are not set out here. Many of the objectives are essentially refinements or restatements of existing objectives, with notable exceptions: (1) One of the new objectives is to "control and reverse recent trends of expanding effort and catch in outer coastal and offshore Southeastern Alaska waters," in contrast to the current objective of only controlling such offshore expansion; (2) allocations among user groups are to be accomplished "as directed by the Alaska Board of Fish and Game, and North Pacific Fishery Management Council," rather than as under the existing objective "without disrupting present social and economic

structures;" and (3) management should "ensure compliance with U.S.-Canadian fisheries agreements, any other treaty or resource sharing requirements and conservation obligations," an objective not stated in the existing FMP. Also proposed for inclusion in the FMP, although apparently not as a specific management objective but rather as a "long-term goal" or endorsement, is the proposition that "the Council shall adopt the management principles contained in the [State of Alaska's] . . . salmon troll fisheries management plan." This adoption of State management principles is to include three proposals for amendments to the State plan, including providing "greater flexibility" for scheduling a 10-day coho season closure, formalizing the Board's allocation of 20 percent of the coho catch to the hand troll fleet and 80 percent of such catch to the power troll fleet, and establishing a policy of returning the outside/inside distribution of the coho catch to the levels of 1976-1977.

Rationale: The PDT, Council staff, and others giving input into this reformulation of management objectives share an overriding concern with the continuing shift of troll effort out of "inside" waters, where the stocks are somewhat segregated and amenable to localized management, and into "outside" waters, where the stocks are mixed and difficult to manage rationally. Consequently, the new management objectives are aimed at not only controlling but reversing offshore expansion, stating as well specific spawning goals that require such curtailment of offshore effort to be met. The proposals, and in particular the "long-term goal" for coordinated State/Federal management, reflect another theme of the new objectives - State (Board and Alaska Department of Fish and Game (ADF&G)) leadership in the management of the salmon troll fisheries, including adoption of such State policies as the 80/20, power troll/hand troll allocation.

(2) Optimum Yield. There are two alternatives for optimum yield (OY) identified in the package of proposals, both pertaining to chinook salmon. The first is to reduce the current OY range of 286,000 - 320,000 for chinook by 10 percent, resulting in an OY range of 257,000 - 288,000 fish. The second option is to maintain the existing OY range. Apparently, the OY ranges for coho and other species stated in the FMP will remain the same.

Rationale: The rationale for reducing the chinook OY by 10 percent, as favored by the PDT, is to provide additional protection to depressed chinook stocks and to ensure that interception of non-Alaskan stocks is not increased. The consensus appears to be that the 1980 catch of 320,000 chinook, which was at the upper limit of the OY

range, was too high to allow maximum production from some river systems and also to rebuild the more seriously depressed natural stocks. The reduction will also provide a buffer to accommodate inadequacies in data. The PDT further recommends in conjunction with the reduction, that the new OY range not be considered a target or goal to be reached at all costs, but as a ceiling on the allowable catch. In other words, a reduction of the chinook catch by more than 10 percent would be welcomed.

The rationale for the second OY option is to avoid disruptions in the troll fishery.

(3) Limited Entry. The PDT, without stating its preference, advances five alternatives for limiting access to the FCZ, subject, however, to three caveats. The first caveat is that any increase in the current number of participants in the FCZ troll fishery will result in further stock depletion unless compensated for by additional time/area and efficiency restrictions. The second caveat is that the Council must first decide whether limited entry is even necessary or desirable in light of the costs associated with designing, implementing, and administering such a system. The third caveat is that if the Council decides there should be limited entry, then it must define the goals of such a system, that is, the intended level of effort to be achieved. With these in mind, the options presented are as follows:

(a) Open access with extensive time and area closures. This would allow anyone to fish the FCZ who wanted to, except that "only Alaska [limited entry] permit holders could land fish in Alaska."

(b) Status Quo. All Alaska limited entry permit holders, including hand trollers, and presumably the two NMFS permit holders, could fish in the FCZ. This is the current situation under Federal regulations, although State regulations still purport to ban hand trolling in the FCZ.

(c) True Moratorium. This alternative would allow only those Alaska (and NMFS) limited entry permit holders who could satisfy established criteria for having fished in the FCZ during some base period to continue to fish in the FCZ. The number of entrants would not be set at a certain number but would be determined by the number of persons qualifying. Suggested eligibility criteria include having made two or more landings from the FCZ during 1980. A variation of this alternative, proposed by the Council Chairman, would establish two types of permits - a fully

transferable FCZ permit, which would go to persons who made at least two deliveries from an outer district in each of two years from 1973 to 1978, and also made two such deliveries in 1979 or 1980, and a non-transferable FCZ permit which would go to persons who made two deliveries from an outer district during both 1979 and 1980. This proposal is based upon the conclusion that the number of vessels fishing the FCZ in 1977, before the great expansion in offshore fishing and the hand troll ban, represented a desirable level of effort the reattainment of which should be a goal of any limited entry system. The Chairman also proposed that a buy back program be instituted along with this system in order to reduce fishing pressure. This program would be funded through permit fees.

(d) Number of permits set at 1980 landings. The intent of this alternative would be to establish a set number of entry permits, in this case equal to the number of vessels making landings from the FCZ in 1980. This initial number of permits would then be distributed among "qualified applicants," presumably Alaska entry permit holders. The proposal does not indicate if hand trollers would be included. Since the number of applicants almost certainly would exceed the number of permits available (not all Alaska permit holders made landings from the FCZ in 1980), the permits would be distributed by any one of a variety of suggested means - lottery, auction, or a ranking (point) system. This proposal also lists a number of methods which could be used to eventually reduce the number of permits to the desired level.

(e) Number of permits set at desired number. This final alternative for FCZ access is similar to option 4 except that the number of permits to be issued is the optimum or desired number for the fishery. No indication is stated as to how this number would be derived. The means for determining to whom the designated number of permits would be issued are the same as the preceding option - lottery, auction, or a ranking (point) system.

Rationale: The rationale for having some sort of limited entry system is to achieve a certain amount of effort in terms of numbers of vessels in the fishery. Increases in effort beyond the level set would be prevented, although upgrading by the vessels allowed in would not. With a relatively stable amount of effort established, fishery managers could then better adjust other management measures, such as time and area closures or gear restrictions, to accomodate the conservation needs of the fishery.

(4) Time and Area Closures. Several options for time and area closures are presented, some of which appear intended to operate in combination, others of which are mutually exclusive. Seasons will be discussed first, then area restrictions.

(a) Seasons: The alternatives for seasons are as follows:

(i) Status Quo. Chinook, chum, sockeye and pink salmon could be taken from April 15 to October 31. Coho salmon could be taken from June 15 to September 20.

(ii) A proposed alternative to the current chinook season is to shorten it to May 15 to September 20.

(iii) A proposed alternative to the current coho season is to shorten it to July 1 to September 10.

Rationale: The rationale for the status quo is to maintain the fishery as it is without disrupting the familiar seasons.

The rationale for the shortened chinook season, which is the PDT proposal, is to curtail expanding early and late season effort, thus contributing to the conservation of mature Alaska chinook salmon. It is also intended to be more synchronized with the coho season.

The rationale for the shortened coho season, which was submitted by the Advisory Panel, is to allow the fish to gain additional weight, perhaps as much as one-half pound per fish, during the June 15 to July 1 period that is now open but would be closed under the proposal. The shortened season also would aid escapement.

(b) Areas. The alternatives for area closures are as follows:

(i) Status Quo. Currently, no portions of the FCZ are closed to the troll fishery (in the east management area) except as accomplished by field order.

(ii) One alternative to the status quo, proposed by the PDT, is to establish a new management boundary at the traditional limit of the troll fishery (estimated to be about 5 to 15 miles offshore, excluding the Fairweather Grounds) equidistant from the "surf line" as defined in Alaska commercial fishing regulations. Trolling would be prohibited seaward of this line, although the proposal

indicates that as an option, the Fairweather Grounds could be exempted from this closure.

(iii) Another alternative is to close the entire FCZ to the salmon troll fishery.

Rationale: The rationale for the status quo is to maintain the current fishery, allowing trollers to range wherever they wish in the east management area of the FCZ.

The rationale for establishing a new management line beyond which trolling would be prohibited is to restrict the troll fishery to its traditional area, curtailing the trend of effort moving further and further offshore. This offshore shift is seen as posing a threat to weak stocks, and as a complication to the monitoring of catch and effort. The line, predicted to fall somewhere between 5 and 15 miles from the surf line, will be set by the Council after receipt of public testimony on the historical extent of the troll fishery. The option of exempting the Fairweather Grounds from this closure would be intended to maintain the traditional fishery in that area.

The stated rationale for the total FCZ closure would be to simplify federal management and offer greater protection for non-Alaskan stocks. The fishery would be shifted entirely into State waters.

(5) Gear Restrictions. The proposals relative to gear used by troll vessels are as follows:

(a) Status Quo. Power trollers could use four lines south of Cape Spencer and six lines north of there. No more than six gurdies could be mounted and in operational condition. No line limit for hand trollers is provided, although the State purports to limit them to two lines.

(b) Power trollers could use no more than four lines anywhere and could mount no more than four gurdies. Hand trollers could use no more than two lines and could mount no more than two gurdies, except that hand trollers fishing sport gear (hand-held rods) could use four lines.

(c) The same as (b) except that power trollers could mount an additional two gurdies for stabilizers, provided that only four are spooled with line which can be used to fish.

(d) Prohibit the use or possession of hooks with more than one point.

Rationale: The rationale for the status quo is to standardize effort by establishing the number of lines that can be used by troll vessels. Power trollers would be allowed to use six lines north of Cape Spencer, i.e., on the Fairweather Grounds, because of the need for extra lines in prospecting for fish.

The rationale for the second option is gear uniformity throughout the fishery, prevention of expanded effort, and efficient enforcement of line and gurdy limitations. Enforcement would be facilitated, it is felt, because there would be one standard - four lines and four gurdies - rather than different line limits in different areas. The two-line limit for hand trollers would, it is believed, impose a burden relative to the optimum potential of hand trollers that is comparable to the burden relative to the optimum, potential of power trollers that the four-line limit imposes.

The rationale for not limiting the number of mounted gurdies to four is to allow additional gurdies to be used to pull stabilizers, although fishing line could not be spooled on them.

The rationale for prohibiting use or possession of hooks with more than one point is to afford greater protection for immature fish and reduce hooking mortality. Fishermen have testified that it is virtually impossible to release unharmed a fish caught on a double or treble hook.

(6) Reporting Requirements. There are two options for reporting requirements:

(a) Status Quo. Under the present system, fishermen who land salmon outside Alaska must submit an Alaska fish ticket or equivalent document containing the same information to ADF&G within one week of the sale or delivery.

(b) The alternative is to require the submission of an Alaska fish ticket to ADF&G prior to transporting troll-caught salmon out of Alaska.

Rationale: The rationale for the proposed amendment is to obtain better real time data for purposes of inseason management. The current requirement is rarely complied with, necessitating ADF&G having to obtain the data from other States, usually Washington, which takes considerable time and is complicated by confidentiality requirements.

(7) Landing Requirements. There are two options for landing requirements:

(a) All chinook and coho must be landed with heads on. This is the current requirement.

(b) Salmon which have the adipose fin clipped or removed must be landed with heads on. This was the requirement prior to 1980 when option (a) was implemented.

Rationale: The rationale for the first option, which is recommended by the PDT, is the necessity to retrieve coded-wire tags from salmon caught in the FCZ. This retrieval may be particularly important for freezer boats which are fishing more offshore, mixed-stock areas where better data are needed. The PDT believes that recoveries of coded-wire tags were better during 1980 when this regulation was in effect than in previous years when only fin-clipped salmon had to be landed with heads on.

The rationale for the second option is that troll fishermen, particularly freezer boat operators, believe they are unduly burdened by having to leave the heads of salmon on, primarily because of limitations in hold space. Also, the quality of the product suffers after the processor removes the head and re-glazes the fish. Finally, the fishermen contend they are willing to comply with the former requirement that only fin-clipped salmon must be landed with heads on, and therefore the more burdensome heads on requirement is not needed.

COMPLIANCE OF THE PROPOSED AMENDMENTS WITH THE NATIONAL STANDARDS

Before approving the proposed amendments pursuant to FCMA section 304(a)-(b), the Assistant Administrator would have to find that they are consistent with the seven "National Standards for Fishery Conservation and Management" set forth in FCMA section 301(a) ("National Standards"). This discussion will assess the extent to which the proposed amendments just described would comply with the National Standards.

National Standard 1: Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

The PDT has expressed serious concerns regarding the current OY for chinook salmon of 286,000 to 320,000 fish. While recognizing that the data are somewhat inconclusive and inadequate, the PDT believes that many of the stocks contributing to the fishery are still seriously depressed, and that with the current OY escapements are too low to rebuild them. The PDT has therefore proposed a number of measures to reduce the chinook catch, the primary one being a reduction in the OY of 10 percent. Other measures include shortening the chinook season, thereby curtailing expanding early and late season effort, line limits, time and area closures and limited entry.

"Overfishing" is defined in the Guidelines for Development of Fishery Management Plans at 50 CFR 602.2(b)(1) as:

A level of fishing that results in a reduction in the capacity of a management unit to produce maximum biological yield on a sustained basis for specified habitat and environmental conditions.

The "management unit" here would appear to be all salmon in the FCZ and the issue is whether the level of fishing, either currently or as proposed, constitutes overfishing in the sense that maximum biological yield is not being produced.

The first question relates to the fact that at the current level of effort some depressed chinook stocks are not being rebuilt. In isolation, these stocks are probably being overfished. Viewed in the context of the whole management unit, however, which includes other healthy stocks, there is a question whether the "overfishing" of component stocks that are in bad shape results in overfishing of the whole management unit. An early draft of the proposed revision to the Guidelines for Development of Fishery Management Plans suggests that there may be different types of overfishing, including "deliberate overfishing" which may be allowed of some weak stocks in a fishery where there are also strong stocks. It is thus difficult to conclude whether, as a legal matter, the failure to rebuild depressed chinook stocks at the existing level of effort, including the 286,000 - 320,000 OY, is overfishing or not. It is safe to say, however, that this National Standard implies the exercise of caution when the potential for overfishing exists.

The PDT has suggested that, apart from the status of depressed chinook stocks and the impacts upon them from the current level of fishing effort, escapements are also too low in the sense that some river systems are not experiencing maximum production. The abundance of potential salmon streams in southeastern Alaska, and the fact that there is virtually no degradation of these waters, suggests that failure to produce the number of salmon the systems are capable of is a result of overfishing, rather than some other factor. This failure to attain maximum production would appear to constitute overfishing as defined above.

Thus, the current level of effort and harvest in the troll salmon fishery probably does not prevent overfishing, primarily because of the failure to allow for maximum biological production and, to a less clear extent, because of the impact on depressed chinook stocks. Allowing this existing level of effort and harvest to continue would likely be held inconsistent with this National Standard.

Given this conclusion relative to the existing level of effort and harvest, the next question is whether the various proposed management measures and amendments, including the OY reduction, would prevent overfishing. While certainly they are intended to have that effect, the PDT recognizes there is no way to predict the degree of improvement in escapement levels expected to result from a specified reduction in OY. The intent, then, is to reduce the harvest by increments until a measurable improvement is observed. Thus, it can be concluded that the management approach manifested in the proposed amendments is consistent with this National Standard, even if the results are somewhat unpredictable.

National Standard 2: Conservation and Management measures shall be based upon the best scientific information available.

The proposed reduction of the chinook OY would appear to satisfy this requirement. Preliminary data from 1980 show that escapements to some systems continue to be below levels needed for maximum production and below levels needed to rebuild the more seriously depressed natural stocks. Final catch and escapement figures are expected to be ready for presentation to the Council at its January meeting; these likely will confirm the preliminary indications. The PDT recognizes that data inadequacies still exist and make difficult the application of common analytic techniques in

developing seasonally adjusted OYs. However, as the Guidelines for Development of Fishery Management Plans, 50 CFR Part 602, section 602.2(c)(3), point out, a lack of complete scientific information does not prevent a Council from acting. Under the current circumstances, the PDT believes the sound management approach is to reduce the harvest by increments until a measurable improvement is observed.

The proposals intended to reverse the shift of troll effort offshore - the revised management objective, some of the limited entry options, the time and area closure alternatives, and gear restrictions - also essentially comply with this standard. An analysis of this shift prepared by an employee of the Alaska Region, NMFS, who is also a member of the PDT, entitled "A Brief Analysis of the High Seas salmon Off the Coast of Alaska Optimum Yield as a Descriptor of Stability," shows that despite the OY in the FMP and adherence to it for 1980, there was still a net increase in the offshore catch of chinook of 35,846 fish. Other data from ADF&G also show this shift of effort.

The proposals for requiring submission of a fish ticket prior to leaving Alaska and for retaining the heads on landing requirement will facilitate compliance with this National Standard. Most vessels landing salmon outside Alaska do not now submit the required fish ticket, and enforcement is hindered by confidentiality requirements of the various states. For those out-of-state landings where fish tickets are submitted, the submission is usually much later than one week after delivery, and too late to be of use for inseason management. Requiring a fish ticket to be submitted prior to leaving Alaska should improve the quantity and quality of catch data for landings outside Alaska. Experience with this seasons' heads-on landing requirement showed an improvement in the recovery of coded-wire tags, which is particularly important for offshore areas where the mix and range of the stocks is incompletely understood.

National Standard 3: To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range and interrelated stocks of fish shall be managed as a unit or in close coordination.

The range of the two principal species of salmon caught in the troll fishery, chinook and coho, includes waters under the jurisdiction of the State of Alaska, and for

chinook includes as well waters under the jurisdiction of the States of Washington and Oregon. Many of the management measures proposed correspond to measures the State of Alaska is expected to implement for its stocks in its waters. This compatibility, which has been further demonstrated by complementary inseason management in past years, indicates that the stocks originating in Alaska are managed throughout their range.

The chinook stocks originating in Washington and Oregon, which are primarily caught in the FCZ, are managed as a unit to a lesser degree than the Alaska chinook stocks. This is due to the fact that there are two different Councils involved, and because of the intercepting Canadian fishery. Serious questions are thus raised as to the practicability of "management as a unit" for these stocks. The proposals that have the intended effect of reducing the trend of increased effort in the FCZ, particularly the OY reduction, will nevertheless facilitate management measures being undertaken by the Pacific Fishery Management Council, and to that extent constitute management of the species as a unit throughout their range. Therefore, the proposals appear to be consistent with National Standard 3.

National Standard 4: Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Limited entry constitutes an allocation or assignment of fishing privileges and the stated alternatives must therefore be analyzed for consistency with this National Standard. Limited entry must also be accomplished in the manner set forth in section 303(b)(6) of the FCMA; this latter discussion appears in the next section addressing compliance of the proposals with other provisions of the FCMA.

The first limited entry option is in fact not to have limited entry but to rely on more extensive time and area closures to accomplish catch and effort reductions. This option does not therefore raise any issues under this National Standard.

The second limited entry option is to maintain the status quo - only Alaska limited entry permit holders, including all power trollers and all hand trollers, and presumably including the two NMFS permit holders, would be allowed to fish the FCZ. Essentially this would force anyone wishing to fish the FCZ into purchasing a power troll or hand troll limited entry permit. This alternative does not discriminate against non-Alaska residents, since they are subject to the same requirements, and have the same ability to purchase permits, as Alaska residents. Moreover, the granting of access to all current permit holders would appear to be fair and equitable since no one is excluded. Thus, maintaining the current limited entry system does not raise a problem under this National Standard. It would, however, probably result in the same conflict between regulations implementing the FMP, which allow hand trolling, and State regulations, which purport to ban hand trolling in the FCZ, that existed this past year; a conflict that is the subject of a lawsuit brought by hand trollers against the State, Loomis v. Skoog.

The third option of having a "true moratorium," allowing into the FCZ only those trollers, both power and hand, who could satisfy certain eligibility criteria, does not appear to be inconsistent with this National Standard. Non-Alaska residents would, as above, not be discriminated against since they could enter the fishery by purchasing a permit the same as Alaska residents. Nor would the allocation be unfair or inequitable - the same eligibility criteria (two or more landings of salmon in 1980, as one suggestion) would be applied to all fishermen, hand troller and power troller alike.

The variation of this third alternative, providing for both transferable and non-transferable permits, does, however, raise a problem. The question is whether it is fair and equitable to give the greater benefit, the transferable permit, to one group of persons - those making two deliveries in each of two years from 1973 to 1978, and two deliveries in either 1979 or 1980 - while giving the lesser benefit to another group - those making two deliveries in both 1979 and 1980. This could in some instances result in persons whose involvement in the fishery is decreasing or effectively terminated (with as few as two landings in 1979 and none in 1980) receiving transferable permits, while some persons having several landings in 1978, 1979 and 1980 would receive only nontransferable permits. In order to avoid the questions this arises under National Standard 4, as well as under the cases which strictly limit the use of cut-off dates in limited entry systems, the

Council might simply modify the proposal to require for a transferable permit fishing in both 1979 and 1980, as well as in two of the earlier years. Those who fished in two of the earlier years and in 1979 or 1980, and those who had not fished in two of the earlier years, but had fished in both 1979 and 1980 would receive nontransferable permits.

The final two proposals for limited entry into the FCZ troll salmon fishery present the same issues under National Standard 4. For both options, there is established a definite number of permits which are to be distributed among "qualified applicants" by any of suggested means. The only difference is the number of permits, which would be set at the number of vessels making landings in 1980, or alternatively at the number of vessels that is optimal for the troll fishery. The principal question here is the composition of the pool of qualified applicants from which the persons to be given access to the FCZ are selected. The package of proposals does not indicate who are the qualified applicants, nor does it indicate how hand trollers are to be accommodated. Absent these parameters, it is difficult to assess the fairness of the system for distributing access permits. In deriving this pool, however, a few general principles should be kept in mind. The means used in establishing the pool of applicants should have a rational basis and should bear a reasonable relationship to the defined goals of the system chosen. Cut-off dates, after which participation in the fishery does not count toward eligibility, are quite risky and more often than not have been struck down, particularly when they attempt to reach back to past years. Restricting the pool of applicants to current permit holders is probably permissible, provided that the holders of the two NMFS permits are included. More specific advice on this issue will have to wait until the particular criteria for admission to the pool of applicants are defined.

The only other measure raising an issue under this National Standard is the proposed adoption of the Board's allocation of 80 percent of the troll catch to power trollers and 20 percent to hand trollers. Whether this is fair and equitable is open to debate, although it is arguable that the policy is intended to preserve the traditional catch by the fleets. What is clear, however, is that this 80/20 allocation is not "reasonably calculated to promote conservation." As discussed in relation to National Standard 5, the Board's policy is economic allocation, pure and simple, with no intended conservation benefit. As such, it does not fulfill the requirements set by this National Standard for making allocations.

National Standard 5: Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

Although exactly how it is to fit into the FMP is not clear, the adoption, endorsement or incorporation of the Board's allocation of 80 percent of the troll catch to power trollers and 20 percent to hand trollers appears to be inconsistent with this National Standard. The 80/20 policy appears to be solely an economic allocation, not bearing any relationship to biological data and not promoting conservation. The FCMA simply does not allow this type of measure to be incorporated into an FMP. Further, one of the proposed management objectives suggests that allocations among user groups would be accomplished as directed by the Board and the Council. To the extent any of these allocations so directed were based solely upon economic reasons, as the Board apparently has authority to do under State law, the allocations would likewise be impermissible under the FCMA.

Adoption of one of the limited entry options should promote economic efficiency since it will prevent further overcapitalization. Also, limited entry is not solely an economic allocation - there are biological and conservation purposes served by the resulting limitation of effort.

The time and area closures and gear restrictions tend to impose inefficiency on trollers, but this may be inevitable given National Standard 1's overriding requirement of preventing overfishing and achieving OY. On the other hand, trollers argue that with an OY ceiling, they ought to be allowed to fish unrestricted until that ceiling is reached, and that this would be more efficient for them. The time and area closures have as their purpose the distribution of effort among the stocks, however, and these may be necessary even if time and area closures are not relied upon to reduce the total harvest.

The heads-on landing requirement may not promote efficiency but is thought to be necessary to acquire the necessary data in fulfillment of National Standard 2.

National Standard 6: Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources and catches.

None of the proposed amendments would appear to be inconsistent with this National Standard.

National Standard 7: Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

Many of these proposals impose additional burdens or restrictions on troll fishermen in the FCZ, and compliance with them will likely be more costly for individual fishermen. However, these burdens and restrictions may be necessary to prevent overfishing and promote achievement of the OY as required by National Standard 1. Thus, it is not practicable to minimize costs by declining to implement the proposed amendments.

There is also a question whether limited entry, given all of its attendant implementing and administering costs, which will be significant, is unnecessarily duplicative where other methods - for example, more extensive time and area closures or greater gear restrictions - would probably attain an equivalent effort and catch reduction. The package of proposals specifically recognizes this question and strongly urges the Council to decide first whether limited entry is even necessary or desirable, and second what the goals of limited entry are if the answer to the first question is affirmative. Should the Council decide to go ahead with limited entry, there presumably will have been an express or implicit answer to the question of whether limited entry is unnecessarily duplicative or excessively costly. A well-reasoned decision by the Council on this issue should insure no inconsistency with this National Standard.

COMPLIANCE OF THE PROPOSED AMENDMENTS WITH OTHER PROVISIONS OF THE FCMA

Section 303 of the FCMA specifies required provisions which must, and discretionary provisions which may, be included in the FMP. The required provisions are stated in subsection (a) and are generally satisfied by the FMP and the proposed amendments. The only possible problem is in summarizing the information utilized in making specifications of OY and MSY. It is important that the data and information used by the PDT and others in formulating the proposed reduction in OY, and by the Council in considering it, be included in the FMP itself. This is particularly so in this instance where a substantial reduction in the catch is contemplated - fishermen, managers and others affected by the FMP must have all the available information before them in order to understand the necessity

for the action taken. Moreover, failure to justify adequately the need for the OY reduction would pose a significant risk of having it overturned if challenged in litigation.

The PDT in the past has, understandably, focussed most of its attention on the management measures in the FMP and implementing regulations which need to be changed for the succeeding fishing season, and has not concentrated on updating various sections, figures and data tables in the FMP which are supposed to substantiate those changes. This may well be due to familiarity with the process the board follows in promulgating State fishery regulations. Unlike the Board, however, the Council is responsible for preparing, and the Secretary for approving, a document, the FMP, with legal significance apart from its implementing regulations. The importance of insuring that the FMP itself fully supports and documents the need for the proposed management changes cannot be emphasized strongly enough.

The only discretionary provision which needs to be examined is limited entry. Section 303(b)(6) provides:

[An FMP may] establish a system for limiting access to the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account -

- (A) present participation in the fishery,
- (B) historical fishing practices in, and dependence on, the fishery,
- (C) the economics of the fishery,
- (D) the capability of fishing vessels used in the fishery to engage in other fisheries,
- (E) the cultural and social framework relevant to the fishery, and
- (F) any other relevant considerations .

The first option for limited entry is that there be none, and it therefore need not be analyzed here.

The second alternative is to maintain the status quo - only power trollers and hand trollers who have a State limited entry permit, or a NMFS permit, would be allowed into the FCZ. This system resulted after the Council

"adopted" the State's limited entry scheme for power trollers, grandfathering all of them into the FCZ fishery, and the Secretary disapproved the Council's proposed ban on the use of hand troll gear in the FCZ. There currently are approximately 950 power trollers and the State will soon have limited hand trollers to about 2150. The Council had originally proposed to prevent all hand trollers from fishing the FCZ, complementary to a similar State measure in the territorial sea, because very few of them were documented as having fished there, and it was considered critical to curtail further expansion of troll effort into the FCZ. This was struck down as being unfair to those few hand trollers who had in fact participated in the FCZ fishery, but the result, in theory at least, is that all hand trollers may now fish in the FCZ under Federal regulations. The Council is thus faced with the same threat of effort expanding into the FCZ as before, which, if continued, may raise a question of whether the potential harm to the stocks from increasing offshore effort, certainly a "relevant consideration," is being taken into account.

The alternative of having a "true moratorium," which would limit access to only those persons who could satisfy certain eligibility criteria, would probably address the potential for expansion of troll effort into the FCZ, but also requires care in establishing the eligibility criteria since some persons will surely contest their exclusion from the fishery. One proposal is to grant access to all persons who made two or more landings in 1980 or, if unable to during 1980, made landings in prior years. This is probably acceptable under section 303(b)(6). It places most emphasis on present participation, but also recognizes historical dependence on the fishery in the event someone was unable to fish during 1980. The Council may want to define which prior years can be used, and may also want to require some showing that the person who fished in prior years, but not in 1980, has the intent to continue fishing in order to avoid grandfathering in someone who has retired from the fishery. The fact that hand trollers have generally not fished in the FCZ, during 1979 and 1980 due to the State's ban on hand troll gear beyond the surfline must also be taken into account - their showing of eligibility would necessarily have to be based on having fished in prior years. Although not a legal requirement, the Council should decide whether holding a State entry permit is also a prerequisite; if not, persons who sold their State permits could conceivably qualify. This approach would also implicitly recognize that vessels which did not qualify to fish in the FCZ could still be used in the troll fishery in

fish in the FCZ could still be used in the troll fishery in State waters, thus accommodating subsection (D). As to subsections (C) and (E), the Council should consider, on the record, what impact this moratorium would have on the economics, and cultural and social framework, of the fishery.

The variation of this moratorium, which would provide for transferable and non-transferable permits, raises a point that has already been discussed above in the context of National Standard 4. As the proposal is currently set forth, in order to get a transferable permit, a person, in addition to having made two landings in each of two years from 1973 to 1978, must also have made two landings from 1979 or 1980. In contrast a person who, having not fished prior to 1978, wants a non-transferable permit must have made two landings in both 1979 and 1980. This could result in a situation where the person with greater present participation - landings in both years - gets the lesser benefit while the person with lesser present participation, who may have even retired yet made two landings in 1979, gets the greater benefit. This problem can be cured by increasing the criteria for getting a transferable permit to having made two landings in both 1979 or 1980. As above, the Council should also decide whether holding a State entry permit is a prerequisite to getting a Federal permit; this is certainly an indicia of present participation.

One issue that is not presented by the package of proposals but which may nevertheless arise is whether the Council, assuming it desires this "true moratorium" option for limited entry, must adopt it for all fishermen, both hand trollers and power trollers, at once, or whether there is latitude to implement it in stages, that is, dealing with hand trollers first and power trollers later. There appears to be a number of reasons why the Council would be able to approach the problem in this manner. First, applying the moratorium to hand trollers initially is essentially the recommendation the Assistant Administrator for Fisheries, NMFS, made both times he disapproved the hand troll ban. He recognized the potential conservation problem posed by a huge influx of hand trollers into the FCZ, but also determined that excluding them all was unfair to those few hand trollers who had fished there in the past. He therefore suggested initiating a limited entry system for hand trollers, which a moratorium would be. This solution was never tied to imposition of a moratorium on power trollers. A second reason supporting a moratorium applied in stages, is the administrative difficulty that would be encountered if done all at once. Limited entry, as the PDT

recognizes, is a very costly mechanism to develop, implement and administer. It would seem entirely reasonable for the Council and the Secretary to undertake this moratorium in manageable portions. Since hand trollers may pose the most immediate threat due to their large numbers, their fishery would be the logical one to tackle first. A third reason supporting this approach is that power trollers are already under a moratorium, albeit one that is broader and allows all licensed power trollers to fish. Persons without power troll entry permits are not allowed to fish in the FCZ. This current moratorium, which is essentially an adoption of the State limited entry system for power trollers, was believed by the Council at the time it was approved to be represent present participation in the FCZ. Applying the "true moratorium" to hand trollers first could therefore be characterised as according them equal treatment relative to the power trollers. Thus, although applying the moratorium in stages may require distinguishing between the gear types for an interim period, there does appear to be adequate justification for doing so. (It is not even clear that a limited entry system for hand trollers alone, with power trollers left in the current status of all being grandfathered into the FCZ, would be objectionable. However, such an approach certainly would draw a hard look from the Assistant Administrator in light of his rejection of the hand troll ban and intention to avoid discriminatory results.)

The final two options for limited entry involve setting a definite number of permits - either at the level of the number of vessels landing salmon in 1980 or at an optimal level for the fishery - and then distributing these permits among "qualified applicants." As above, in relation to National Standard 4, the viability of either of these approaches depends substantially on how the pool of qualified applicants is determined. The package of proposals gives little guidance in this regard. It is clear, however, that the pool must have some relation to present participation in and historical dependence upon the FCZ troll fishery. Various criteria could be used to determine the pool of qualified applicants, including having made some number of landings, or some poundage of landings, during a base period, holding a State entry permit, owning a boat, etc. Generally, it is probably better to err on the side of allowing someone into the pool rather than excluding them, although this should not be taken so far as to include persons with only a minimal involvement in the fishery. It is also important, and particularly so if the Council chooses to restrict the FCZ troll fishery to its "optimal number," that the economic, social and cultural impacts be

taken into account and that the consideration of those factors appear in the record.

The proposal to accompany the system of transferable and nontransferable permits with a buy-back system funded through permit fees also raises an issue under FCMA section 304(d), which provides:

"The Secretary shall by regulation establish the level of any fees which are authorized to be charged pursuant to section 303(b)(1) of this Act [the provision authorizing domestic permits]. Such level shall not exceed the administrative costs incurred by the Secretary in issuing such permits."

The question here is whether the funding of a buy-back program could be an "administrative cost incurred by the Secretary in issuing" transferable and nontransferable troll permits for the FCZ. The FCMA legislative history is unhelpful as to the scope intended by Congress for the term "administrative costs." Certainly it would include the clerical expenses of permit issuance, as well as the cost of determining the eligibility of individual applicants for permits through data searches and hearings. It is much less than certain that it includes the funding of a buy-back program. If the permit system were a primary vehicle for the reduction of FCZ effort by the troll fishery, and if a buy-back feature were essential to the permit system's accomplishment of this purpose, it might well be argued that the funding of the buy-back program would be an "administrative cost" incurred in the issuance of the troll permits, provided that the fees charged to fund the program were strictly limited to the amounts actually used for buy-backs. (A procedure for refunding unused amounts to permittees would probably satisfy the latter requirement.) Both the Council and the Assistant Administrator should, however, be aware that there are very strong arguments supporting the contrary position. The principal problem is that this sort of reasoning might apply to other fishery management measures which were deemed essential to the accomplishment of a permit system's purpose, and therefore, were within the scope of "administrative costs." This interpretation of 304(d) may well be too broad. If so, funding of a buy-back program likely would have to come from NOAA's appropriation, which might have to be specifically supplemented for this purpose (as was done for the salmon fishery off Washington).

COMPLIANCE OF THE AMENDMENTS WITH OTHER APPLICABLE LAW

The proposed amendments are subject to the requirements of a number of other Federal laws and regulations. The National Environmental Policy Act and its implementing CEQ, DOC, and NOAA regulations, would seem to require a supplemental environmental impact statement, because the amendments would, if adopted, seem to change the FMP significantly in ways that could affect its environmental impacts.

Similarly, the proposed amendments are so far-reaching in their potential socioeconomic impact that they can only be considered "significant regulations" for purposes of executive Order 12044 and its implementing regulations, and should therefore be the subject of a regulatory analysis.

Because of the interactions of marine resources within and beyond the three-mile limit, implementation of the proposed amendments will probably be a Federal action directly affecting the Alaska coastal zone, within the meaning of section 307(c)(1) of the Coastal Zone Management Act of 1972, and its implementing regulations. Either the Council or NMFS should, therefore, provide the State of Alaska with a formal determination of the consistency of approval and implementation of the proposed amendments with the approved Alaska Coastal Management Program. The State has already concurred in finding the original FMP to be consistent with its Coastal Management Program.

Approval and implementation of the proposed amendments would not be an action that "may affect" endangered or threatened species or their habitat within the meaning of the regulations implementing section 7 of the Endangered Species Act of 1973. Thus, consultation procedures under section 7 will not be necessary for these proposed amendments.

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*Mel
Sibel
Report*

PROPOSED MANAGEMENT PLAN FOR
SOUTHEAST ALASKA CHINOOK SALMON RUNS IN 1981

SOUTHEAST REGION
FISHERIES MANAGEMENT DIVISIONS
ALASKA DEPARTMENT OF FISH AND GAME

JANUARY 1981

JUNEAU, ALASKA 99801

PROPOSED MANAGEMENT PLAN FOR
SOUTHEAST ALASKA CHINOOK SALMON RUNS IN 1981

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Considerations Relating to the Proposed Management Plan
for Southeast Alaska Chinook Salmon Runs in 1981

Brief

Southeast Alaska chinook salmon runs continue to be depressed far below historical levels and recovery trends have not yet occurred in spite of significant restrictions imposed on Southeast Alaska fisheries, particularly since 1975. Regulations proposed for the 1981 season are directed primarily toward establishing the increasing trends in escapements required to rebuild these depressed runs.

A reduction of 10% or 32,000 fish from the 1980 Optimum Yield (OY) catch ceiling (the upper end of the OY range) of 320,000 established for Southeast Alaska commercial fisheries by joint action of the Alaska Board of Fisheries and the North Pacific Fisheries Management Council in March 1980 is being recommended for the 1981 season. This reduction will be achieved through selected time/area regulations designed to allow mature fish of Alaskan origin to reach spawning grounds in Southeast Alaska in 1981 and to reduce the harvest of immature salmon in 1981 thereby further increasing the number of available mature spawners in 1982-83.

On the basis of certain assumptions regarding current harvest and escapement levels, production rates and the effect of the proposed regulations, it is estimated that approximately three 5-year cycles or 15 years will be required to rebuild Southeastern Alaskan chinook salmon stocks to the point where minimum escapement goals are achieved. Increased harvestable surpluses would be expected in the 4th cycle.

Status of Southeast Alaska Chinook Salmon Stocks

Commercial catches of chinook salmon by Southeast Alaska fisheries averaged 320,000 fish annually during the 1970's or about half of the 610,000 average annual catch taken during the peak decade of the 1930's (Fig. 1, p. 7). Significant contributions to this harvest by non-Alaskan stocks and the absence of effective stocks separation techniques required to determine stocks components in these highly mixed stock fisheries prevent direct inferences being made from total catches as to the status of Southeast Alaska chinook salmon stocks. However, historical catches by Southeast Alaska fisheries operating in more terminal areas near local chinook producing systems such as the Alsek, Taku and Stikine Rivers also reflect serious declining trends (Figs.3-5, pp. 9-11).

Chinook salmon escapements to Southeast Alaska systems are estimated to have averaged some 25,000 to 34,000 fish during the last three year period 1978-80 or less than half of the total minimum escapement goal of 66,000 to 80,000 (Fig. 7, p. 29). As a result, production in terms of average annual harvest from Southeast Alaska stocks is also thought to be less than half of the harvest which might be expected if minimum escapement goals were being achieved (Tables 5-6, pp. 21-24). Although some improvement was observed in escapements to the Taku and Stikine Rivers in 1980, escapements to other surveyed systems were generally

poor (Table 2, p. 13). Evidence relating to production from the 1975-76 brood years suggest that while escapements to the Taku River in 1981 might be expected to be of the same relative magnitude as in 1980, escapements in 1982 will probably drop below the 1980 level in the absence of further catch restrictions.

Proposed 1981 Management Plan

In 1980 the Troll fishery took approximately 94% of the total Southeast Alaska commercial chinook salmon harvest of 321,000 (Table 1, p. 6). The remaining 6% was taken incidental to the harvest of other species by gillnet fisheries (2%) and seine fisheries (4%). There are currently no directed net fisheries for chinook salmon in Southeast Alaska, the last directed gillnet fisheries being closed in 1975-76. Thus, regulations designed to increase escapements of Alaskan chinook salmon are directed primarily toward the troll fishery, however regulations are also being proposed to further reduce the incidental catch of mature chinook spawners by the gillnet fishery and to reduce the sport harvest of mature fish (Table 7, p. 26).

At current harvest levels, only minimal--if any--improvement is expected in the condition of Southeast Alaskan chinook salmon stocks. Therefore, a reduction of 10% or 32,000 fish from the 1980 Optimum Yield (OY) catch ceiling (the upper end of the OY range) of 320,000 is being recommended for the purpose of rebuilding depressed Alaskan chinook salmon stocks. This reduction made through selected area/time regulations is expected to result in an increase of approximately 4,800 spawners in 1981 increasing to 6,100 in 1982 and to 7,500 in 1983 as unharvested immature fish reach maturity (Table 9, p. 28).

The strategy being proposed for 1981 to achieve increased escapements to Southeast Alaska systems in 1981 consists primarily in delaying the opening of the troll fishery in outer coastal areas until May 15 (compared to April 15 in 1980) coordinated with an additional early May 8-day closure in the '8 on - 6 off" troll fishery schedule in the Icy Straits - Chatham Straits corridor areas (Table 7, p. 26). This is expected to allow spring spawning Alaska chinook salmon to move into inside terminal areas where current fishing regulations provide a high degree of protection.

Regulations are also being proposed for an outward adjustment of the inner Taku River gillnet fishery boundary to reduce the incidental catch of mature chinook during the first three weeks of the sockeye fishery beginning June 15 and a 10-14 day closure of the Juneau area sport fishery in early May.

The balance of the proposed 10% or 32,000 fish reduction remaining after the above regulations are implemented would be achieved by a final adjustment near the end of the summer troll fishing season in September or October. A tentative closing date of September 20 has been proposed coincident with the closing date for coho salmon. The magnitude of the end of the season adjustment is difficult to predict because of the unknown ability of the troll fishery to compensate for the early season time/ area restrictions by increasing effort in other time/area strata

thereby changing the seasonal/spatial distribution of the chinook harvest and because regulations required for management of coho salmon runs which also affect the chinook salmon fishery are not completely determined until inseason.

The end of the season adjustment would have the effect of reducing the harvest of immature Alaskan chinook stocks. Based on the estimate derived here for the expected increase of 7,500 Alaska spawners when the full effect of the proposed regulations is realized in 1983, the expected reduction in harvest of non-Alaskan stocks would be about 24,500 fish minus an estimated loss of 1,800 fish due to natural mortality in the immature Alaska stock component of the reduction (Table 8, p. 27) or about 22,700.

The proposed harvest reduction of 32,000 chinook salmon, the majority of which will result from a reduction of the troll fishery harvest, will represent an estimated reduction of approximately 7% of the total value of all species of salmon harvested by the troll fishery in 1980 (Fig. 9, p. 31).

Long Term Projections for Recovery of Southeast Alaska Chinook Runs

Minimum escapement goals for Southeast Alaska chinook salmon systems currently being surveyed have been established based on the maximum number of spawners observed since surveys were initiated in the early 1950's--except for the Situk River where weir counts date back to 1928 (Table 4, p. 20). Since the 1950's Southeast Alaska chinook stocks appear to have been substantially depressed below historical high levels and based on harvest patterns of fisheries in terminal areas, even maximum escapements observed during this latter period do not appear to have reached or exceeded optimum escapement levels.

Expanding average minimum escapement goals for surveyed systems to non-surveyed systems within each of the run size categories--major, medium and minor--results in an estimated total minimum escapement goal for all Southeast Alaska systems of 66,000 to 80,000 fish. Average escapements observed during 1978-80 are estimated to have been 25,000 to 34,000 indicating a 42,000 to 46,000 spawner deficit (Fig. 7, p. 29).

Assuming that escapements initially increase as predicted and that these additional spawners produce at the rate of 3:1 with 0.5 of the 3 fish being harvested by fisheries not currently included under the OY ceiling (thus resulting in an effective rate of increasing escapements of 2.5:1), minimum escapement goals would be expected to be reached during the third 5-year cycle or 1991-95 (Fig. 7, p. 29). While a small harvestable surplus above minimum escapement goals would be expected in 1991-95, an average harvestable surplus of approximately 70,000 fish would be expected in the fourth 5-year cycle 1996-2000.

In addition to the expected increased harvestable surplus of approximately 70,000 fish beginning in 1996-2000 as a result of rebuilding natural Alaska chinook runs, supplemental hatchery production in Southeast Alaska is expected to contribute an increasing number of chinook salmon to Southeast Alaska fisheries of up to 90,000 fish when planned capacity production is reached in the 1990's (Fig. 8, p. 30).

Evaluation of Effectiveness of Proposed Regulations

In the final analysis, effectiveness of the proposed fishery regulations must be evaluated in terms of achievement of increased production and harvest available to the fisheries. However, as indicated above, a significant harvestable surplus above increased production necessary for achieving minimum escapement goals would not be expected until the fourth 5-year cycle or 1996-2000. Thus, final evaluation is obviously a long term process.

For immediate and intermediate term evaluation, two basic approaches will be used. The first most immediate expected effect of the proposed regulations is increased chinook salmon escapements to Southeast Alaska systems. Spawning ground surveys are currently conducted on 9 of the 33 known chinook salmon spawning systems in Southeast Alaska (Fig.6, p. 14) and further expansion of the surveys is being planned. Increased escapements should be observed in these surveys. Second, catches of chinook salmon in both directed and incidental fisheries near terminal areas should reflect increases in the abundance of Alaska chinook salmon.

Evaluation of observed changes in spawner abundance resulting from reduction of the harvest of mature fish in 1981 will be made in the fall of 1981. However, evaluation of the effect of reducing the immature harvest in 1981 will not be possible until these fish mature and spawn in 1982 and 1983.

PRELIMINARY 1980 SOUTHEAST ALASKA SALMON HARVEST DATA
AND MISCELLANEOUS HISTORICAL CHINOOK SALMON HARVEST DATA

PRELIMINARY

Table 1. 1980 Southeast Alaska Region Commercial Salmon Harvest
(Based on Fish Tickets Compiled as of 11/18/80 - ADF&G)

Gear	Numbers of Fish in 1000's					Total
	King	Coho	Sockeye	Pink	Chum	
Power Troll	249	528	2	161	8	948
Hand Troll	51	180	1	116	5	353
All Troll	300	708	3	277	13	1,301
Gill Net	8	233	586	1,485	609	2,921
Seine	13	195	531	12,716	1,028	14,483
TOTAL ^{1/}	321	1,136	1,120	14,478	1,650	18,705

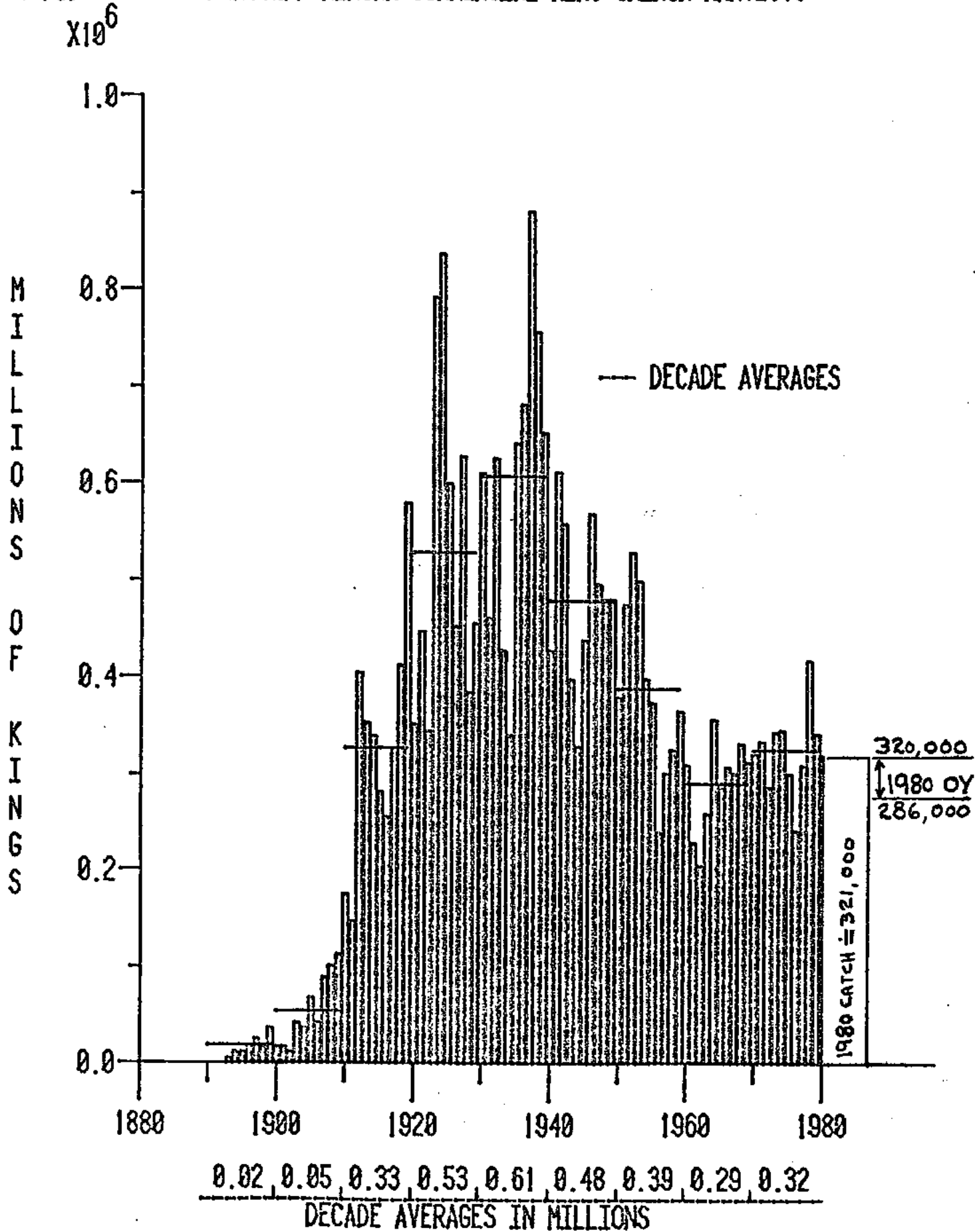
Percentage Harvest By Gear Type Within Species

Gear	King	Coho	Sockeye	Pink	Chum	Total
Power Troll	78%	46%	+	1%	+	5%
Hand Troll	16%	16%	+	1%	+	2%
All Troll	94%	62%	+	2%	1	7%
Gill Net	2%	21%	52%	10%	37%	16%
Seine	4%	17%	48%	88%	62%	77%
TOTAL						100%

Percentage Species Composition Within Gear Type

Gear	King	Coho	Sockeye	Pink	Chum	Total
Power Troll	26%	56%	+	17%	1%	100%
Hand Troll	15%	51%	+	33%	1%	100%
All Troll	24%	54%	+	21%	1%	
Gill Net	+	8%	20%	51%	21%	100%
Seine	+	1%	4%	88%	7%	100%
TOTAL	2%	6%	6%	77%	9%	100%

FIG. 1. SOUTHEASTERN ALASKA COMMERCIAL KING SALMON HARVESTS



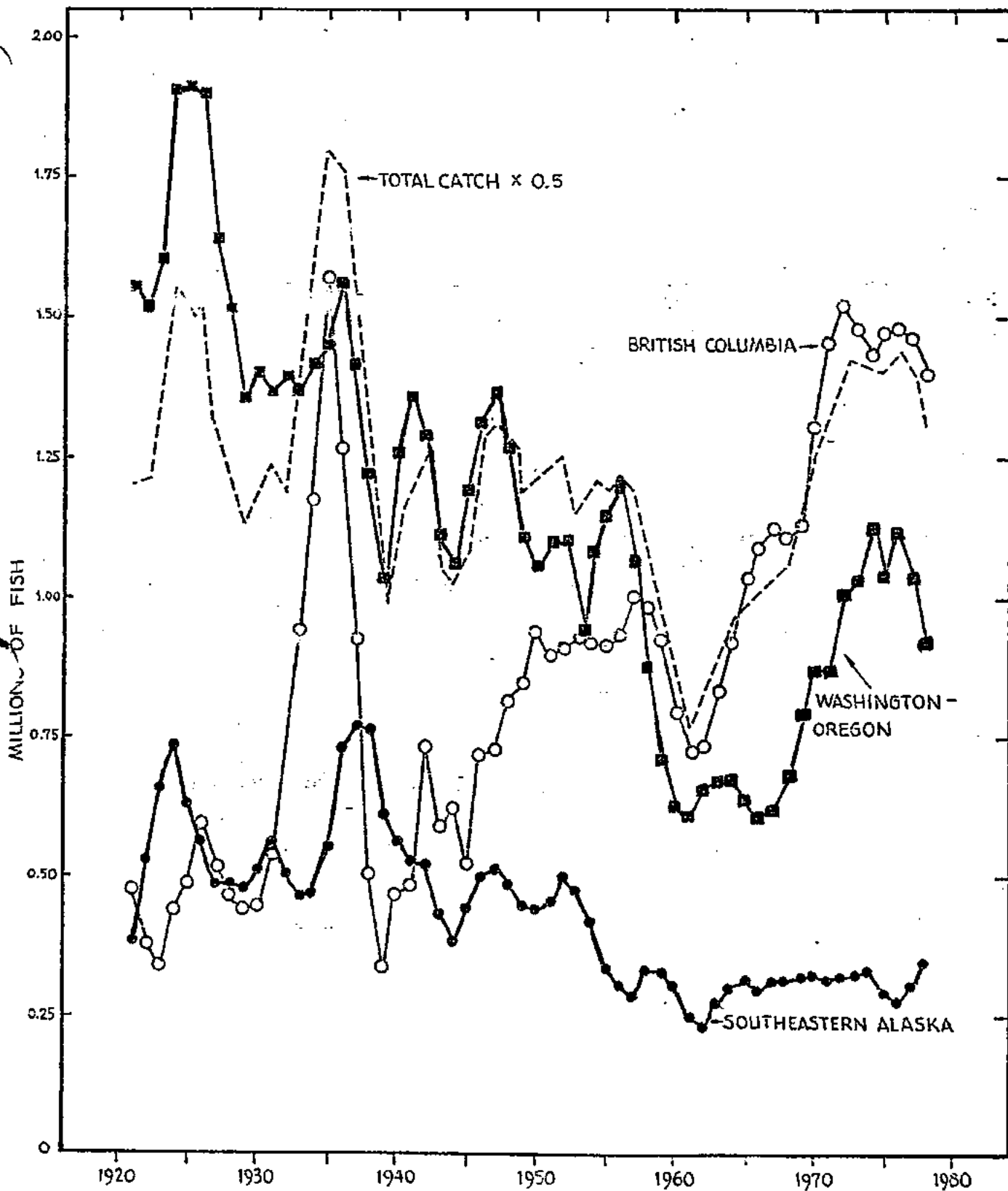


Figure 2. Annual catch of chinook salmon by commercial fisheries in Southeastern Alaska, British Columbia and Washington-Oregon, 1920-79, smoothed by moving averages of 3's. (Data are from INPFC Bull. 39, PFMC and Canada Dept. of Fisheries and Oceans.)

FIG. 3. SOUTHEASTERN ALASKA KING SALMON HARVESTS
 IN THE GILLNET FISHERIES

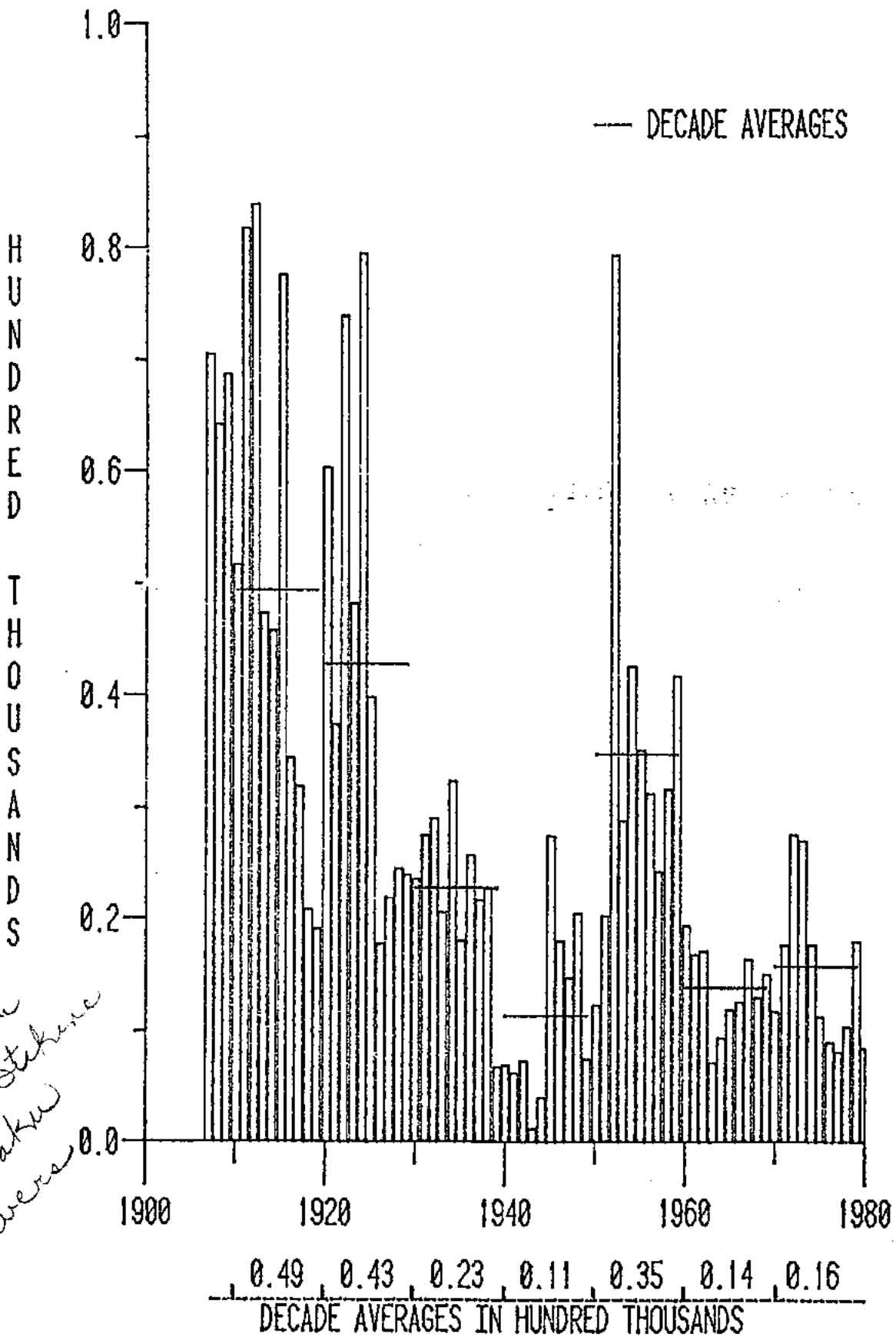
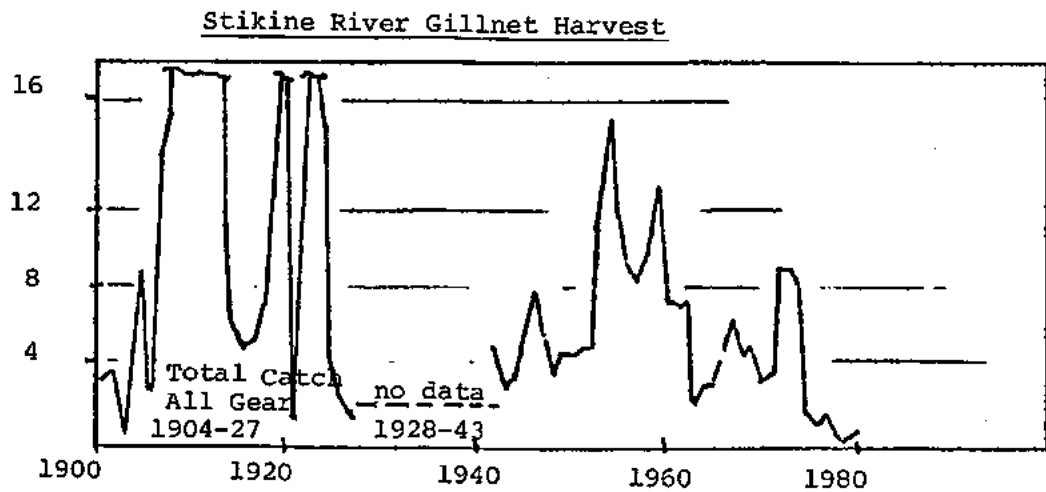
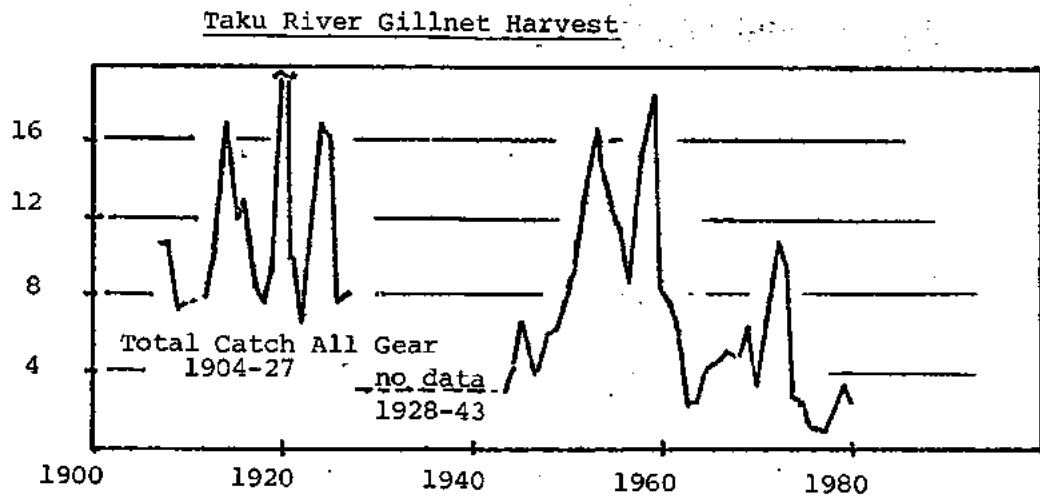
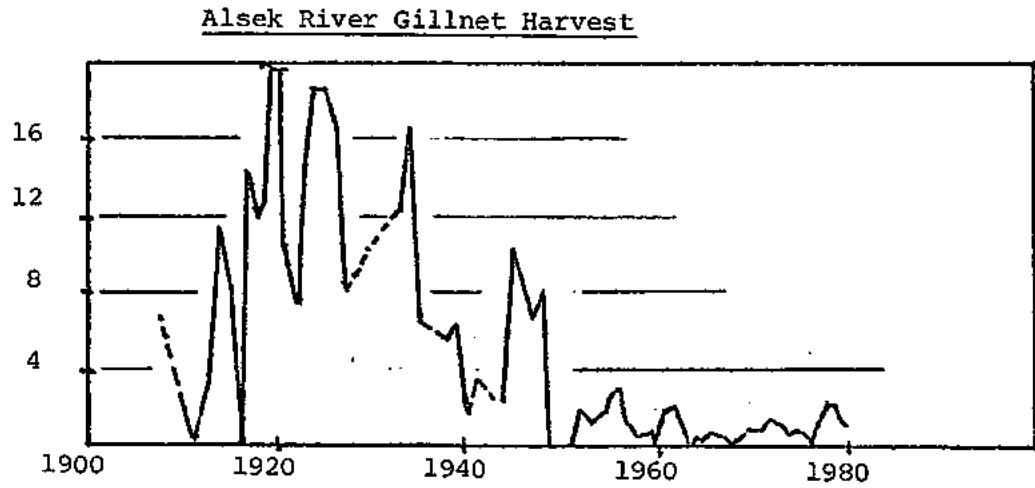


Figure 4. Historical Chinook Salmon Catches in Terminal Area Fisheries on the Alsek, Taku and Stikine Rivers



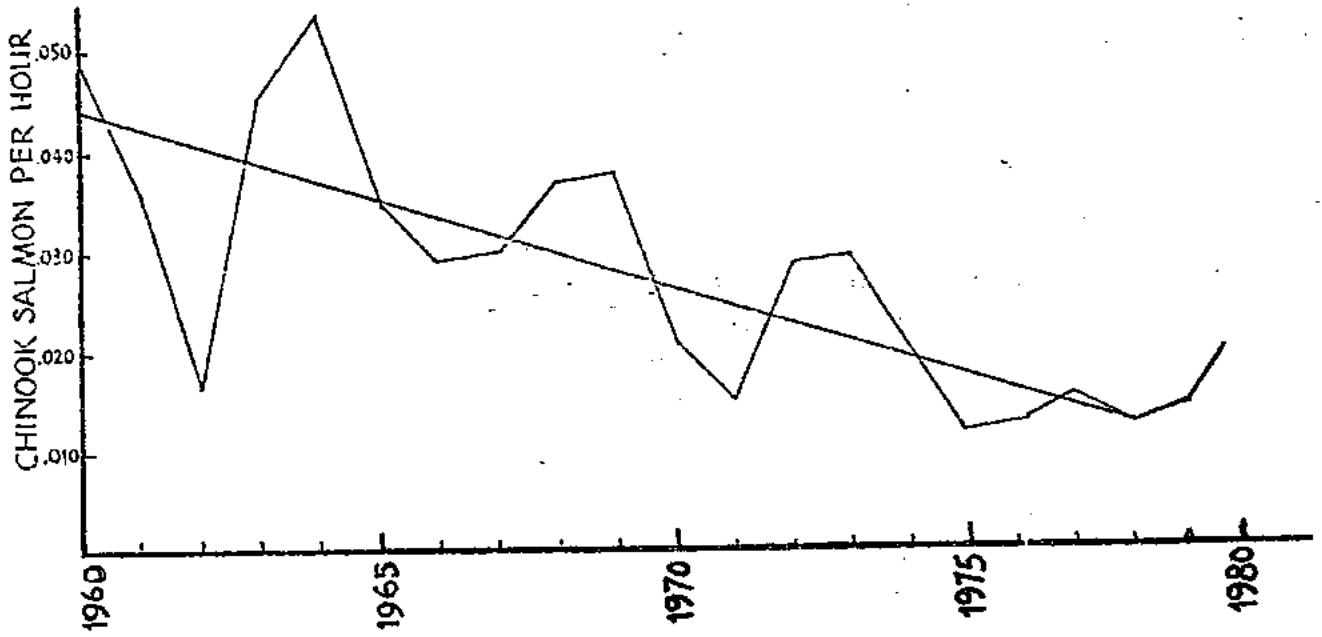


Figure 5. Trend in mean catch of chinook salmon per hour in the Juneau area sport fishery, 1960-1980. (Data are from ADFG.)

CHINOOK SALMON ESCAPEMENTS TO SELECTED SOUTHEAST ALASKA
SYSTEMS INCLUDING PRELIMINARY DATA FROM 1980 SPAWNING
GROUND SURVEYS

Table 2. Relative magnitude or ranking of 1980 chinook salmon escapements to surveyed Southeast Alaska systems (ADF&G-80).

Data Sources: ADF&G and Canadian Dept. Fisheries management records.

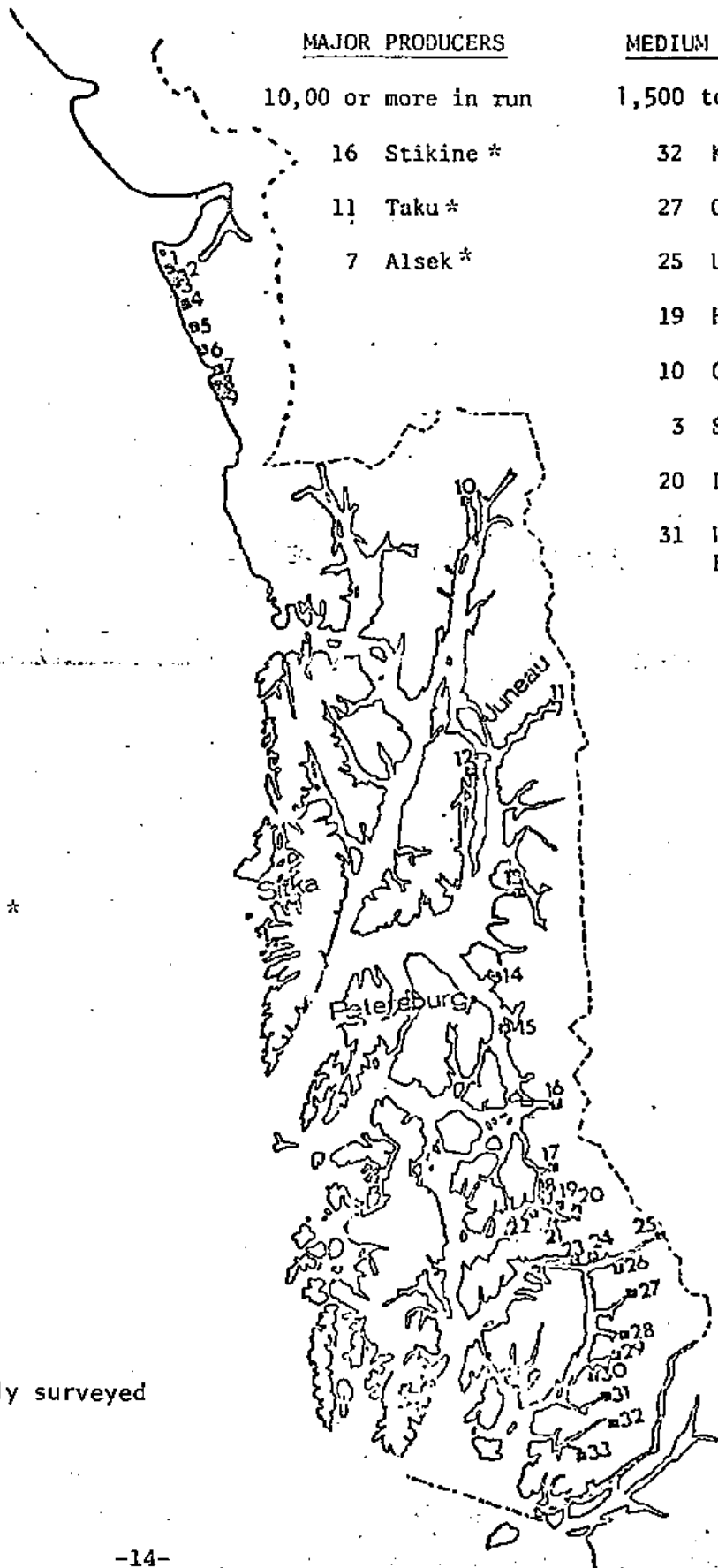
<u>System (Tributary)</u>	<u>Year Records Began</u>	<u>Primary Type of Surveys^{1/}</u>	<u>1980 Escapement Estimate</u>	<u>Ranking of 1980 Escape. Relative To Largest Observed</u>
<u>Major Producers (runs of 10,000 and greater - 3 systems)</u>				
Alsek (Kluckshu)	1976 ^{2/}	Weir/Total	1,401	4 of 5
Taku (Nakina)	1951	Aerial/Peak	4,500	5 of 21
Stikine (Little Tahltan)	1956	Aerial/Peak	2,137	1 of 12
<u>Medium Producers (runs of 1500 to 10,000 - 8 systems)</u>				
Situk	1928	Weir/Total	1,125	28 of 37
Unuk	1961	Aerial/Peak	1,052	4 of 13
Chickamin	1961	Aerial/Peak	261	8 of 13
Wilson/Blossum	1961	Aerial/Peak	89	7 of 10
Keta	1948	Aerial/Peak	192	12 of 16
<u>Minor Producers (runs of 1500 and less - 22 systems)</u>				
King Salmon	1957	Aerial/Peak	70	9 of 12

^{1/} "Weir/Total" counts are counts of fish moving past a weir and are generally considered total counts of spawning fish within the range of precision normally associated with weir counts, say $\pm 10\%$. "Aerial/Peak" counts are aerial survey estimates of fish on the spawning grounds during peak spawning periods. These estimates generally account for 50% or more of the total spawning population surveyed depending on physical characteristics of the watershed and migration and spawning characteristics of the particular stock. "Aerial/Peak" counts are used as indices or relative measures of total spawner abundance.

^{2/} Aerial/Peak counts for the Kluckshu tributary of the Alsek River began in 1965.

Figure 6. Chinook salmon systems in Southeastern Alaska.

<u>MINOR PRODUCERS</u>	<u>MAJOR PRODUCERS</u>	<u>MEDIUM PRODUCERS</u>
Less than 1,500	10,00 or more in run	1,500 to 10,000
35 Martin	16 Stikine *	32 Keta *
30 Big Goat	11 Taku *	27 Chickamin *
29 Rudyard	7 Alsek *	25 Unuk *
28 Walker		19 Harding
26 Klahine		10 Chilkat
24 Grant		3 Situk *
23 Herman		20 Bradfield
22 Anan		31 Wilson-Blossom *
21 Eagle		
18 Tom		
17 Aaron		
15 Muddy		
14 Farragut		
13 Chuck		
12 King Salmon *		
9 Dohn		
8 East		
6 Akwe		
5 Italo		
4 Dangerous		
2 Lost		
1 Ankau		



*- Systems currently surveyed

Table 3. Estimates of spawning abundance of chinook salmon for selected Southeast Alaska systems (cont.).

Note: The following estimates of spawning abundance of chinook salmon are generally based on aerial and/or foot surveys conducted at or near peak spawning periods. In cases where weir counts are available they are indicated accordingly.

Due to glacial or otherwise turbid water conditions not all tributaries of each system can be surveyed, however the available estimates are thought to reflect relative spawner abundance for these systems.

Year	<u>Alsek River</u>						
	<u>Tatshenshini Drainage</u>						
<u>Village System</u>	<u>Mile 112 Creek</u>	<u>Kluckshu River</u>	<u>Kluckshu Lake</u>	<u>Blanchard System</u>	<u>Takhani River</u>	<u>Main Alsek Drainage</u>	
1962			86				No Data
1963							
1964			20		1		
1965			50	50	100	250	
1966				1,000	100	200	
1967			1/	1,500	200	275	
1968			1/	1,700	425	225	
1969		72		700	250	250	
1970	100		1/	500	100	100	
1971	50	60	1/	300			
1972		32	1/	1,100		250	
1973						49	
1974	14	183	62		52	132	
1975	17		58		81	177	
1976				1,227(w)			
1977				3,200(w)			
1978				2,285(w)			
1979				2,561(w)			
1980				1,401(w)			

Note: All counts are aerial/foot peak spawning counts except Kluckshu Lake weir counts as indicated by (w).

1/ Kluckshu River and Lake counts combined.

Table 3. Estimates of spawning abundance of chinook salmon for selected Southeast Alaska systems (cont.).

Year	Taku River						Method
	Nakina	Kowatua	Tatsamenie	Dudidontu	Tseta	Nahlin	
1951	5,000			400	100	1,000	Aerial/Peak
1952	9,000						Aerial/Peak
1953	7,500						Aerial/Peak
1954	6,000						Aerial/Peak
1955	3,000						Aerial/Peak
1956	1,380						Aerial/Peak
1957	1,500*						Aerial/Peak
1958	2,500*			4,500		2,500	Aerial/Peak
1959	4,000*						Aerial/Peak
1960	Poor						Aerial/Peak
1961	Poor						Aerial/Peak
1962				25	81	216	Aerial/Peak
1963							Aerial/Peak
1964							Aerial/Peak
1965	3,050	200 G	50 G	100	18	37	Aerial/Peak
1966		14 G	150 G	267	150	300	Aerial/Peak
1967		250 G		600	350	300	Aerial/Peak
1968		1,100 E	800 E	640	230	450	Aerial/Peak
1969		3,300 E	800 E				Aerial/Peak
1970		1,200 E	530 E	10	25	26	Aerial/Peak
1971		1,400 E	320 E	165		473	Aerial/Peak
1972	1,000	130 G	170 G	103	80	280	Aerial/Peak
1973	2,000	100 G	200 G	200		300	Aerial/Peak
1974	1,800	235 G	120 G	20	4	900	Aerial/Peak
1975	1,800			15		274	Helicopter
1976	3,000	341 G	620 G	40		725	Helicopter
1977	3,850	580 G	573 E	18		650	Helicopter
1978	1,620	490 G	550 E		21	624	Helicopter
1979	2,110	430 G	750 E	9		857	Helicopter
1980	4,500	450 G	905 E	158		1,531	Helicopter

G = water glacial; E = water clear

*Counts of total river not conducted - comparison made from carcass weir enumeration.

Table 3. Estimates of spawning abundance of chinook salmon for selected Southeast Alaska systems (cont.).

<u>Stikine River</u>				
<u>Year</u>	<u>Little Tahltan R.</u>	<u>Mainstem Tahltan R.</u>	<u>Andrews Creek</u>	<u>Method</u>
1956	493			Air
1957	199			Air
1958	790			Air
1959	198			Air
1960	346			Air
1967	800			Air
1975	700	2,908 E		Helicopter
1976	400	129	436(w)	Helicopter
1977	800	G	448(w)	Helicopter
1978	632	756 G	430(w)	Helicopter
1979	1,166	2,118 G/E	433(w)	Helicopter
1980	2,137	960 G	593(w)	Helicopter

G = water glacial; E = water clear; (w) = weir count

<u>Situk River</u>					
<u>Year</u>	<u>Chinook</u>	<u>Method</u>	<u>Year</u>	<u>Chinook</u>	<u>Method</u>
1928	1,224	Weir	1950	2,011	Weir
1929	3,559	Weir	1951	2,780	Weir
			1952	1,459	Weir
1930	1,455	Weir	1953	1,040	Weir
1931	2,967	Weir	1954	2,101	Weir
1932	1,978	Weir	1955	1,571	Weir
1933					
1934	1,486	Weir	1971	964	Float
1935	638*	Weir	1972	400	Float
1936	816	Weir	1973	510	Float
1937	1,290*	Weir	1974	702	Float
1938	2,668*	Weir	1975	1,180	Float
1939	2,117	Weir	1976	1,933	Weir
			1977	1,872	Weir
1940	903	Weir	1978	1,103	Weir
1941	2,594	Weir	1979	1,754	Weir
1942	2,543	Weir			
1943	3,546*	Weir	1980	1,125	Weir
1944	2,906	Weir			
1945	1,458	Weir			
1946	4,284	Weir			
1947	5,077	Weir			
1948	3,744	Weir			
1949	1,978	Weir			

*Weir was washed out part of the time.

Table 3. Estimates of spawning abundance of chinook salmon for selected Southeast Alaska systems.

<u>King Salmon River (Admiralty Island)</u>			<u>Keta River</u>		
<u>Year</u>	<u>Chinook</u>	<u>Method</u>	<u>Year</u>	<u>Chinook</u>	<u>Method</u>
1957	200	Foot	1948	500	Foot
1961	117	Foot	1950	210	Foot
1971	94	Foot	1951	120	Foot
1972	90	Foot	1952	462	Foot
1973	211	Foot	1953	156	Foot
1974	104	Foot	1954	300	Air
1975	42	Foot	1955	1,000*	Air
1976	65	Foot, Helicopter	1956	1,500*	Air
1977	134	Foot, Helicopter	1957	500*	Air
1978	57	Foot, Helicopter	1961	44	Foot
1979	88	Foot, Helicopter	1975	203	Helicopter
1980	70	Foot, Helicopter	1976	84	Helicopter
			1977	230	Helicopter
			1978	392	Helicopter
			1979	426	Helicopter
			1980	192	Helicopter

<u>Blossom River</u>		
<u>Year</u>	<u>Chinook</u>	<u>Method</u>
1961	68	Foot
1963	825	Air
1972	500	Air
1974	166	Helicopter
1975	153	Helicopter
1976	68	Helicopter
1977	112	Helicopter
1978	143	Helicopter
1979	54	Helicopter
1980	89	Helicopter

<u>Unuk River</u>		
<u>Year</u>	<u>Chinook</u>	<u>Method</u>
1961	673	Foot
1962	331	Air
1963	1,070	Air
1968	650	Air
1969	475	Air
1972	885	Air
1973	182	Air
1975	55	Helicopter
1976	198	Helicopter, weir-foot
1977	1,166	Helicopter, weir-foot
1978	1,765	Helicopter, weir-foot
1979	576	Helicopter, weir-foot
1980	1,052	Helicopter, weir-foot

<u>Chickamin River</u>		
<u>Year</u>	<u>Chinook</u>	<u>Method</u>
1961	336	Foot
1962	775	Air
1963	450	Air
1969	345	Air
1972	860	Air
1973	229	Helicopter
1974	176	Helicopter
1975	351	Helicopter
1976	122	Helicopter
1977	235	Helicopter
1978	181	Helicopter
1979	140	Helicopter
1980	261	Helicopter

*Probably mixed chinook & chum salmon

MINIMUM ESCAPEMENT GOALS FOR CHINOOK SALMON RUNS TO SELECTED
SOUTHEAST ALASKA SYSTEMS, ESTIMATED POTENTIAL
CHINOOK SALMON HARVEST FROM ALL SOUTHEAST ALASKA SYSTEMS
FROM MINIMUM ESCAPEMENT GOALS AND FROM CURRENT
ESCAPEMENT LEVELS.

Table 4. Minimum chinook salmon escapement goals and percent achievement in 1980 for selected spawning systems in Southeast Alaska (ADF&G-80).

<u>System (Tributary)</u>	<u>Type of Count</u> ^{1/}	<u>Minimum Escape. Goal</u> ^{2/}	<u>1980 Survey</u>	
			<u>Escapement Estimate</u>	<u>% of Minimum Escape. Goal</u>
<u>Major Producers (runs of 10,000 and greater - 3 systems)</u>				
Alsek (Kluckshu)	Weir/Total	3,200 ^{3/}	1,401	44%
Taku (Nakina)	Aerial/Peak	9,000	4,500	50%
Stikine (Little Tahltan)	Aerial/Peak	2,100	2,137	<u>100%</u>
			Average	65%

Note: Management escapement goals are currently established only for the above tributaries of the major producing systems since these tributaries have been most consistently and extensively surveyed. These tributaries are currently thought to account for approximately 64%, 40% and 25% respectively of total system production.

Medium Producers (runs of 1,500 to 10,000 - 8 systems)

Situk	Weir/Total	5,100	1,125	22%
Unak	Aerial/Peak	1,800	1,052	58%
Chickamin	Aerial/Peak	900	261	29%
Wilson/Blossum	Aerial/Peak	800	89	11%
Keta	Aerial/Peak	500	192	<u>38%</u>
			Average	<u>32%</u>

Minor Producers (runs of 1,500 and less - 22 systems)

King Salmon	Aerial/Peak	200	70	35%
-------------	-------------	-----	----	-----

^{1/} "Weir/Total" counts are counts of fish moving past a weir and are generally considered total counts of spawning fish within the range of precision normally associated with the weir counts, say $\pm 10\%$. "Aerial/Peak" counts are aerial survey estimates of fish on the spawning grounds during the peak spawning period. These estimates generally account for 50% or more of the total spawning population surveyed depending on physical characteristics of the watershed and migration and spawning characteristics of the particular stock. "Aerial/Peak" counts are used as indices or relative measures of total spawner abundance.

^{2/} The minimum escapement goals are maximum escapements observed during surveys conducted generally since the 1950's (except for the Situk River). These are not considered estimates of optimum escapement, but represent current minimum management goals.

^{3/} Similarities in early historical catch patterns for the Alsek, Taku and Stikine terminal fisheries suggest that the current minimum escapement goal for the Alsek may be proportionately lower than the optimum level than for the Taku and Stikine.

Table 5. Estimates of potential average annual harvest from current minimum escapement goals for natural chinook salmon runs to Southeast Alaska systems (cont. p. 1/2) (ADF&G-80).

Assumptions		Major Systems (3 Total)				Medium Systems	Minor Systems	All Systems
Average Counting Rate for Aerial/ ^{1/} Peak Surveys	Average Return Per Spawner Ratio (Harvest Rate)	Alsek	Taku	Stikine	Subtotal	(8 Total)	(22 Total)	Total
50%	1.5:1 (33%)	2,500	15,000	8,400	25,900	9,500	4,400	39,800
	2:1 (50%)	5,000	30,000	16,800	51,800	19,100	8,800	79,700
	2.5:1 (60%)	7,500	45,000	25,200	77,700	28,600	13,200	119,500
	3:1 (67%)	10,000	60,000	33,600	123,600	38,200	17,600	179,400
	3.5:1 (71%)	12,500	75,000	42,000	129,500	47,800	22,000	199,300
75%	1.5:1 (33%)	2,500	15,000	5,600	23,100	7,200	3,000	33,300
	2:1 (50%)	5,000	30,000	11,200	46,200	14,400	5,900	66,500
	2.5:1 (60%)	7,500	45,000	16,800	69,300	21,600	8,900	99,800
	3:1 (67%)	10,000	60,000	22,400	92,400	28,800	11,800	133,000
	3.5:1 (71%)	12,500	75,000	28,000	115,500	36,000	14,800	166,300
				Average	75,500	25,100	11,000	111,700
				High	129,500	47,800	22,000	199,300
				Low	23,100	7,200	3,000	33,300
				Approximate Percent Contribution	70%	20%	10%	

^{1/} Unless specified otherwise in the explanatory notes below.

Table 5. Estimates of potential average annual harvest from current minimum escapement goals for natural chinook salmon runs to Southeast Alaska systems (cont. p. 2/2) (ADF&G-80).

Notes on Computations and Assumptions

1) Major Systems

Alsek - An average Kluckshu contribution of 64% is assumed based on the average observed Kluckshu escapement compared to escapement to other tributaries. Thus the total minimum escapement goal for the Alsek system is $3,200 \div .64 = 5,000$ fish.

Taku - An average Nakina contribution of 40% is assumed. An aerial/peak survey counting rate of 75% is assumed for the Nakina tributary. Thus, the total minimum escapement goal for the Taku system is $(9,000 \div .40) \div .75 = 30,000$ fish.

Stikine - An average Little Tahltan contribution of 25% is assumed. Thus, the total minimum escapement goal for the Stikine system is $2,100 \div .25 = 8,400$ plus an adjustment for the aerial/peak counting rate.

2) Medium Systems

The weir/total minimum escapement goal of 5,100 fish is used for the Situk River. Based on the other four medium systems surveyed, an average aerial/peak minimum escapement goal per system of 1,000 fish is assumed. At a 50% counting rate for aerial/peak surveys, this yields a total minimum escapement goal of 19,100 fish for all eight medium systems while a 75% counting rate yields 14,400.

3) Minor Systems

An average aerial/peak minimum escapement goal per minor system of 200 fish is used. At a 50% counting rate for aerial/peak surveys, this yields a total minimum escapement goal of 8,800 fish for all 22 minor systems while a 75% counting rate yields 5,900.

Table 6. Estimates of potential average annual harvest from average 1978-80 escapements to chinook salmon systems in Southeast Alaska (cont. p. 1/2) (ADF&G-80).

Assumptions

Average Counting Rate for Aerial/ Peak Surveys ^{1/}	Average Return Per Spawner Ratio (Harvest Rate)	Alsek	Major Systems (3 Total)			Medium Systems (8 Total)	Minor Systems (22 Total)	All Systems Total	
			Taku	Stikine	Subtotal				
50%	1.5:1 (33%)	1,620	4,570	5,250	11,440	3,500	1,580	16,520	
	2:1 (50%)	3,250	9,140	10,500	22,890	7,010	3,170	33,070	
	2.5:1 (60%)	4,880	13,710	15,750	34,340	10,520	4,760	49,620	
	3:1 (67%)	6,500	18,280	21,000	45,780	14,020	6,340	66,140	
	3.5:1 (71%)	8,120	22,850	26,250	57,220	17,520	7,920	82,660	
75%	1.5:1 (33%)	1,620	4,570	3,500	9,690	2,560	1,060	13,310	
	2:1 (50%)	3,250	9,140	7,000	19,390	5,110	2,110	26,610	
	2.5:1 (60%)	4,880	13,710	10,500	29,090	7,660	3,160	39,910	
	3:1 (67%)	6,500	18,280	14,000	38,780	10,220	4,220	53,220	
	3.5:1 (71%)	8,120	22,850	17,500	48,470	12,780	5,280	66,530	
					Average	31,710	9,090	3,960	44,760
					High	57,220	17,520	7,920	82,660
					Low	9,690	3,500	1,060	13,310
Approximate Percent Contribution						70%	20%	10%	

^{1/} Unless specified otherwise in the explanatory notes below.

Table 6. Estimates of potential average annual harvest from average 1978-80 escapements to chinook salmon systems in Southeast Alaska (cont. p. 2/2) (ADF&G-80).

Notes on Computations and Assumptions

1) Major Systems

Alsek - An average Kluckshu contribution of 64% is assumed based on the average observed Kluckshu escapement compared to escapements to other tributaries. The average 1978-80 weir/total escapement to the Kluckshu was 2,082 fish. Thus the estimated total 1978-80 average escapement to the Alsek system is $2,082 \div .64 = 3,253$.

Taku - An average Nakina contribution of 40% is assumed. An aerial/peak survey counting rate of 75% is assumed. The average 1978-80 aerial/peak escapement to the Nakina was 2,743 fish. Thus the estimated total 1978-80 average escapement to the Taku system is $(2,743 \div .40) \div .75 = 9,143$.

Stikine - An average Little Tahltan contribution of 25% is assumed. The average 1978-80 aerial/peak escapement to the Little Tahltan was 1,312 fish. Thus the estimated total 1978-80 aerial/peak escapement to the Stikine system is $1,312 \div .25 = 5,248$ plus an adjustment for the assumed aerial/peak counting rate.

2) Medium Systems

The average 1978-80 weir/total escapement for the Situk River is 1,327. The average 1978-80 aerial/peak escapement per system for the four medium systems thus surveyed is 406. Expanding these rates to all eight systems yields average 1978-80 total escapement estimates of 7,011 assuming a 50% aerial/peak counting rate and 5,114 assuming a 75% counting rate.

3) Minor Systems

The average 1978-80 aerial/peak escapement for the King Salmon River is 72 fish. Expanding this to all 22 minor systems yields 3,168 if a 50% counting rate is assumed and 2,112 if a 75% counting rate is assumed.

ESTIMATED POTENTIAL INCREASE OF CHINOOK SALMON SPAWNERS
TO SOUTHEAST ALASKA SYSTEMS FROM PROPOSED REGULATIONS
AND PROJECTED FUTURE INCREASES IN CHINOOK SALMON
HARVESTS FROM INCREASED ESCAPEMENTS AND FROM
SUPPLEMENTAL PRODUCTION

Table 7. Estimated Potential Increase of King Salmon Spawners to Southeast Alaska Systems in 1981 from Proposed Harvest Regulation Changes (ADF&G-80)

Proposed Regulation Changes	1978-80 Average Period Catch		Est. Increase of Alaskan King Spawners in 1981
	Mature and Immature of all Origins	Est. Mature of Alaskan Origin	
1) May 15 opening date for troll fishery in outer coastal areas (compared to April 15 in 1980)	20,100 4-15 to 5-15	3,350	2,510
2) Eleven fishing days in May for troll fishery in intermediate corridor areas 9, 10, 12 and 14 (compared to 19 fishing days in 1980)	2,780	2,080	1,560
3) Move inner boundary of Taku R. gillnet fishery outward to Bishop Pt./Cooper Pt. area during first 3 weeks of sockeye fishery (Compared to Jaw Pt. in 1980)	1,270	640	480
4) Juneau area sport fishery closure from May (1) to (14).	400	300	220
		TOTAL	4,770

Notes and Assumptions

- 1) It is assumed that (i) one third of the kings harvested in outer coastal areas during Mid-April to mid-June are of Alaskan origin, (ii) 50% of the Alaskan kings are mature and (iii) 75% of the mature Alaskan kings will evade corridor and terminal area fisheries and spawn.
- 2) It is assumed that (i) 75% of kings harvested in corridor areas 9, 10, 12 and 14 in early May are mature spawners and (ii) 75% of these spawners will evade other corridor and terminal area fisheries and spawn. (A sample of king salmon harvested by troll gear in late April 1980 in the inside portion of district 14 (Icy Straits) consisted of 80% mature fish.)
- 3) It is assumed that (i) 50% of kings harvested incidentally during the first three weeks of the Taku/Snettisham gillnet sockeye fishery beginning the third Monday in June are mature spawners and (ii) 75% of these will evade this fishery and the Canadian river fishery and spawn. (A sample of 1,491 kings harvested in 1980 by the Taku/Snettisham gillnet fishery consisted of 47% mature fish.)
- 4) It is assumed that (i) 75% of kings harvested in the Juneau area sport fishery during early May are mature fish of Alaskan origin and (ii) 75% of these will evade other terminal area fisheries and spawn.

Table 8. Estimated Potential Increase in Chinook Salmon Spawners to Southeast Alaska Systems Per 10,000 Fish Reduction in the Harvest of Immature Fish (ADF&G-80).

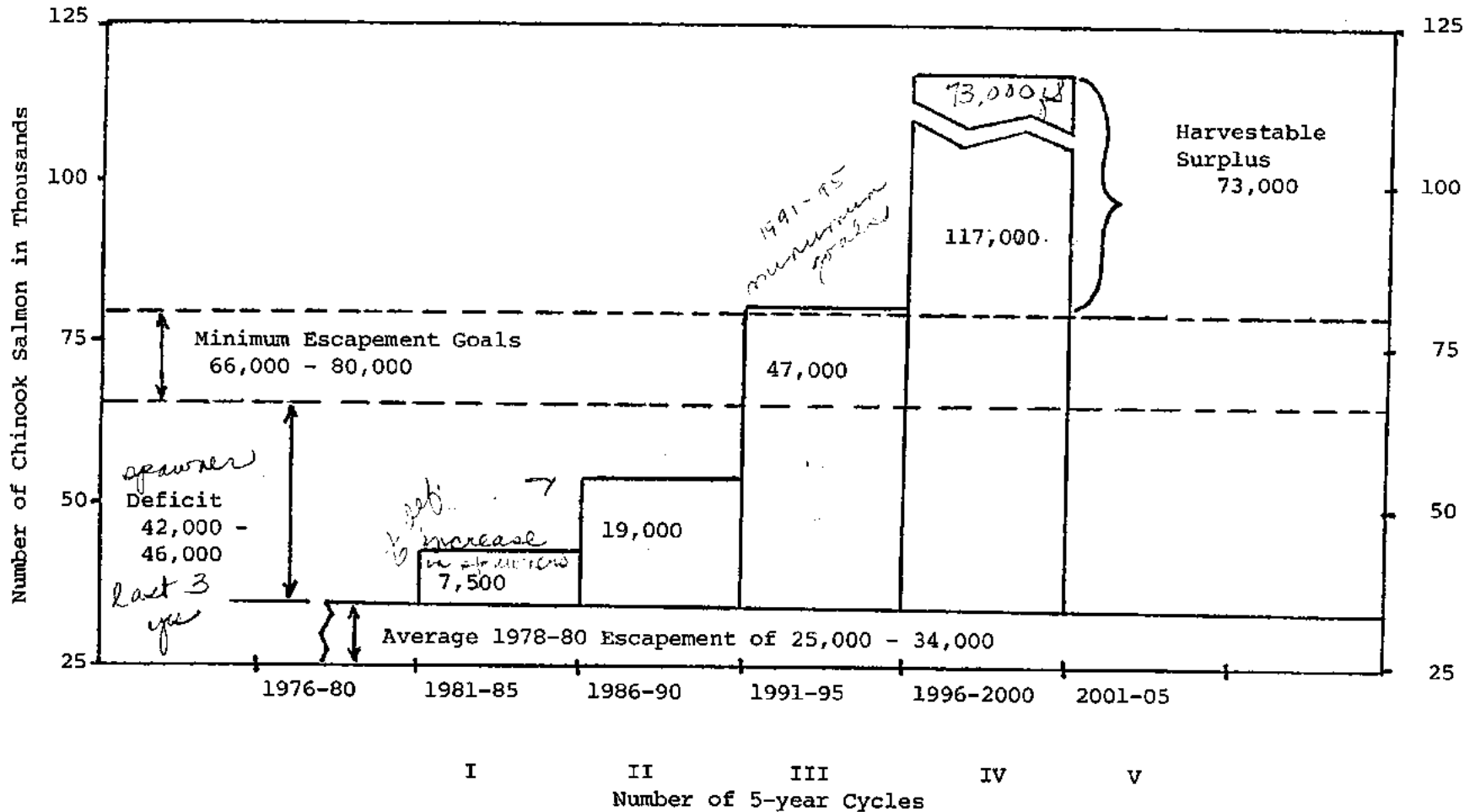
	Assumed Percent of Immature Fish of Alaskan Origin		
	10%	20%	30%
	10,000	10,000	10,000
1.) Reduction due to Non-Alaskan stocks	 9,000	 8,000	 7,000
2.) Reduction due to Natural Mortality @ 33% per year	 333	 666	 999
3.) Reduction due to Harvest of Mature Alaskan spawners @ 25% ^{1/}	 167	 334	 501
Remaining Alaska Spawners	500	1,000	1,500
Estimated number of Alaska spawners from a reduction of 27,000 in the immature harvest	1,350	2,700	4,050

^{1/} The assumed harvest rate of 25% for mature Alaskan spawners is based on the fishery regulations proposed by ADF&G for the 1981 season.

Table 9. Estimated Increase in Chinook Salmon Spawners to Southeast Alaska Systems in 1981 and Subsequent Years from Proposed Reductions of Mature and Immature Harvests by Southeast Alaska Fisheries.

Proposed Reduction of Southeast Alaska Chinook O.Y. by 10% or 32,000 Fish	Year of Expected Increase				
	1981	1982	1983	1984	1985
Estimated increase in spawners due to proposed regulations to reduce the harvest of mature fish by approximately 5,000 fish	4770	4770	4770	same as 1983	
Estimated increase in spawners due to proposed reduction of immature salmon harvest by 27,000 beginning in 1981					
1. Assume 30% of immature fish are of Alaskan origin	0	2025	4050		
Est. total increase in spawners	4770	6795	8820		
2. Assume 20% of immature fish are of Alaskan origin	0	1350	2700		
Est. total increase in spawners	4770	6120	7470		
3. Assume 10% of immature fish are of Alaskan origin	0	675	1350		
Est. total increase in spawners	4770	5445	6120		

Figure 7. Projected Average Increases in Chinook Salmon Escapements to Southeast Alaska Systems from Proposed 10% Reduction of the Southeast Alaska Commercial Chinook Salmon Harvest Ceiling from 320,000 to 288,000 in 1981.



Note: The projected increases in escapements are based on an assumed 3:1 adult return per spawner ratio adjusted downward to 2.5:1 for harvest in fisheries not currently limited by the O.Y. Catch ceiling.

Figure 8. Projected Future Increases in Southeast Alaska Chinook Salmon Harvests from Proposed Increased Escapements to Southeast Alaska Systems Beginning in 1981 and from Planned Supplemental Hatchery Production

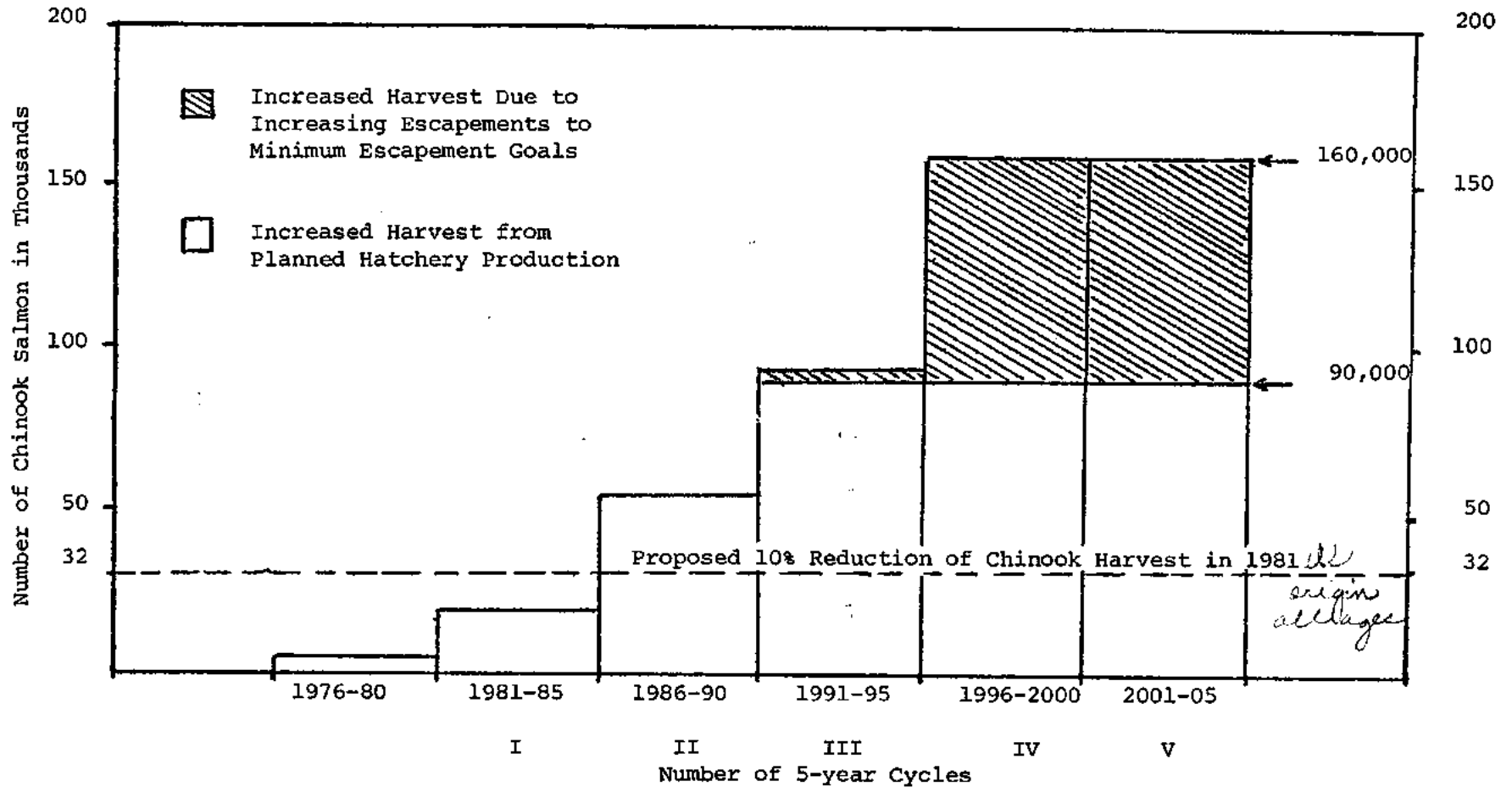
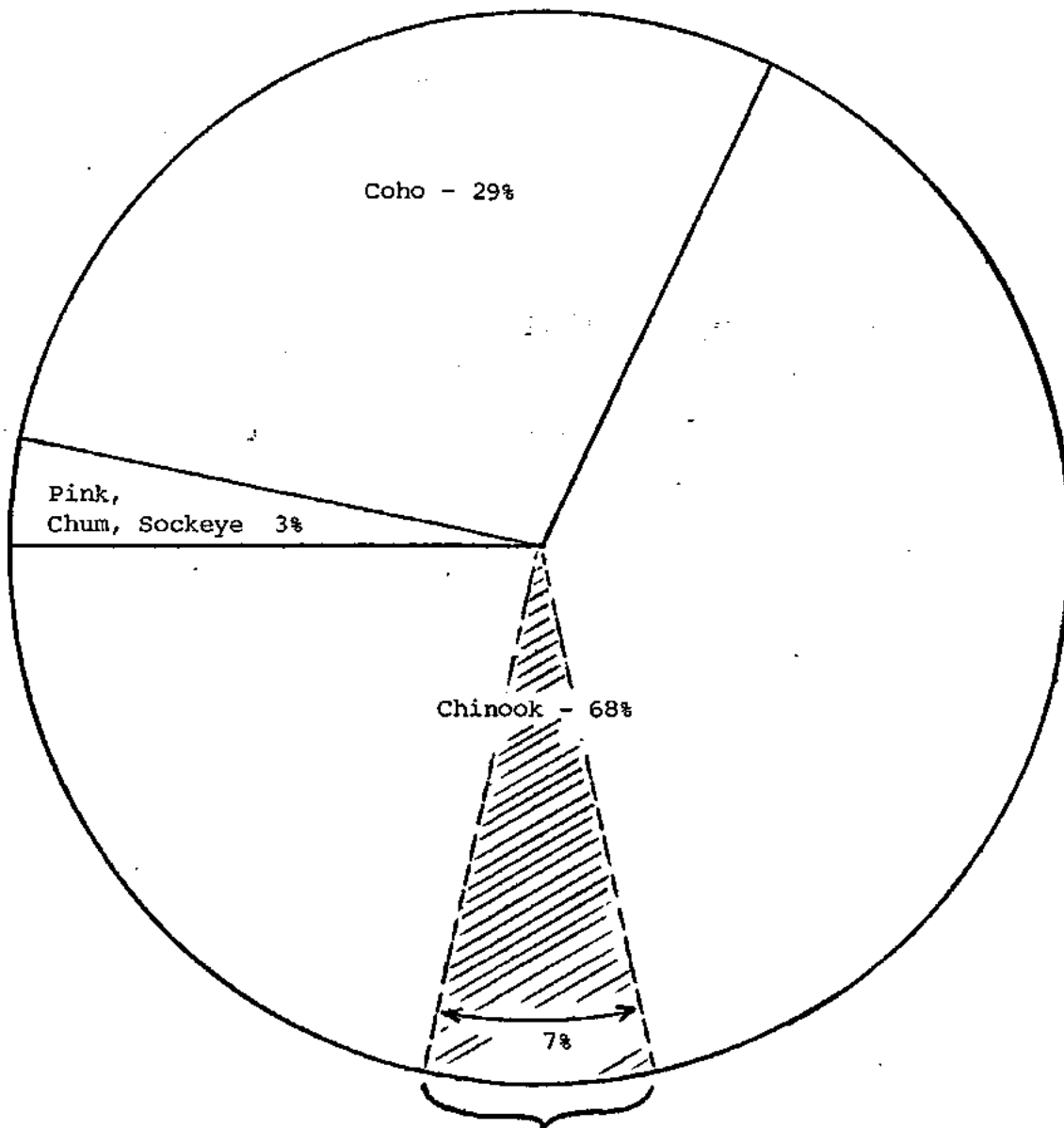


Figure 9. Relative Value to Fishermen of Chinook, Coho and Other Species of Salmon Harvested in the Southeast Alaska Troll Fishery in 1980 (Preliminary Data)

	<u>Chinook</u>	<u>Coho</u>	<u>Pink, Chum & Sockeye</u>	<u>Total</u>
Catch in 1000's lbs.	4,786	4,598	1,042	10,426
Value in \$1000's	\$10,768	\$4,598	\$456	\$15,822
Percent of Total Value	68%	29%	3%	100%



Relative Value of Proposed
10% Reduction in Numbers of
Chinook Salmon to be Harvested
in 1981.

Record

HOMAN-McDOWELL

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THE SOCIOECONOMIC IMPACT OF THE SALMON
POWER TROLL INDUSTRY IN SOUTHEAST ALASKA
A COMPARATIVE ANALYSIS

FOR:

Alaska Trollers Association
Stanley Reddekopp, President
Lewis Schnaper, Executive Director
Juneau, Alaska

BY:

D. Eric McDowell
Homan-McDowell
Economic and Management Consultants
Juneau, Alaska
November 1980

HOMAN-McDOWELL

Economic and Management Consultants

Frank Homan
Eric McDowell
Peter McDowell

November 24, 1980

Mr. Lewis Schnaper
Executive Director
Alaska Trollers Association
205 North Franklin Street
Juneau, Alaska 99801

Dear Lewis:

The following study is a socio-economic analysis of the power troll industry in the Southeast region of Alaska. The study was done primarily by comparing the power troll fleet with other salmon fleets in the region in terms of economic value, employment, income and investment. The study also includes an analysis of trends in power troll fishing effort, since effort has been a key issue in justifying state and federal management decisions which affect the economic viability of the power troll industry.

As professional economists and researchers who have spent our careers studying the Alaska economy and its industries, we have taken care to use sound data, so that conclusions drawn from these data are firmly based on the best available information. Our combined four decades of experience have also taught us to recognize data which are not sound, and to question their use as we have done in one instance in this study.

All data used in our analysis are from reliable and objective sources, including the Alaska Commercial Fisheries Entry Commission, Alaska Department of Labor, the Troll Log Book Program, Alaska Department of Fish and Game and the Alaska Sea Grant Program.

Since the purpose of this study is to provide data for the power troll industry to use in publicizing and defending itself, there is a power troll bias to the narrative as an effort was made to point out its economic role to readers who may not have been completely aware of the economic information presented herein.

On the other hand, it is important to again point out that the data are reliable, neutral and objective, and that most conclusions drawn from them are obvious to readers holding all points of view on power troll issues.

The primary conclusions of this study which are of most significance to the power troll industry and to managers of that fishery are:

- 1) Power trolling is, by a number of economic measures, a very significant economic force in the region, particularly in comparison to other salmon fleets. It then follows that management decisions affecting the region's largest permit fishery will have important socio-economic implications to the South-east Alaska economy and population.
- 2) Power trolling has become a more economically viable fishery in recent years, particularly in comparison to other fisheries in the region.
- 3) A variety of sound data sources indicate power troll effort has increased only modestly in recent years, and not dramatically as implied by some seeking to justify more restrictive management measures. Further, it is apparent that these moderate increases in effort are justified primarily by the fact that fishing has improved in the troll fishery in recent years, as it has in virtually every other salmon fishery in the region and the state. Finally, preliminary 1980 data indicate power troll effort has stabilized as a response to lower 1980 catches and is no longer increasing.
- 4) Existing ADF&G catch and effort data for the Fisheries Conservation Zone for recent years are generally recognized by most fisheries professionals as erroneous and unreliable due to reporting problems in outside waters.
- 5) The power troll fleet is receiving continually decreasing allocations of both king and coho catches in recent years while allocations of these species to other gear types are increasing.

It has been a pleasure to work with yourself and Bruce Bachen, ATA Troll Biologist, and we hope this study will be of assistance to your organization.

Sincerely,



D. Eric McDowell
Partner

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PURPOSE

The purpose of this study is to quantify for the first time the socio-economic role of the power troll fleet in the salmon fishing industry and economy of Southeast Alaska. Such questions as: "How valuable is the power troll catch and how does this compare to other major fisheries in the region?" are answered. The power troll fishery is also measured in terms of employment, resident Alaskan participation, financial support of regional aquaculture associations, active permits, fishing effort, average income, and investment in vessels, permits and gear.

Since this study concerns the role of the power troll fleet within the salmon fishing industry, much of the data also includes other elements of the region's salmon fishery: gillnet, seine and hand troll. This not only helps to quantify the power trollers' position in the fishery but compares it to other fleets which may be better known to many observers and decision makers.

The Alaska Trollers Association intends for this information to serve two groups:

- 1) The Alaska Trollers Association itself will use this information to better understand the large fleet which it represents and to provide for the long run economic health of that fleet.
- 2) It is hoped that federal and state decision makers might use this information to be more informed as to the scope and nature of the \$20 million Alaska power troll industry when making decisions which have socio-economic implications. This is particularly important as the Southeast Alaska power troll fleet is the region's most important in terms of size, investment in vessels, permits and gear, income to Alaska residents, resident participation, fish harvesting employment, voluntary financial support of regional aquaculture associations and, in 1979, financial return to vessel owners and operators.

SUMMARY OF FINDINGS

Economic Value

- Power trolling was a \$22 million industry in 1979 in terms of catch value. This compares to \$24 million for the seine fleet and \$12 million for the gillnet fleet, according to the Commercial Fisheries Entry Commission.
- Between 1976 and 1979 power trolling accounted for a total catch value of \$59 million compared to \$87 million for seine catches and \$42 million worth of gillnet catches. Hand trollers took \$16.7 million during the same period.
- In terms of value to Alaskan residents, the power troll fleet was the region's most important in 1979, providing \$15 million in gross income to residents. Over the last four years power trolling and seining have provided residents with about the same amount of income.

Employment

- The power troll fleet, according to the Alaska Department of Labor, provided 31% of the region's salmon harvesting employment in 1976, the only year for which data is available.
- Power trolling accounted for an estimated total harvesting and processing employment of 744 in 1976.
- Total fisheries employment in Southeast Alaska is approximately equal to that of the logging, lumber and pulp industry.

Income and Investment

- The average power troller grossed \$26,000 in 1979, the same as the average gillnetter.
- The average power troller has \$128,000 invested in vessel, permit and gear.
- The power troll fleet as a whole has the greatest total investment in vessels, gear and permits, an estimated \$97 million, \$69 million of this by Alaskans.
- The power troll fleet provides the Southeast regional aquaculture associations (RAA) with an estimated one-half of their voluntary income and one-third of their voluntary membership.
- The power troll fleet has the highest rate of voluntary RAA participation, 45%, of any group. Seiners have a 13% participation rate, the lowest rate.

Resident Participation

- Seventy-eight percent of power troll permit holders are resident Alaskans, the highest among the Southeast permit fisheries. This compares to 71% for gillnetters and 47% for seine permit holders.
- In 1979, 20 more residents held power troll permits, 15 more held gillnet permits and 12 fewer residents held seine permits, than in 1976.

Effort

- Total power troll landings have increased by 4% annually between 1976 and 1979.
- The number of power troll permits fished has increased 3.1% annually since 1976. This is less than the 4.4% increase for seiners and 21.3% increase for hand trollers but more than the 0.8% annual increase for gillnetters.
- Effort in terms of days fished per season and hours fished per day has remained unchanged since 1976, according to statistical analysis of the Troll Log Book Program.
- As of 1979, about 2/3 of the power troll fleet was of wood construction with an average boat age of 37 years.
- Less than 1/4 of the fleet is fiberglass. These vessels average 40.1' in length, 2' longer than the wood vessel average of 38.1'.
- In 1979, 814 power troll permits were fished, as were 449 gillnet and 320 seine permits. Active handtroll license holders totaled 2,210. In 1978 and 1979, king salmon catches in Southeast Alaska increased 20% above the 10-year average. In the remainder of Alaska where no power troll effort exists king salmon catches exceeded the 10-year average by 47%. King salmon abundance appears to be consistent with increased abundance of other species throughout Alaska in recent years.

Value of Catch to Alaskan Fishermen

It is obvious that each fishery is important to the economy of the region. For example, the hand troll harvest alone, a relatively small portion of the total, is worth about the same as Alaska's entire farming industry. Annual agricultural production in Alaska runs between \$4-5 million while hand troll harvests have averaged \$4-6 million in recent years.

However, another comparison of economic value is the value of each fishery to residents of Alaska. It is common knowledge that a certain proportion of each fleet consists of non-resident fishermen, and that this proportion varies considerably depending on the fishery under discussion.

By means of correlating residency data provided by the CFEC with the results of an extensive Sea Grant survey of fishermen's income in 1979, a reasonable estimate can be made of the value of catch by both residents and non-residents engaged in each fishery.

This calculation is a refinement for establishing the value of the salmon fisheries to the Southeast region of Alaska. The following table takes into consideration the percentage of permits held by residents plus the differences in fishing success between residents and non-residents as shown in the Sea Grant survey. The most exceptional fact regarding residency was that the majority (53.3%) of seine permit holders were non-resident while gillnetters and trollers were heavily resident, 71.3% and 77.6% respectively. In terms of fishing success, non-resident trollers did significantly better than residents, while in the seine and gillnet fleets, residents were slightly more successful than their out-of-state counterparts.

ECONOMIC VALUE

Value of Catch

Power trolling in Southeast Alaska is a \$20 million industry in terms of catch value. In 1979, according to the Alaska Commercial Fisheries Entry Commission, (CFEC), 814 power troll permit holders took salmon worth \$21,594,000, accounting for over 1/3 of the region's total salmon catch value. This placed power trolling value slightly below the Southeast seine fleets' \$23,699,000 catch while it nearly doubled the \$11,933,000 worth of salmon which the region's gillnet fleet harvested that same year.

Individual fisheries vary in value from one year to the next, so perhaps better measures of the economic importance of Southeast Alaska's salmon fleets would be four-year totals and averages for the 1976-79 period for which the CFEC has estimated catch values. The following table shows the average annual catch value, total catch value and percent of total value for this period which includes poor and good years for all fleets:

SOUTHEAST SALMON CATCH VALUE 1976-1979 (Million \$)

<u>Fleet</u>	<u>Annual Average</u>	<u>4-Year Total</u>	<u>% of 4-Year Total</u>
Seine	\$21.8	\$ 87.3	42.4%
POWER TROLL	14.8	59.4	28.9%
Gillnet	10.6	42.3	20.6%
Handtroll	<u>4.2</u>	<u>16.7</u>	<u>8.1%</u>
TOTAL	\$51.4	\$205.7	100.0%

Source: Derived from data provided by the Alaska Commercial Fisheries Entry Commission.

Basically, the table shows the power troll fleet's economic position among fisheries in the region as being considerably below the seine fleet and somewhat above that of the gillnet fleet.

Taking these factors into consideration, the following table shows the estimated value of salmon catch to resident Alaskan fishermen.

SOUTHEAST SALMON CATCH VALUE TO ALASKAN RESIDENT FISHERMEN ONLY, 1979

<u>Fleet</u>	<u>Total Catch Value</u>	<u>% Total Value Caught By Alaskan Residents</u>	<u>Value of Catch By Alaskan Residents</u>
POWER TROLL	\$21,594,000	70.1%	\$15,137,400
Seine	23,699,000	47.6%	11,280,700
Gillnet	11,933,000	73.0%	8,711,100
Hand troll	<u>6,124,000</u>	<u>85.4%</u>	<u>5,229,900</u>
TOTAL	\$63,350,000	63.7%	\$40,359,100

Source: Derived from data provided by Alaska Sea Grant program study of fishermen's income, 1979, and the CFEC.

Analysis of this table reveals that when catch value by Alaskan residents is considered, the power troll fleet becomes the region's most important salmon fleet, followed in order by the seine, gillnet and hand troll fleets.

If these resident catch percentages are applied to the 1976-79 four-year totals then the power troll and seine catch values to Alaskan fishermen are approximately equal. However, since data on fishing success differentials are available only for 1979, they may not apply accurately for prior years. Still, it is probably safe to assume that the general conclusion on the relative values of the fleets is valid, if not statistically precise.

ECONOMIC VALUE OF SALMON CATCH BY GEAR TYPE, SOUTHEAST ALASKA (\$000)

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>4-Year Average</u>
POWER TROLL	\$ 8,362	\$12,129	\$17,272	\$21,594	\$14,839
<u>Hand troll</u>	<u>1,504</u>	<u>3,428</u>	<u>5,661</u>	<u>6,124</u>	<u>4,179</u>
TOTAL TROLL	9,866	15,557	22,933	27,718	19,019
Gillnet	8,630	11,991	9,730	11,933	10,571
<u>Seine</u>	<u>11,069</u>	<u>24,826</u>	<u>27,675</u>	<u>23,699</u>	<u>21,817</u>
TOTAL	\$29,565	\$52,374	\$60,338	\$63,350	\$51,407

Source: Commercial Fisheries Entry Commission

	<u>%</u>				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>4-Year Average</u>
POWER TROLL	28.3%	23.2%	28.6%	34.1%	28.9%
<u>Hand Troll</u>	<u>5.1%</u>	<u>6.5%</u>	<u>9.4%</u>	<u>9.7%</u>	<u>8.1%</u>
TOTAL TROLL	33.4%	69.7%	38.0%	43.8%	37.0%
Gillnet	30.2%	22.9%	16.1%	18.8%	20.6%
<u>Seine</u>	<u>37.4%</u>	<u>47.4%</u>	<u>45.9%</u>	<u>37.4%</u>	<u>42.4%</u>
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

EMPLOYMENT

Fish Harvesting Employment

Fish harvesting employment has long been an unknown quantity to Alaskan economists, due to the fact that neither fishermen's income nor employment are reported in the standard format for Wage and Salary Employment. As a result, the Alaska Department of Labor has not reported fish harvesting employment as part of its otherwise accurate labor data system.

The fishing industry in Alaska, which has employment approximately three times as great as the state's logging, lumber and pulp industry, was finally quantified in standard statistical terms in 1979. By means of a milestone study of 1976 fish harvesting data, Measuring the Socio-Economic Impacts of Alaska's Fisheries, Dr. George Rogers and Richard Listowski compiled fish harvesting employment in terms of effort months and provided the first estimates of fish harvesting employment which could be correlated and compared with standard labor data from all other industries.

Thus far, fish harvesting employment has been calculated only for the year 1976. But even this provides an estimate of the relative importance of Southeast Alaska's salmon fleets as far as employment is concerned. And this 1976 data can be further refined by revising crew factors in accordance with the 1979 survey by the Sea Grant program. The following table details this revision of 1976 fish harvesting employment:

Fish Harvesting Employment, Southeast Alaska, 1976
(Expressed as annual Equivalents)

	<u>Crew Factors (Incl. Skipper)</u>		<u>Estimate Employment</u>	
	<u>Original¹</u>	<u>Revised²</u>	<u>Original¹</u>	<u>Revised³</u>
POWER TROLL	1.5	2.0	381	508
Seine	5.5	5.8	329	347
Gillnet	1.5	1.9	223	282
Hand Troll	1.0	1.7	262	445
Other Salmon	--	--	41	41
<u>All Other Species</u>	<u>--</u>	<u>--</u>	<u>380</u>	<u>380</u>
TOTAL			1,616	2,003

¹Source: Measuring the Socio-Economic Impacts of Alaska's Fisheries, Dr. George Rogers and Richard Listowski, (Estimated crew size based on interviews)

²Source: Alaska Sea Grant Program Survey of Fishermen's Income and Investment, 1979. (Crew size based on actual survey results with sample sizes varying from 44 to 275)

³Note: Estimated Employment determined by recalculating 1976 data using revised factors from 1979 study. It is felt that actual survey results provided more accurate crew factors than the estimating method used in Rogers' and Litowski's original 1976 calculations. The intent in this revision is to more accurately reflect salmon harvesting employment in all fleets.

The table shows employment by fleet in terms of 12-month annual equivalents. Employment in all other industries is also expressed in annual equivalents. For example, four seine crew members working three months each are counted as 1 employee for the year.

The power troll fleet is the largest employer with 508 annual equivalents for 1976. This is caused by two factors. One, the troll season is longer (about

5 months) than the seine or gillnet seasons. Thus more effort months are spent by power troll skippers and their crews. The second reason is simply the larger size of the power troll fleet -- which has about 810 vessels active in the fishery. This compares to about 450 gillnet and 320 seine vessels.

Fish Processing Employment

This category of employment falls under the Department of Labor's standard data system and is collected each year in an accurate and reliable manner. An estimate of total direct fisheries industry employment can be made by adding 1976 fish processing employment to the revised 1976 fish harvesting employment from the preceding table.

Specifically, fish processing in Southeast Alaska employed an average of 930 people in 1976 while the revised fish harvesting estimate was 2,003. This totals 2,933 for regional fishing industry employment, a number which is in the same economic ball park as the southeastern logging, lumber and pulp industry in 1976.

How much processing employment results from each fishery is not known. Each fishery and each species has some processing labor factor associated with it. But in the absence of this data, and for the purposes of making an estimate of employment resulting from each fishery, total processing employment is simply pro-rated on the basis of harvesting employment in each fishery.

The following table provides estimates of total direct employment resulting from each fleet's activities:

TOTAL FISH HARVESTING AND PROCESSING
EMPLOYMENT, SOUTHEAST ALASKA REGION, 1976

<u>Fishery</u>	<u>Harvesting Employment</u> ¹	<u>Processing Employment</u> ²	<u>Total Direct Employment</u>
<u>Salmon</u>			
POWER TROLL	508	236	744
Seine	347	161	508
Gillnet	282	131	413
Hand Troll	445	206	651
Other	41	19	60
<u>All Other Species</u>	<u>380</u>	<u>177</u>	<u>557</u>
TOTAL	2,003	930	2,933

¹Source: Alaska Department of Labor, Alaska Fisheries Labor Statistics, 1980, p. 10 and factored by revised crew estimates from Alaska Sea Grant survey of Fishermen's Income and Investment, 1979.

²Source: Alaska Department of Labor. Processing employment pro-rated among fisheries on the basis of harvest employment. Although some species may be more labor intensive than others in processing, direct pro-ration is used in the absence of labor data by species.

POWER TROLL EFFORT

A certain amount of controversy arises in the process of managing the power troll fleet when the concept of "effort" is used as a basis for management decisions such as gear limitations, time and area closures, optimum yield levels (quotas) and permit system revisions.

Managers may cite increased efficiency due to vessel upgrading and better electronics, more intense fishing by individual fishermen, more days fished, more permits in use, higher prices stimulating effort and so forth. In interviews with several National Marine Fisheries Service (NMFS), Alaska Department of Fish and Game (ADF&G), North Pacific Fisheries Management Council (NPFMC) and Alaska Board of Fish (ABF) people there was a consistent overriding theme that "something must be done" about the apparent dramatic increase in effort and efficiency in the power troll fleet in recent years. Yet, in the course of these interviews not a great deal of data was provided to document the perceived increase, other than catch and landings in the FCZ and total Southeast king salmon harvests for 1978 and 1979, both good years by recent standards.

On the other hand, some ATA officials, knowledgeable trollers, and officials in the CFEC, ADF&G and NPFMC feel the perceived increase in effort is not well documented and in fact, may not exist at all, or at least not in the crisis proportions perceived by some. There are also opinions that certain management data may have a Washington Department of Fisheries or University of Washington bias, tag analysis methodology is in error, non-biological (i.e. political) influences are driving a hasty and poorly informed decision-making process, serious misconceptions concerning the nature power troll fleet are prevalent among some key decision makers, and that perhaps more and better data should be available before

the NPFMC, ADF&G and ABF make decisions with serious negative socioeconomic consequences to the people of the power troll fleet.

In an effort to sort fact from fiction, a number of data sources which might be considered measures of "effort and efficiency" were reviewed. These are presented here.

Permits Fished

The percentage increase in permits fished in the 4-year period 1976-79 was 3.1% per year for power troll permits. This was an increase, but obviously not a dramatic one. Curiously there was no increase in permits fished following 1978, the best king salmon year since 1953. Apparently good fishing did not stimulate the use of the permits the following year, though an increase did occur from 1977 to 1978. Seine and gillnet permit use increased at higher rates than troll permits between 1977 and 1978. Of course, hand troll licenses increased dramatically, by 21.3% per year. Over the four-year period in which CFEC data was available, seine permit use increased slightly more (4.4% annually) than troll permit use and gillnet permit use remained stable, increasing only 0.8% annually.

A slight decrease is expected in power troll permit use when 1980 data becomes available. Were this to occur, it would further reduce the average annual increase to less than 3%.

TRENDS IN PERMITS FISHED 1976 - 1979

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>Annual % Change</u>
POWER TROLL	742	750	815	814	+ 3.1%
Gillnet	438	437	474	449	+ 0.8%
Seine	281	325	376	320	+ 4.4%
Hand Troll	1,239	1,846	2,627	2,211	+ 21.3%

Source: CFEC

Power Troll Landings

As in permit use, power troll landings showed a modest increase of 4.0% annually between 1976 and 1979. Hand troll landings rose rapidly by 31.9% per year over the same period. Though the power troll increase was modest it certainly has been inflated to some extent by the recent increase in buying stations on the outside coast which would encourage more frequent day or short-trip selling rather than traditional 10-day trip selling.

Total power troll landings do not appear to be an indicator of rapid increase in effort, even though the 1976-1979 period represents a trend from a very poor year, 1975, to two very good years, 1978 and 1979.

TROLL LANDINGS, SOUTHEAST ALASKA

1976 - 1979

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>Annual %</u>
POWER TROLL	12,680	14,319	15,421	14,256	4.0%
Hand Troll	11,079	21,635	32,639	25,403	31.9%

Source: CFEC

FCZ Catch and Landings

Perhaps, the most critical data supporting the most controversial management measure, the OY, is the dramatic rise in reported catch (particularly of king salmon) and landings in the FCZ. It is this trend, coupled with the multitude of woes affecting Washington and Oregon salmon fisheries, plus international fisheries negotiations with Canada, which have brought the Alaska power troll fishery from absolute obscurity and with virtually no management to the regulatory, political and biological forefront in a period of just three years.

The federal government, in the form of the Department of Commerce of which NMFS is an agency and to which NPFMC is an advisory board, must respond to a number of considerations, including trade relations, treaty negotiations, state political and economic concerns and matters of fisheries economics and fish biology insofar as fish biology affects fisheries economics. These factors all must be taken into consideration in fulfilling the mandate of FCMA to devise a fisheries management plan for salmon trolling in the FCZ.

State management of almost all other Alaska salmon fisheries, and the data upon which that management is based, have evolved through decades of trial and error, research and management experience. New developments in these fisheries can be evaluated and handled in the light of this lengthy management experience. Not so with the power troll fishery. The combination of virtually no management history, poor or non-existent data, and the sudden demands on new federal managers has resulted in a flurry, even a snowstorm, of management proposals and counter proposals coming from every direction. Many of these proposals are being incorporated into the salmon troll plan and management system. With new and sometimes conflicting restrictions being proposed every year not even trial and error has had a chance to guide formation of the plan at this point.

The fact that recent data has suggested rapid increases in catch and effort in federal waters has only spurred the hasty development of the present FMP, which includes the only quota in the history of the west coast salmon fishery.

Unfortunately, the data on which some of these decisions have been based is subject to serious reliability questions. There are two reasons to believe the FCZ data are extremely inaccurate and, were the true facts known, hasty and bizarre management action, such as initiating a king salmon OY, need not have been committed.

- 1) It has been common practice in the power troll fleet to report catches as being from waters outside the state's 3-mile jurisdiction in order to avoid the 3% assessment by the regional aquaculture associations. The mandatory assessment coincided in timing with increases in FCZ reported catches. Never enforced, the motivation to report for the 3% assessment was further eroded by the lengthy Alex, et. al. court case which challenged the mandatory assessment and ultimately had it declared unconstitutional. This led to a voluntary system for which only 1/3 of all power trollers, almost entirely residents, signed up. In the meantime 2/3 of all trollers, including almost all of the more productive non-residents who fish primarily outside waters, did not support the idea and did not want 3% of their income tied up until the case finally gets resolved. In addition, many buyers do not care to be responsible for the assessment, and cooperate with the fishermen in marking FCZ areas on fish tickets. The entire assessment process is unreliable and that alone could very well account for a dramatic increase of landings being reported in the FCZ in 1979. When 2/3 of the fishermen do not want to pay the tax it is not difficult to believe that 1/3 of all landings could be reported in non-taxable

areas. At a minimum, erroneous reporting could seriously affect validity of the FCZ data. At worst, it could render the FCZ data worthless for any kind of intelligent decision-making.

2) The threat of separate Fairweather or FCZ permits, in the rumor stage for several years, actually has become a serious proposal the last two years. It is common knowledge that many trips are reported in FCZ waters in case past fishing areas will make a difference in permit eligibility. A very similar situation existed with hand troll licenses. Just the threat of permit limits caused hand troll licenses to reach over 5,000, of which nearly 3,000 were not even fished. It is easy to understand that the threat of an FCZ permit had to affect reported effort in the FCZ. The only question is how much.

With this background the following table is presented as a questionable measure of "effort" in the FCZ. The 1979 data presented here apparently were critical in justifying the imposition of the OY as a catch ceiling in 1980.

FCZ CATCH AND LANDINGS

SOUTHEAST ALASKA 1970 - 1979

	<u>1970-76 Avg.</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
King Catch	41,193	50,045	61,599	116,326
Coho Catch	31,072	9,122	107,572	294,647
Landings	301	337	2,125	5,544

Source: NMFS and ADF&G

From the standpoint of the power troll fleet, the OY concept is the most economically negative management action which has recently been taken, and that decision seems to have been based, at least in part, on the following data, which is of questionable validity.

One interesting aspect of this data is that when you examine the average number of fish (kings and coho combined) per landing from the FCZ the figures are:

1970-76	--	240.0
1977	--	175.5
1978	--	79.6
1979	--	74.1

This significant drop in numbers of fish per landing, coming as it did in the best two fishing years of the decade, clearly shows a major shift in landing patterns, unrelated to either catch or effort, and invalidates any effort conclusions made from these landing figures. For one thing, it reflects a shift to day-selling catches being reported in the FCZ. Further, as landing time comes directly from fishing time, the increased number of landings could indicate some small decrease in fishing effort.

By contrast to the previous data, the Troll Log Book Program (which involves daily statistical reporting by over 100 power trollers) asks participants to record area fished, whether outside 3 miles, inside 3 miles or both on the same day. Because the Troll Log Book Program is anonymous, the data collected on fishing location are not subject to the biases discussed for fish ticket data and therefore may certainly give a more accurate distribution of fishing effort. These data show fluctuations from year to year depending upon areas of king salmon abundance. For example, 1978 data showed an increase in effort in the FCZ due most likely to good offshore fishing, by contrast 1979 data shows less effort in the FCZ. Although both were good years for the fish and therefore efforts were apparently distributed differently.

LOCATION OF POWER TROLL EFFORT 1977-1979

<u>Place of Effort</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Inside 3 mile	78.0%	67.1%	71.3%
Outside 3 mile	14.8%	26.2%	23.4%
Both on same day	<u>7.1%</u>	<u>6.6%</u>	<u>5.2%</u>
	99.9%	99.9%	99.9%

Source: Troll Log Book Program 1977-1979.

In reality, most areas of heavy troll fishing effort include both state waters and FCZ waters with the bulk of the effort in outside state waters. Portions of each popular area such as West Yakobi, Cape Edgecumbe, Noyes Island and Inner and Outer Fairweather Banks are in the FCZ, and portions are in state waters.

Freedom to move within general areas and between areas is essential to the nature of troll fishing which involves searching for adequate numbers of salmon each day. Nearly all fishermen fish a number of drags and areas in the course of a season. Without this necessary freedom trolling becomes less economically feasible for the average troller. In other words, any attempts to restrict by means of permits, area closures, quotas, etc., have negative economic consequences on the Alaska power troll fleet. And if these restrictions are based on ignorance or information of questionable value such as FCZ catch data, then unnecessary and unwarranted negative economic consequences are suffered by the Alaska fleet.

King Salmon Run Strength

Some state and federal managers tend to feel that the good king catches of 1978-1979 were the result of dramatically increased effort and efficiency. Catch statistics for these two years have been used as a basis for restrictive regulations and the general management premise that "something must be done." Many trollers and some biologists, on the other hand, feel that 1978-79 were just good fishing years for all parts of Alaska and should not be viewed as cause for alarm, or justification for more restrictive management.

In order to come to some conclusion about this issue, king salmon catches were compared against 10-year averages in Southeast and in other areas of Alaska. The results seem to lend some support to the "good fishing" school of thought.

While 1978-79 king catches in Southeast were 20% above the 10-year (1970-79) average of 321,152, the rest of the state, which does not draw on southern stocks, was enjoying a 47% increase over the 10-year average. In other words king salmon abundance appeared to be better in other areas of Alaska than in Southeast. Based on these data it would be difficult to conclude that the catches were due primarily, if at all, to increased effort. Perhaps it would be more reasonable to assume the same factors responsible for large increases in all other species in recent years, (200 mile limit, favorable climatic conditions, etc.) also affected the abundance of Alaska king salmon stocks. This is particularly interesting when we note that Southeast King catches are increasing while B.C., Washington, Oregon and California catches are declining since the early 1970's.

Finally, when the power troll catch specifically is analyzed it shows an increase of 14% over the 10 year average (see table). This indicates that power trollers

are receiving a declining share of the total king salmon catch in the Southeast region. In contrast the combined catch of kings by seine, gillnet and hand troll increased a dramatic 41% over 10-year averages, compared to only 14% for power trollers.

TOTAL ALASKA KING SALMON CATCH, ALL GEAR TYPES, 1970 - 1979

	<u>Alaska</u>	<u>Southeast</u>	<u>All Other</u>	<u>SE POWER TROLL</u> ¹	<u>Other SE Fisheries</u>
1970	645,759	321,961	323,798	274,339	47,622
1971	662,303	333,978	328,325	280,278	53,700
1972	553,160	286,829	266,331	210,057	76,772
1973	550,593	343,623	206,970	276,943	66,680
1974	556,970	346,593	210,327	289,939	56,654
1975	456,901	300,707	156,194	231,037	69,670
1976	535,547	224,683	310,864	204,893	19,790
1977	621,025	285,220	335,805	238,601	46,619
1978	836,464	401,402	435,062	318,051	83,351
1979	<u>818,310</u>	<u>366,520</u>	<u>451,790</u>	<u>277,783</u>	<u>88,737</u>
10 yr Average	623,703	321,152	302,552	260,192	60,960
1978-9 Average	827,387	383,961	443,426	297,917	86,044
%	+ 33%	+ 20%	+ 47%	+ 14%	+ 41%

¹Note: Southeast Power Troll catch 1970-74 is estimated at 90% of all troll catch as separate data were not available for hand and power troll during those years. This is based on 1975 split of 10.9% hand troll, 89.1% power troll.

Fleet Upgrading

It is generally perceived among state and federal fish managers interviewed that extensive fleet upgrading has occurred, and is a major reason for improved king and coho catches, especially in 1978-1979.

Statistical evidence of the physical status of the power troll fleet did not exist, so it was difficult to support or refute the premise that fleet upgrading has been extensive or, if significant upgrading did occur, that it had an effect on catch.

Fortunately the 1979 Alaska Sea Grant program survey of fishermen's income and investment included question on size, age, type and value of vessels. One hundred fifty-two power trollers replied and this sample size lends statistical credibility to the results. Based on gross income, respondents tended to be better fishermen (\$36,000 vs. \$26,000) than CFEC averages for trollers, so the sample vessel quality would likely be a cut above the fleet as a whole.

Surprisingly, nearly 2/3, or 63.8%, of the vessels were wood construction and even more surprisingly, the average wooden vessel was constructed in 1943, nearly 40 years ago. The average length for these vessels was 38.1', hardly the "smokers" imagined.

Less than 1/4, or 23.7% of the vessels were of fiberglass construction but the average age was only 3 years (1976). This reflects the trend to fiberglass in the last 10 years, and also reflects the generous terms of the Alaska state loan program (7 to 9-1/2% interest in recent years). Fiberglass trollers averaged 40.1' in length, just 2 feet longer than the average wooden troller.

Less than 10% of the fleet was steel or aluminum, average year built was 1962 and average length was 44.0'. It is assumed that many of these are combination boats, (halibut, black cod, seine) because as a group they earned only 74% of their income from salmon compared to 98% for fiberglass boats and 95% for wood vessels.

In summary, some fleet upgrading is occurring, as it always has, and low interest loans plus good fishing certainly spur this to some extent. However, the proportion of the fleet operating large new vessels is still relatively small, as the fleet is predominately wood and size difference between wood and the fiberglass upgrades is only two feet.

Even if 10% of the fleet became 30% more efficient there would only be a 3% increase in overall catch. And the statistics show that by no means is upgrading to fiberglass occurring at a rate approaching even 5%, but rather it has been only 2-3% over the last ten year.

Finally, a larger vessel with better electronics may mean larger catches to some degree but the 4-line limit is a much more important limit to efficiency than whether a troller is 38' or 44' long, or of fiberglass or wood construction. Upgrading will also slow with higher interest rates, stiffer terms and increased fuel costs.

Finally, there is the factor of large turnover in power troll permits. This means a large number of novice fishermen are purchasing permits from presumably more experienced fishermen. This factor hardly contributes to overall fleet efficiency.

PHYSICAL STATUS OF POWER TROLL FLEET, 1979

<u>Characteristic</u>	<u>Wood</u>	<u>Steel/ Aluminum</u>	<u>Fiberglass</u>	<u>All Vessels</u>
% of Total	63.8%	8.6%	23.6%	100.0%
Length (ft.)	38.1	44.0	40.1	39.3
Year Built (Avg.)	1943	1962	1976	1953
Engine HP	138	191	170	150
Market Values	\$56,864	\$145,462	\$142,806	\$86,068

Source: Unpublished data from the Sea Grant Program Survey of Fishermen's income and investment, 1979.

Troll Log Book Data

The ATA troll log book program collects a great deal of information including data on days of fishing effort per season and on hours fished per day. Data covers the period 1976-1980 and the program includes over 100 power trollers keeping daily detailed diaries. The log book sample fleet consists of generally better than average fishermen, and they fish primarily in outside waters. These data suggest little if any increase by these fishermen.

AVERAGE DAYS AND HOURS OF POWER TROLL EFFORT 1976-1979

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>% Change</u>
Effort days per boat	66.0	61.0	66.5	68.3	+ 1.0%
Hours of effort per day	NA	10.8	10.7	10.7	- 0.5

To summarize the "effort and efficiency" issue, the several sources of data presented here do not appear to support the suppositions that there have been dramatic increases in overall power troll effort or in fleet efficiency due to upgrading.

In general the data tend to indicate a stable but moderately increasing total effort through 1979, which may not continue once 1980 data are known. Upgrading has occurred, but the extent of upgrading appears to be modest and its significance to total harvest would seem to be small.

On the other hand, there is no question of the shift in power troll effort from inside to outside waters. Massive increases in hand troll effort inside have physically and economically forced the larger power troll vessels from prime areas. The eight on and six off closures have further reduced the economic feasibility of serious power trolling inside. At the same time, better than average king salmon fishing in outside waters in 1978 and 1979 attracted a number of formerly inside power trollers to outside waters.

Because of this inside-outside trend some increase in FCZ effort would be expected. Combine this fact with the reporting discrepancies due to the 3% aquaculture assessment and threat of FCZ permits and large increase would be expected to show up in FCZ catch and effort data. However, this should not be confused with the generally stable overall effort and moderate response to improved fishing conditions as portrayed in the preceding analysis.

INCOME AND INVESTMENT

Income

The CFEC provides data on active permits and estimates of gross income by gear type. Average income per permit fished is then easily calculated. The following table portrays average gross income by fleet for the 1976 - 1979 period. Several trends are worth noting. One trend is the relative stability in seine and gillnet average income. Seine income has recovered from a down year in 1976 to record three straight years in the \$70,000 range. Gillnet income has ranged only modestly between \$19,000 and \$27,000 during the last few years.

Another trend is that average income for both power and hand troll has increased significantly over the period. The hand troll average continued to rise in spite of enormous increases in total effort. This has been a function of good fishing, exceptional coho prices in 1979, and less competition from power trollers on inside waters.

Power troll average income, below that of gillnet income in 1976 and 1977 (good gillnet years and mediocre troll years), has risen in 1978 and 1979 and has slightly surpassed gillnet income. Good fishing and favorable prices were two reasons for this increase. 1980 data will probably show a decline in troll and gillnet income and an increase in seine income.

AVERAGE GROSS INCOME PER PERMIT FISHED BY GEAR TYPE

1976 - 1979, SOUTHEAST ALASKA

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>4-Year Average</u>
POWER TROLL	\$11,269	\$16,171	\$21,192	\$26,529	\$19,017
Gillnet	19,703	27,439	20,527	26,572	23,517
Seine	39,393	74,309	73,040	74,058	67,027
Hand Troll	1,214	1,357	2,155	2,770	2,110

Source: CFEC

Investment

The preliminary results of the Sea Grant Program Survey of Fishermen's Income and Investment for 1979 provide some enlightening insight into the economics of the various Southeast salmon fleets.

Power trollers and gillnetters, who have had approximately the same average income the last few years, also have about the same amount of capital invested in vessels, permits and gear. The average troller has about \$128,000 invested while the average gillnetter's investment is valued at \$125,000. The average seiner, due to the fact his vessel is much larger than either gillnetters or trollers, has about \$250,000 tied up in vessel, permit and gear.

However, in 1979, the only year which the survey included the seiner did poorest from a profit standpoint with only \$2,519 returned to labor and management. Power trollers fared best on return, to labor and management with \$7,642 for the season followed by gillnetters at \$3,103. The hand troller ranked on the bottom rung losing an average of \$427 on his \$20,000 investment in spite of catching 27% of all cohos and selling them at record prices in 1979.

The following tables show average investments by residents and non-residents by fleet. These statistics in turn are multiplied by the number of active permits and the resulting table provides an estimate of total investment by fleet in vessels, permits and gear.

AVERAGE INVESTMENT IN VESSEL, GEAR AND PERMIT
BY RESIDENT AND NON-RESIDENT FISHERMEN, 1979

	<u>Power Troll</u>		<u>Hand Troll</u>	
	<u>Resident</u>	<u>Non-resident</u>	<u>Resident</u>	<u>Non-resident</u>
Vessel	\$ 68,296	\$109,558	\$ 17,812	\$ 26,658
Permit	33,647	34,910	-0-	-0-
Gear	<u>7,574</u>	<u>8,465</u>	<u>2,162</u>	<u>2,315</u>
Total	\$109,517	\$152,933	\$ 19,974	\$ 28,973

	<u>Gillnet</u>		<u>Seine</u>	
	<u>Resident</u>	<u>Non-resident</u>	<u>Resident</u>	<u>Non-resident</u>
Vessel	\$ 70,671	\$ 72,823	\$180,143	\$150,741
Permit	42,972	44,517	46,050	40,600
Gear	<u>9,771</u>	<u>9,499</u>	<u>45,583</u>	<u>33,409</u>
Total	\$123,414	\$126,878	\$272,046	\$229,000

Source: Sea Grant Survey of Fishermen's Income and Investment, unpublished.

TOTAL ESTIMATED CAPITAL INVESTMENTS BY RESIDENT AND NON-RESIDENT FISHERMEN

SOUTHEAST ALASKA, 1979

	<u>Resident</u>	<u>Non-Resident</u>	<u>Total</u>
POWER TROLL	\$69,214,740	\$27,833,810	\$97,048,550
Seine	40,534,850	39,159,000	79,693,850
Gillnet	39,424,800	16,762,100	56,186,900
Hand Troll	<u>39,748,260</u>	<u>6,403,030</u>	<u>46,151,290</u>
TOTAL	\$188,922,650	\$90,157,940	\$279,080,590

Source: Derived by taking the average investment per fisherman as taken from the Sea Grant survey and multiplying by the numbers of active permits which in turn were divided into residents and non-residents based on percentages provided by CFEC.

Financial Support of Regional Aquaculture Associates

An important factor in the future economic success of the Southeast salmon fisheries will be the effort of both the private - non-profit and state aquaculture agencies in putting more fish into the water. But, with the tentative success of the case Alex et.al. the long run financial status of the Regional Aquaculture Associations, or at least their scale of effort, is threatened.

Temporarily supported by state funds, the RAAs must rely in the long run on voluntary contributions, which are considered investments in future income by those contributing. Unfortunately, voluntary support from most of the fleets has been rather weak, as shown in the following table:

VOLUNTARY SUPPORT OF SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION

	<u>Active Permits (1979)</u>	<u>Volunteer Contributors (1980)</u>	<u>% Fleet Participation</u>
POWER TROLL	814	363	44.6%
Seine	320	40	12.5%
Gillnet	449	101	22.5%
Hand Troll	<u>2,211</u>	<u>582</u>	<u>26.3%</u>
Average	3,794	1,086	28.6%

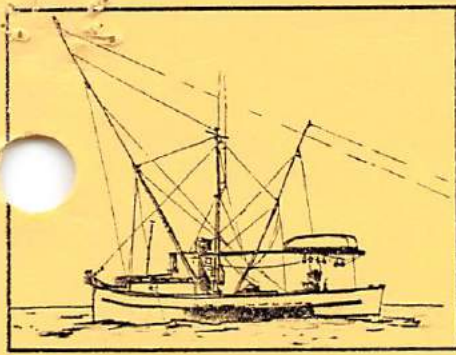
Two facts in the above table are obvious. The extremely low (12.5%) participation of the seine fleet might be expected, due to the fact that fleet is predominantly non-resident. On the other hand, seiners are the primary beneficiaries of hatchery efforts which tend to be concentrated on pinks and chums, species which provide about 85% of seine income. The other obvious fact is the high contribution rate (44.6%) of the power troll fleet, which thus far stands to benefit the least from existing RAA efforts. King and coho efforts are only minor parts of RAA programs thus far.

NSRAA and SSRAA will probably have to respond more directly to the economic interests of their volunteer support than they did to their mandatory membership prior to the Alex case. Now that support and income come heavily from the troll fleets it would seem that long run RRA survival would include strong efforts to increase king and coho stocks.

ESTIMATED VOLUNTARY CONTRIBUTIONS TO
SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION, 1979

	<u>Amount</u>	<u>% of Total Support</u>
POWER TROLL	\$224,773	50.8%
Gillnet	80,528	18.2%
Seine	88,870	20.1%
Hand Troll	<u>48,364</u>	<u>10.9%</u>
Total	\$442,535	100.0%

Note: Estimates based on 3% of average gross income times the number of volunteer contributors by gear type. A portion (22%) of power troll contribution was deleted to account for nonassessed effort outside state waters by volunteer contributors.



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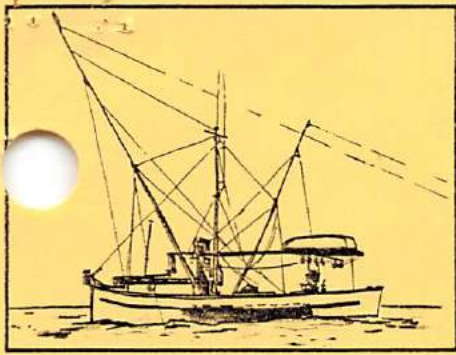
REPRESENTING ALASKA POWER TROLLERS

205 North Franklin Street
Juneau, Alaska 99801
(907) 586-9400

*Record
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**Memos
to
Management**

**The Alaska Troll Legal Fund
January, 1981**



Alaska Trollers Association

REPRESENTING ALASKA POWER TROLLERS

205 North Franklin Street
Juneau, Alaska 99801
(907) 586-9400

January 5, 1981

Members of the
North Pacific Fisheries Management Council and
Alaska Board of Fisheries

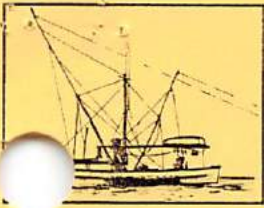
Gentlemen:

The following series of memos details the Alaska Troll Legal Fund's responses to the management proposals before you.

The ATLF is made up of Alaska Trollers Association, Halibut Producers Cooperative, Pelican Cold Storage, and a number of individual fishermen. This broad industry base demonstrates that ATLF truly represents the power troll fishery.

We share your dedication, first to the resource, and then to the industry and communities which it supports. We ask you to carefully read these papers, and look forward to discussing them in person with each of you.

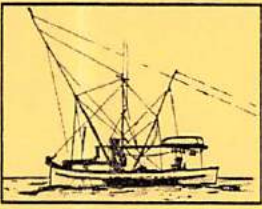
THE ALASKA TROLL LEGAL FUND



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C O N T E N T S

- MEMO 1: PDT'S PROPOSED MANAGEMENT OBJECTIVES
- MEMO 2: PROPOSAL: REDUCE OY BY AT LEAST 10%
- MEMO 3: RECALCULATION OF OY FIGURES
- MEMO 4: LIMITED ENTRY IN THE FCZ
- MEMO 5: PROPOSED SEASON TIME REDUCTIONS
- MEMO 6: INSIDE/OUTSIDE EFFORT AND CLOSE WHOLE FCZ
- MEMO 7: PROPOSAL TO MOVE COHO EFFORT INSIDE
- MEMO 8: PROPOSAL TO SET SEAWARD LINE
- MEMO 9: PROPOSED FOUR-LINE LIMIT NORTH OF SPENCER
- MEMO 10: HEADS-ON LANDING REQUIREMENTS
- MEMO 11: PROPOSAL TO BAN TREBLE HOOKS



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M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

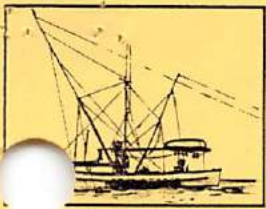
FROM: Alaska Troll Legal Fund

RE: PDT's Proposed Management Objectives

The PDT proposes a complete change in the existing management objectives for the troll fishery. It does so without stating what the existing management objectives are, or explaining why they should be completely changed.

The existing management objectives are:

- (1) Control the expansion of the salmon troll fishery in the Fishery Conservation Zone.
- (2) Allocate the salmon resource among user groups without disrupting present social and economic structures.
- (3) Regulate the catch of salmon to assure adequate escapement for spawning.
- (4) Reduce the catch of salmon with potential growth to increase the poundage yield from the troll fishery.
- (5) Make cost effective the public investment in the high seas salmon fishery.
- (6) Promote the eventual development of a Pacific Coast Salmon fishery management plan.

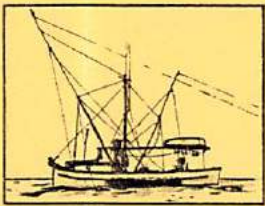


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The PDT, without explanation recommends substituting the following:

- A. Manage the troll fishery in conjunction with other Southeast Alaska fisheries to obtain the number and distribution of spawning fish capable of producing the optimum total harvest on a sustained basis from Southeast Alaska salmon stocks.
- B. Allocate the total allowable salmon harvest to the various Southeast Alaska user groups as directed by the Alaska Board of Fish and Game [sic], and North Pacific Fisheries Management Council.
- C. Decrease directed and incidental harvest of smaller, immature fish and reduce sublegal chinook hook/release mortalities where possible, consistent with allocation decisions and with the objective of maximizing benefits to user groups.
- D. Control and reverse recent trends of expanding effort and catch in outer coastal and offshore Southeast Alaskan waters to accomplish conservation goals of Objective 1.
- E. Develop fishery management plans and techniques which will allow full utilization of salmon returning to supplemental production systems while providing necessary protection for intermingling natural runs which must be harvested at lower rates.
- F. Manage the coho and chinook salmon fisheries to ensure compliance with U.S.-Canadian fisheries agreements, any other treaty or resource sharing requirements and conservation obligations.
- G. Contribute to the development of a coastwide management plan for chinook salmon.

The change in wording of the objectives is disturbing because it appears to be an attempt to change previously established long term management strategies without explanation. For example, proposed objective A provides for management necessary "to obtain the number and distribution of spawning fish capable of producing the optimal total harvest on a sustained basis from the Southeast



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Alaska salmon stocks." Its counterpart in the existing objectives is objective 3 which provides for regulation of salmon catches to secure "adequate escapement for spawning."

While existing objective 1 is easy to understand, proposed objective A is not. What is "the total optimal harvest on a sustained basis"? How does this differ from "adequate escapement"? What is the significance of the reference to "distribution" of catches? Does it mean regulation of areas where fish may be taken? If so, the objective is not compatible with FCMA because it does not suggest that management entities need take into account the social, economic and ecological impacts which will be incurred as the result of catch redistribution.

Proposed objective B is objectionable on similar grounds. It states that allocation between user groups should be "as directed by the Alaska Board of Fish and Game [sic] and the North Pacific Council." Its counterpart is existing objective 2, which provides that salmon resources should be "allocated among user groups without disrupting present social and economic structures." Unlike the existing objective, which is firmly rooted in the FCMA's definition of OY and allocation "national standard" (16 USC 1851(a)(4)), the proposed objective sets no standard for allocation other than the year to year fancy of management entities. This is not acceptable from either a practical or legal standpoint.

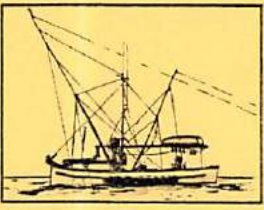


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Proposed objective C seeks to reduce the harvests of "smaller, immature fish" and also to "reduce sublegal chinook hook/release mortalities where possible, consistent with allocation decisions and with the objective of maximizing benefits to user groups." It's counterpart is objective 3 which calls for a reduction of "the catch of salmon with potential growth to increase the poundage yield from the troll fishery."

Proposed objective C seems preferable to the existing objective. It proposes reducing catches of "immature" fish while the existing objective seeks the creation of a "maximum poundage" fishery. Although reducing harvests of immature chinook serves a legitimate biological purpose, the creation of a maximum poundage fishery does not. Moreover, achievement of a maximum poundage fishery is inimical to both the nature of the troll fishery and the optimal economic utilization of the resource. In this regard it should be noted that recent economic data clearly establishes that salmon of diverse sizes are necessary to meet the demands of various domestic and international markets. (Department of Agriculture and Resource Economics, Oregon State University 1978, Stafne, 1979.)

Proposed object E has no counterpart among existing objectives. It calls for using "techniques which will allow full utilization of salmon returning to supplemental production systems while

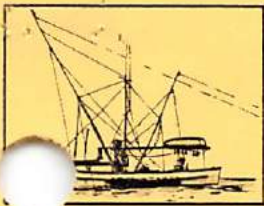


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providing protection for intermingling natural runs." The PDT totally avoids discussion of this objective and the techniques which may be employed to achieve it. As written the objective raises more questions than answers, and certainly is not a guide to management. A key unanswered question is whether this objective mandates protection of each natural run of fish. If so, it will require that troll fishery management be based on preserving the weakest stock. This will result in a quick elimination of the fishery. If the elimination of the troll fleet is the Council's intent, it should be stated. If not, more specific policy should be adopted which sets forth the purpose of this objective in more concrete terms.

Proposed objective F provides that management should "ensure compliance with U.S.-Canadian fisheries agreement, any other treaty or resource sharing requirements and conservation obligations." Since there is presently no treaty between the U.S. and Canada it seems premature to include this as an objective. Similarly, there are no other known treaties which have been judicially held to apply off Alaska. That being the case, it is difficult to understand the purpose of this objective, and we feel it should not be included at the present time.

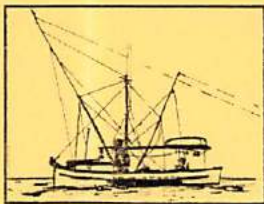
Our concern with the objectives stems from the fact that they articulate what should be the long range strategy for management



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of Southeast Alaska's salmon fisheries. As presented, the proposed objectives are less clear than those which already exist. The proposed objectives replace more concrete standards with ambiguous guidelines readily susceptible to agency discretion. Thus the proposed objectives appear designed to free management agencies from the need to devise regulatory proposals to meet the concrete standards required by FCMA. This is unacceptable to industry, especially as there is no discussion in the amendment package as to why these changes are necessary or would be beneficial.

* * *



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M E M O R A N D U M

January 2, 1981

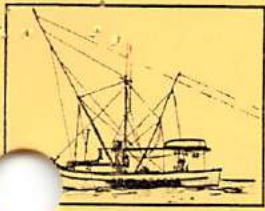
TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

FROM: Alaska Troll Legal Fund

RE: Proposal: Reduce OY by at least 10%

The PDT's proposal represents a major change in existing management policy. It calls for a 10% reduction in the 1981 OY as the beginning of an "incremental reduction" of chinook fishery harvests. The PDT does not provide any documentary or scientific support for this policy, except to state that the existing OY appeared to be too high in 1980 because "escapements continue to be below levels needed for maximum production in some systems, and below levels needed to rebuild the more seriously depressed natural stocks." The PDT does not identify which stocks are depressed, or define what escapement levels are needed for maximum production.

The PDT appears incorrect in many of its conclusions. Southeast Alaska escapement data for 1980 indicates escapement improvements in major river systems. (Table 1) This indicates that existing management philosophy and regulations are working. Next year's Taku runs, the only river for which runs are predicted, are expected to be comparable to the runs this year. (Kissner, personal



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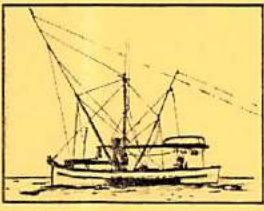
communication) Thus, there appear to be no compelling reasons to change management strategies for 1981.

The inference that Columbia River chinook stocks will benefit from reducing the OY is also open to considerable question. Parker and Kirkness concluded in 1956 that the major reason for the decline of Columbia upriver fall chinook stocks was due to dam construction. Since Parker and Kirkness concluded their study eight more dams have been constructed on the Columbia. More recently Ebel, et al, (1979) in their study of fish passage problems in the Snake River system concluded:

The drop in adult return percentages reflects primarily the losses of juveniles due to fish passage problems in the Snake and lower Columbia Rivers and to adult fish losses at dams, but not to ocean mortality, nor to increased fishing pressure in the ocean, nor even the river gillnet fishery.

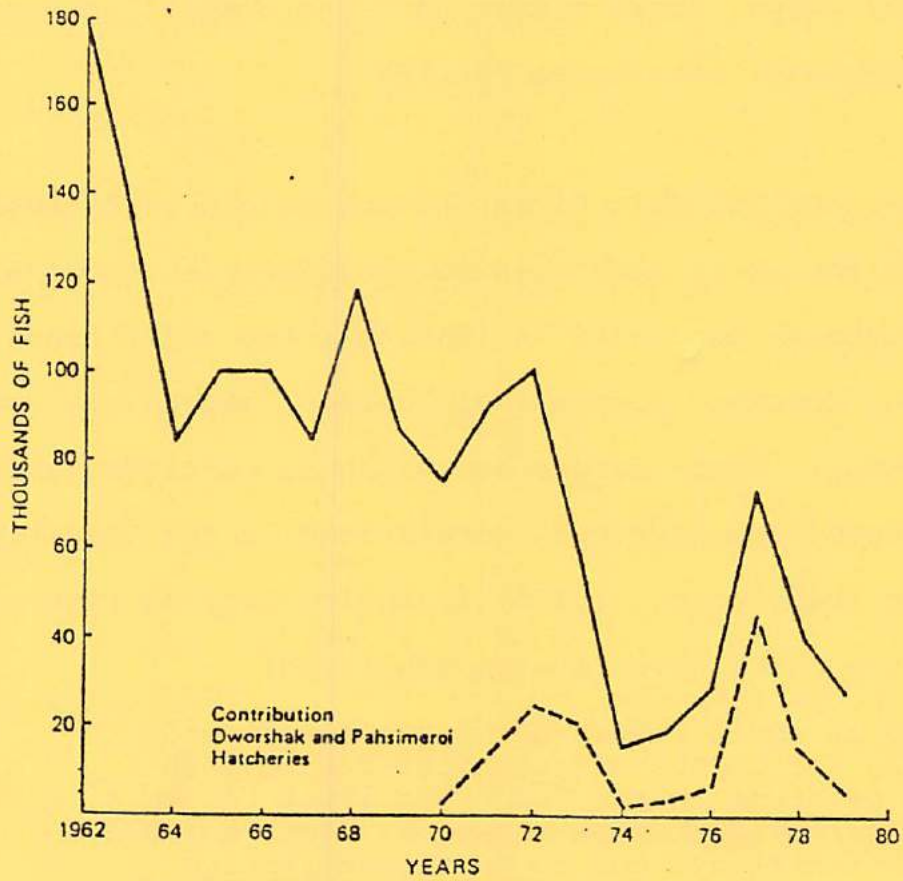
If the declines in fish populations were due to increased fishing pressure in the ocean, then chinook salmon should be the only species showing a drop, since there is no significant harvest of steelhead in the ocean. [emphasis added]

The following graphs illustrate Ebel's point. They show catch and escapement data for Columbia River stocks of steelhead (which are not harvested by ocean fisheries) and up-river fall chinook (which are harvested by ocean fisheries):



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Snake River Steelhead Trout Run, 1962-80
(Catch plus escapement)



Snake River Spring Chinook Salmon Run, 1962-80
(Catch plus escapement)

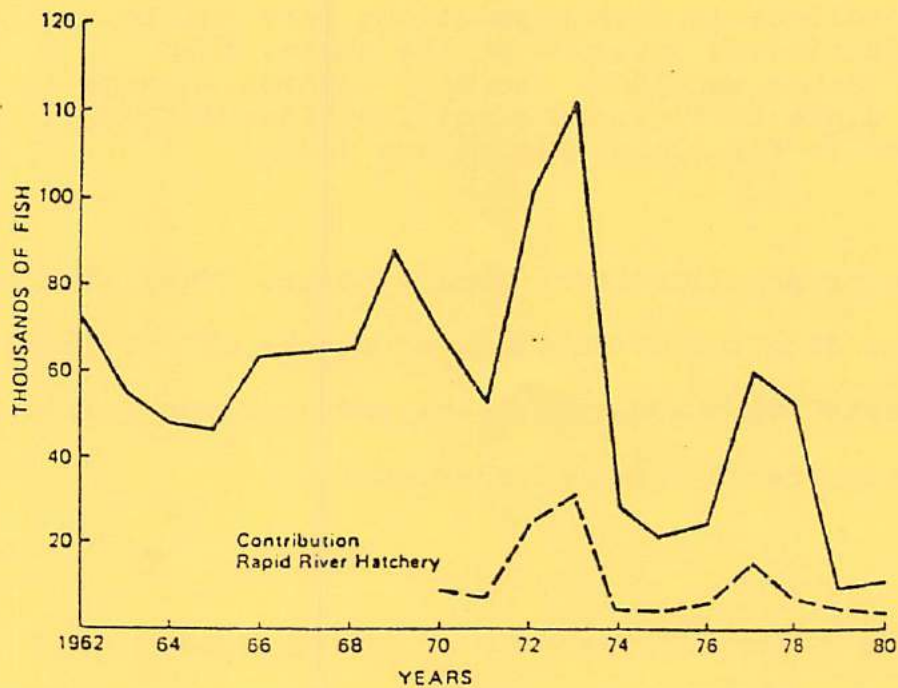
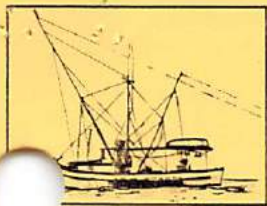


Figure 1.--Snake River spring chinook salmon and steelhead runs, 1962-80.
(Includes Ice Harbor Dam count plus estimated lower river harvest).



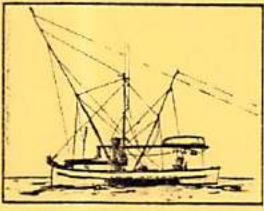
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The importance of dam mortality and fresh water habitat degradation to chinook production is also demonstrated by Oregon coastal chinook stocks. Although these stocks are subjected to the same fishing pressure as Columbia River stocks, Oregon coastal chinook have shown marked improvement in recent years as the result of improved fresh water habitat. (Fukahara and Fredin 1980) This improvement has resulted in a special chinook-only ocean fishery off the coast of Oregon in September, October, November and December. Certainly, if ocean fishing were thought to be the major chinook mortality factor, increased fishing pressure on these stocks would not have been allowed.

In addition to the fact that the impact of ocean fishing on chinook stocks in general is not clear, it should be noted that the total contribution rate of Columbia River chinook to the Alaska fishery appears small. Woodin (1980) in a Washington Department of Fisheries report on the "Contribution of Non-Alaska Stocks of Chinook to the Alaska Troll Fishery" indicates that the contribution of Columbia River stocks in general to the Alaska fishery is low. In this regard, Woodin states:

A summary of recent fin mark and CWT recoveries in the Alaska troll fishery shows a great diversity of chinook stocks from the Columbia River contributing at various rates.

The results of several of these studies have been assimilated into [the WDF] fishery model for both lower and upper Columbia River fall chinook . . . (Johnson 1980). This model estimates that upper Columbia River fall chinook have a contribution



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of 2% of their total ocean fishery contribution in the Alaska troll fishery. Also, the model estimates that lower Columbia River fall chinook have a contribution rate of 0.9% of their total ocean fishery contribution in the Alaska troll fishery.

The meager contribution of Columbia River chinook stocks to the Alaska troll fishery belies the PDT's inference that cuts in the Alaska OY will result in substantial savings of these fish.

Catch data indicates that Alaska chinook harvests have been relatively stable for the past twenty years. This stability is in marked contrast to catches by Canadian and Washington-Oregon fisheries. Washington-Oregon and B.C. chinook catches doubled in the mid-seventies and declined somewhat in recent years. Recent declines, however have not begun to offset their gains since 1960. [See "Fig. 3.11" from Fukahara, Fridine, next page.]

While it is not the purpose of this paper to assess blame, it must be noted that Washington and B.C. effort and catch were exploding at the same time Columbia River natural stocks were declining. In balance, this fact makes it seem more than a little unfair for the state of Washington to look to Alaska for cuts to remedy its intemperence. Nonetheless, the state of Washington is proposing that the Alaska OY be cut by 20% to 40% in order to gain modest increases in inriver Columbia River "brite" harvests. The following chart, based on WDF's "Analysis of Alaska Troll

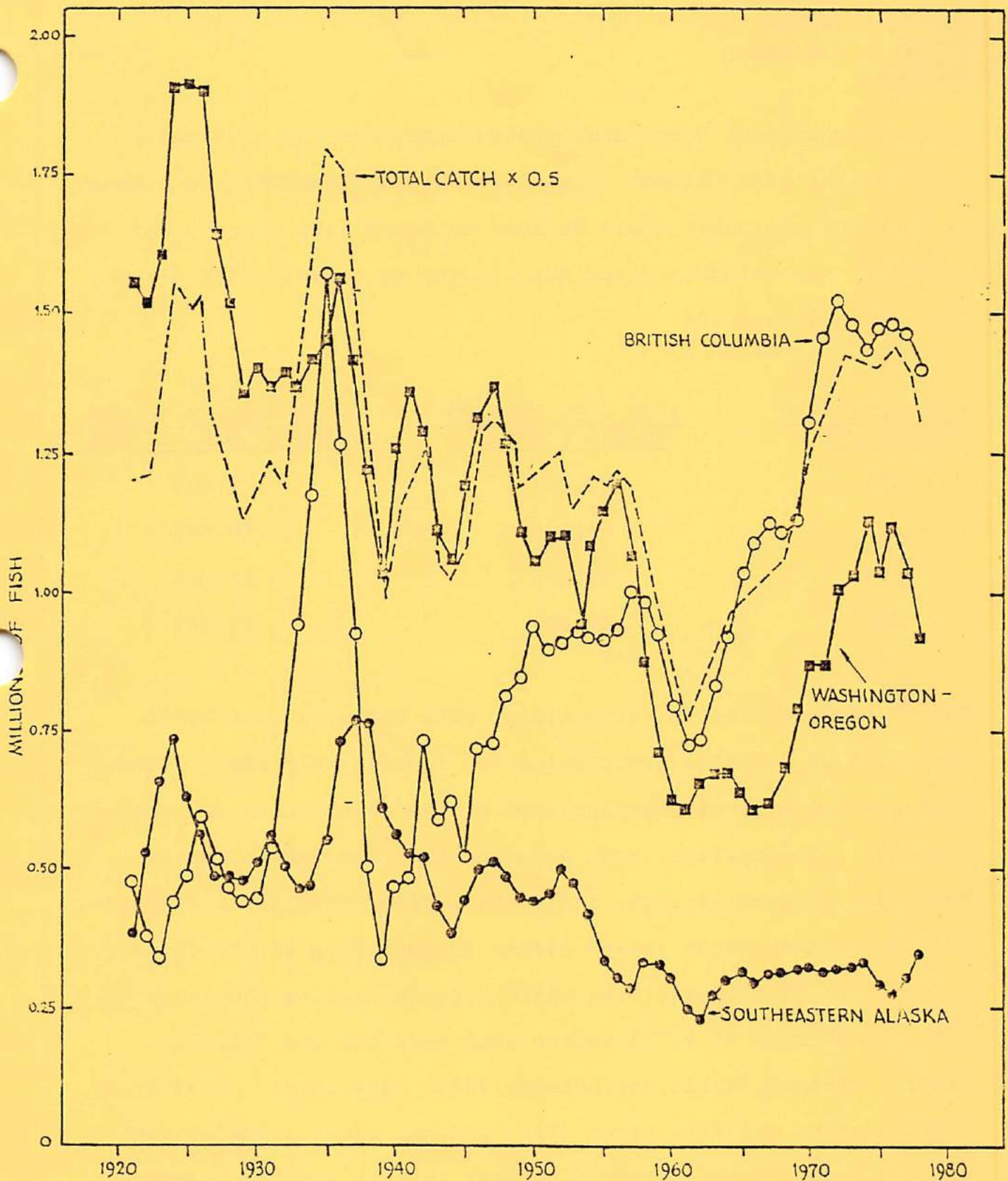
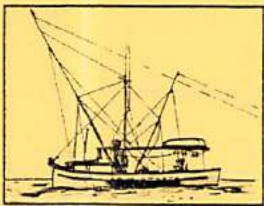


Figure 3.11 Annual catch of chinook salmon by commercial fisheries in Southeastern Alaska, British Columbia and Washington-Oregon, 1920-79, smoothed by moving averages of 3's. (Data are from INPFC Bull. 39, PFMC and Canada Dept. of Fisheries and Oceans.)

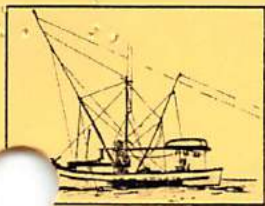


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Fishery Management Needs and Opportunities For Upper Columbia River Bright Fall Chinook Salmon" (1980), illustrates the numbers of fish WDF estimates would be lost to the Alaska fishery and gained by the Columbia River net fishery by reducing the OY by 10%, 20%, 30% and 40%.

<u>% REDUCTION IN ALASKA OY</u>	<u># OF FISH LOST TO ALASKA FISHERY</u>	<u># OF UPRIVER BRITES GAINED BY COL. R. NET FY</u>
10%	32,000	5,400
20%	64,000	10,500
30%	96,000	15,700
40%	128,000	22,300

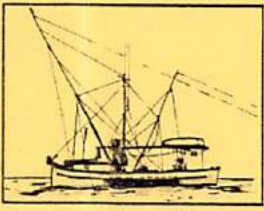
Due to inadequacies in methodology, ATLF believes that WDF's estimates of Columbia River gains are inordinately high. (These inadequacies will be substantiated at the joint Board and Council meeting.) Nonetheless, even assuming that the WDF estimates represent maximum savings, it is still clear that it is inappropriate for Washington to ask Alaska to sacrifice 64,000 chinook in order to gain 10,500 fish while foreign fishing continues to claim an average of 9,733 salmon each year off the Columbia River. (French, Wall, and Nelson, 1980) See infra. Clearly if protection of Columbia River fish, and not elimination of U.S. troll fleets, is WDF's true objective then it should recommend to the Pacific Council that the foreign incidental catch of these fish be eliminated.



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This is not to say that Alaska fishermen are not concerned with the biological status of the Upriver Brite resource. They would, if necessary, reluctantly accept cuts which could be shown to be effective for rebuilding the stocks. But no one has offered any data suggesting that the large cuts proposed in the Alaska OY would not merely be offset by increased Canadian interceptions, increased foreign incidental take, reallocation to other domestic fisheries, natural mortality or dam mortality. Nor has anyone explained why foreign catches of salmon have not been curtailed in compliance with the mandates of FCMA.

The best information available suggest that if the proposed cuts in the OY were adopted Alaska would be the big loser and Canada the big winner. Assuming a 10% reduction in the OY, Alaska fishermen would be required to forego 32,000 chinook. Of this 32,000 chinook lost to the Alaska fishery, 4,070 would spawn in Alaska streams. (Miscellaneous Data, ADF&F 1980) Of the remaining 27,930 chinook leaving Alaska waters, approximately 40.1% or 27,930 would be of Canadian origin and thus would return to Canada for harvest; 40.1% is the weighted estimate of B.C. chinook interecepted in the Alaska troll fishery. (9th Report of Technical Committee on Salmon Interceptions, 1980) Of these fish, 15,098 would be from the lower 48. These fish would return through Canada. 6,039 or 40% of the U.S. fish returning to the Pacific Northwest would be harvested by Canadian fisheries.



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(Estimate is a weighted average of Washington's projection of Canadian interceptions of U.S. chinook minus 22%. 9th Report, supra.) Of these, 5,737 U.S. chinook would make it back into United States waters.

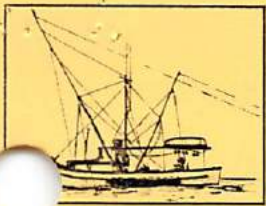
The following chart provides a graphic representation of the above described gains and losses from various percentage reductions in the Alaska OY:

	<u>PERCENT REDUCTION IN OY</u>		
	<u>10%</u>	<u>20%</u>	<u>30%</u>
FISH FOREGONE BY ALASKANS	32,000	64,000	96,000
ALASKA SPAWNERS	4,070*	8,140*	12,210*
FISH LEAVING ALASKA	27,930	55,860	83,790
B.C. FISH RETURNED TO B.C.	12,832**	25,664**	38,496**
U.S. FISH PASSING THROUGH B.C.	15,098	30,196	45,294
INTERCEPTION OF U.S. FISH BY B.C.	6,039**	12,078**	18,117**
U.S. FISH REACHING U.S. WATERS	9,059*	18,118*	27,177*

* - gains to U.S.

** - gains to Canada

Of the 32,000 chinook foregone by the Alaska fishery as the result of a 10% reduction in the OY, 18,871 will likely be transferred to Canada. Of the fish transferred, 12,832 will be



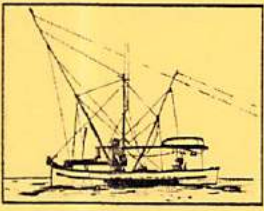
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Canadian fish which have traditionally been harvested by Alaskans, but which will now be given back to Canada. The other 5,039 will be U.S. chinook intercepted by Canada as they return to the Pacific Northwest.

Assuming an average size of 16 pounds and a value of \$2.25 per pound, the ex-vessel gain to Canada from a 10% OY reduction will be \$679,356. Assuming the same ex-vessel value for the fish foregone by Alaskans, the ex-vessel economic loss to Alaska will be \$1,125,000. This figure does not include secondary economic benefits to Alaska processors and coastal communities. Since these benefits are substantial, (McDowell, 1980; Stafne, 1980) ex-vessel losses should be considered the minimum economic harm which will accrue to Alaska.

Assuming the 5,400 upriver "brites" which will be saved and harvested by the Columbia net fishery as a result of a 10% reduction in the OY will weigh 20 pounds each and have a value of \$1.35 per pound, the economic gain from these fish will be \$145,800.

Assuming the 3,659 non-Columbia River Brite fish which will be saved by the 10% OY reduction will weigh 20 pounds and have a value of \$0.65 per pound the economic gain will be \$47,567. Thus the total economic gain to the U.S. will be \$193,367.



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When U.S. gains are offset by U.S. losses the result is a net ex-vessel loss to the U.S. of \$931,633. Total Canadian gains coupled with U.S. losses equals a \$1,610,989 "profit" for Canada. From both a resource and economic perspective it is difficult to conclude that such a scenario "will provide the greatest overall benefit to the Nation."

THE PHILOSOPHY OF "INCREMENTAL REDUCTIONS" IN THE OY
IS CONTRARY TO THE "IN-SEASON" MANAGEMENT PHILOSOPHY
PREVIOUSLY ADOPTED BY THE BOARD AND COUNCIL

The philosophy of "incremental reduction" of the Alaska troll fishery represented by this proposal to reduce the OY is directly contrary to the in-season management policy adopted by the Board and Council last year. Under the in-season approach the troll fishery was to be managed based on yearly projections of salmon abundance. The proposed "incremental reduction" approach completely ignores yearly abundance projection, in favor of imposing artificially established incremental cuts in the fishery.

The Public Review Document provides no justification for this major shift in management philosophy. Absent any justification for a change of this magnitude we believe that the Council and the Board should allow sufficient time to test the in-season management policy before rejecting it. This will surely take more than one season.

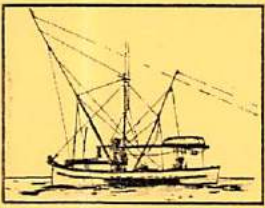


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It is important to remember that the management of the high seas troll fishery is a new business, and unless management works to determine the effectiveness and validity of its various tools, we are doomed to continue on the present path of try-this-one-day, try-something-else-tomorrow management, which all involved acknowledge as unsatisfactory. The current practice of constantly changing management policies by adopting inconsistent regulatory options each season virtually insures that the effects of previous management measures and philosophies will be masked, and therefore unmeasurable. Under such circumstances it will be impossible to develop satisfactory management philosophies and regulations.

There simply is no need or justification for the Council and Board to reject in-season management in favor of "incremental catch reductions" after only one season. Emergency provisions of both state and federal law already allow for closures when abundance does not justify taking the OY. Therefore, it is not necessary or preferable to establish arbitrary reductions in an OY which is not based on salmon abundance and availability.

Concerning the need for real-time data to be available for effective in-season management, it is interesting to note that ADF&G's last season's data collection effort, funded in part by NPFMC, resulted in excellent availability of necessary information. The fact was that king catches were known quite exactly at the



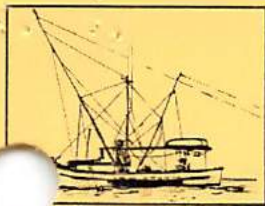
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end of the season, and had mid-season concern been greater full catch information could have been in-hand throughout the season.

NO CRITERIA HAVE BEEN DEVELOPED FOR DEFINING AND
ASCERTAINING THE BENEFITS OF "INCREMENTAL OY REDUCTION"

The proposed change from in-season management to a philosophy of "incremental reductions" in the OY has not been sufficiently justified. The only rationale provided for the change is the PDT's flat assertion that: "A sound management approach is to reduce the harvest by increments until a measurable improvement is observed." But the PDT has neither defined what is meant by "measurable improvement" nor suggested any criteria for determining when it occurs. This is particularly disturbing since escapement in Alaska's major river systems, the Stikine and Taku, are each up 238% from 1970's averages. If this isn't "measurable improvement," what is?

Without some definition, the only thing which appears to be certain in the "incremental reduction" philosophy is that troll harvests will be incrementally reduced on a yearly basis until the fishery is no longer economically viable.



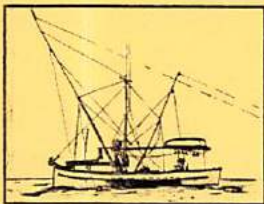
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THE BEST SCIENTIFIC INFORMATION AVAILABLE SUGGESTS
INCREMENTAL REDUCTIONS OF TROLL HARVESTS
WILL NOT RESULT IN MEASURABLE IMPROVEMENT

Even assuming "measurable improvement" were defined and criteria established for determining when it exists, this proposal will almost certainly not result in such an improvement. In a memo to the North Pacific Council, its consultants Fukahara and Fredin (13 October 1980) analyze the proposed (10%) incremental reduction in the OY with regard to Alaskan chinook stocks. They conclude: "An increase in production of [this] magnitude would probably be completely obscured by environmental background noise."

"Environmental background noise" probably means that any chinook saved as the result of the OY reduction will be subject to other mortality factors. These factors include a) possible harvest by Southeast troll fishery in later years, b) possible take by the foreign fishing in the FCZ off Alaska, c) possible harvest by other Alaska domestic fisheries, and d) natural ocean mortality.

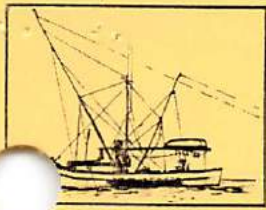
Fukahara and Fredin's conclusions are also applicable to Columbia River chinook. In addition to the above mortality factors, these fish would also be subject to substantial harvests by the Canadian troll fleet and high mortality due to difficulty in negotiating the gauntlet of Columbia river dams.



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An example which tends to prove that unilateral reductions in the ocean fishery will not result in "measurable improvement" of the stock is the recent management action off the coast of Washington. The Bonneville Pool ("Tule") stock of chinook are harvested primarily by Washington and Canadian ocean troll fisheries. As a result of PFMC and state action, Washington ocean fishery harvests have been cut approximately 40% from the 1971-1975 base year average.

This was a major unilateral reduction of one component of the mortality factors experienced by the Tule stocks, but, nonetheless, the in-river runs of this stock have continued to decline dramatically, despite the reductions on fishing. (Comprehensive Plan for Production and Management of Columbia River Basin Anadromous Salmon and Steelhead, 1980) We would suggest that these major cuts imposed on fishing effort were offset by other mortality factors, including Canadian ocean harvests, Columbia River mixed-stock net fishing, dam mortality, natural mortality, etc. This illustrates that without some mechanism for identifying what happens to fish forgone by commercial fishing effort, it is not possible to determine what benefits have resulted from management action all of which has been extremely costly to fishermen.

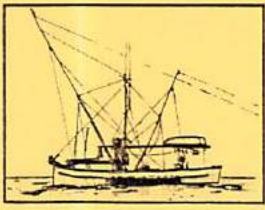


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THE POLICY OF "INCREMENTAL REDUCTION"
OF THE OY IS CONTRARY TO THE FCMA.

Another indication that the policy of "incremental reduction" of the OY has not been carefully thought out is that it is in clear violation of the law. FCMA provides that OY is to be based on MSY. It is then to be modified as appropriate by "economic, social and ecological factors" in order to provide that amount of fish which will produce "the greatest overall benefit to the Nation." Arbitrary reductions of the OY to meet an undefined "measurable improvement" standard clearly do not square with the law since they involve no consideration of the statutory components of OY.

With regard to any proposed reduction in the OY, ATLF would note that the Council must consider the "overall benefit to the Nation." This consideration will have to include an analysis and finding of how many fish foregone by the Alaska fishery will ultimately be made available for escapement or to other domestic fisheries. In making this finding it will be necessary for the Council to estimate the impact of the mortality factors set forth a few pages earlier. Moreover, the Council should also compare the catch value of the fish foregone by the high-value Alaska troll fishery with the lower value of those fish which will be harvested by other domestic net fisheries.



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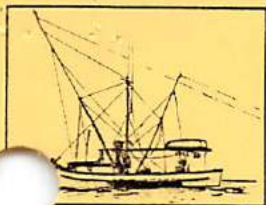
THE CHINOOK SALMON OY FOR DOMESTIC FISHERMEN
SHOULD NOT BE REDUCED UNTIL THE FOREIGN TAKE
OF SALMON IN THE FCZ IS ELIMINATED.

Under FCMA the total allowable level of foreign fishing is "the portion of . . . [the] optimum yield which on an annual basis, will not be harvested by fishing vessels of the United States." 16 USC 1821(d) and 1854 (a)(4)(A). The NPFMC has found that domestic fishermen and processors are fully capable of taking the OY, and thus there are no salmon left to allocate for foreign fishing.

In past years foreign fishing has claimed large amounts of Alaska and Columbia River salmon. Fukahara and Fredin (1980) in their draft FMP submitted to the Council stated:

Although no TALFF is available, it is noted that about 128,000 salmon were taken incidentally by foreign trawl fisheries in the Bering Sea and Gulf of Alaska areas. Most of these were chinook salmon.

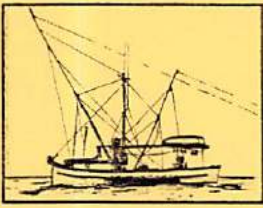
While always significant, foreign take of salmon does vary dramatically from year to year. For example, in 1979 the foreign incidental take of salmon in the Bering Sea was 44,500 fish. In 1980 the foreign take shot up to 107,706. Similarly, in the Gulf of Alaska foreign catches were 20,410 in 1980 but more than double that in 1979 when 44,500 salmon were taken. (French, Wall, Nelson, 1980)



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Foreign incidental take of chinook salmon adversely affects Southeast salmon fishermen in two ways. First, incidental catches of salmon in the Gulf of Alaska include Southeast Alaska and Columbia River chinook stocks. (Major, 1978; Parker and Kirkness, 1956; Rich and Ball, 1933) No reduction, or at least a less significant reduction, of domestic harvests of these stocks would be needed if foreign catches were eliminated. Second, AYK and other Gulf of Alaska stocks are found off Southeast Alaska. If foreign fishing of these stocks in the Bering Sea/Aleutian and Gulf of Alaska areas were curtailed more of these fish would be available for harvest off Southeast Alaska. This would also obviate the need for reducing the domestic troll harvest in Southeast Alaska.

Although Columbia River salmon are taken by foreign fishing in the Gulf of Alaska, more significant numbers are taken by foreign ships in the FCZ off the Columbia River. In 1977, for example, 14,627 salmon were taken by the foreign fishery off the Pacific Coast. Although this number dropped in 1978 to 5,905 salmon, foreign incidental take rose in 1979 to 8,667. Virtually all of the salmon taken by foreign fishing each year were caught in the Columbia River area. (French, Wall and Nelson, 1980) This suggests that most of these fish were of Columbia River origin.



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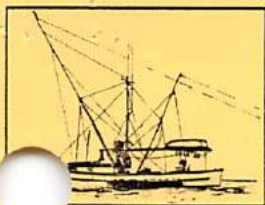
If protection of Columbia River chinook is a real goal, then a first step would be for the Pacific Council to eliminate the 9,733 annual average foreign take of these fish off the Columbia River. Certainly such a step would be more effective and in keeping with the policies of FCMA than restricting the Alaska fishery from harvesting over 30,000 fish in order to obtain a similar or smaller benefit.

CONCLUSION

Optimum Yield is a Congressionally defined term. It has been judicially interpreted by the Second Circuit in Maine v. Kreps. The proposed OY does not meet FCMA's statutory criteria as it has been judicially defined. For example, proposed OY is not based on MSY. This violates the law. The proposed OY does not take into account "social, economic or ecological factors." This also violates the law. As proposed the OY does not even consider the requirement that OY be that amount of fish "which will provide the greatest overall benefit to the Nation." This also does not comply with FCMA.

In conclusion, we would urge the Council and Board not to adopt the PDT's proposal to arbitrarily cut the OY, and to continue the existing OY and utilize "in-season" management, where necessary, to achieve desired escapements goals.

* * *



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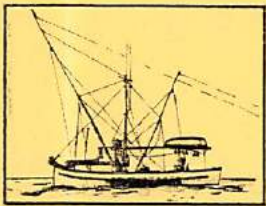
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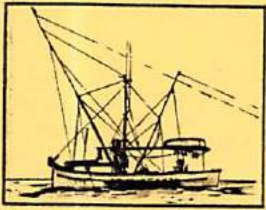
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M E M O R A N D U M

January 2, 1981

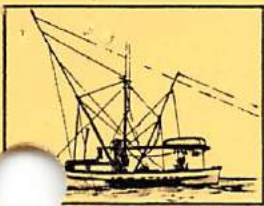
TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

FROM: Alaska Troll Legal Fund

RE: Recalculation of OY figures based on better statistical
methods and new data.

We believe that the optimum yield (OY) used in the 1980 season is statistically invalid and that more recent catch data should be used to update the OY.

The attached memo (Bachen, 16 April, 1980) substantiates a statistical problem involved with the method which was used in calculating the present OY which provides for an overly narrow catch range inconsistent with normal year-to-year fluctuations in catch. Bachens recommendation was that the mean catch for the years 1971-1977 be bracketed by one standard deviation instead of one standard error. This would provide for an OY with a wider catch range more in line with typical year-to-year variation noted in the base years, 1971-1977. Using this statistically preferable method would change the OY from the 290,000-320,000 that it is now to 267,000 to 344,000. This broader range reflects historic variability in catches and gives managers more flexibility in in-season management.

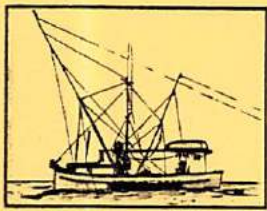


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If the OY is to be based solely on historic catches then the OY must be periodically recalculated with recent catch data, both to conform with the legal requirements of FCMA and to reflect changes in the abundance of chinook off Alaska. An objection to using recent catches may be raised here based on the belief that troll effort has recently increased. If, however, the catch is adjusted to account for changes in effort this objection becomes moot.

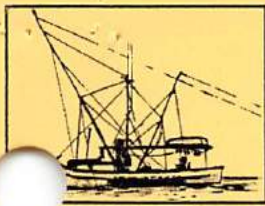
The only effort data which are useful for evaluating how catch is influenced by both effort and availability are found in the Alaska Trollers Association Logbook Program. Data on the relationship between catch rate and catch are currently available for 1977-1979. In the following calculations, power troll catches in 1978 and 1979 were adjusted downwards because change in catch rate did not fully explain changes in catch (Table 1). The relationship between catch rate and catch on which the adjustments were made was based on that seen for 1977, one of the years included in the original OY calculation. Although 1980 catch figures are available, determination of catch rates for 1980 logbook data has not been completed; consequently 1980 catches are not included.

Adjustment of hand troll catch must also be done, as effort in that fleet is also thought to have increased. To do this the ratio between hand and power troll catches for chinook in 1977 was determined and applied to the adjusted power troll catches



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for 1978 and 1979 (Table 2). No adjustment needed to be made to net catches, as their recent impact on chinook appears to have been relatively constant.



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TABLE 1. Catch statistics and effort-adjusted catches for chinook, 1977-1979, Southeast Alaska.

<u>Year</u>	<u>Average Catch Per Hour</u>	<u>CPH as % of 1977 CPH</u>	<u>Total Power Troll Catch</u>	<u>Catch as % of 1977 Catch</u>	<u>Effort Adjusted Catch</u>
1977	0.64	—	238,601	—	
1978	0.82	128	321,072	134	305,409
1979	0.60	94	279,069	117	224,285

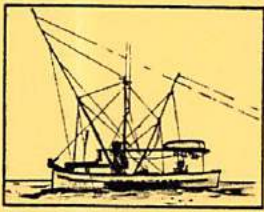
TABLE 2. Power Troll Chinook Catches, 1971-1979, Southeast Alaska.

<u>Year</u>	<u>Power Troll Catch</u>	<u>Hand Troll Catch</u>	<u>Net Catch</u>	<u>Other</u>	<u>Total</u>
1971	311,420		22,558		333,978
1972	242,285		44,409	135	286,694
1973	307,714		35,955	72	343,741
1974	322,154		24,454	17	346,625
1975	259,187	28,150	13,367	3	300,707
1976	204,894	26,293	10,479	45	241,666
1977	238,601	33,176	13,392	51	285,169
1978 Total	321,050	54,574			401,393
1978 Adjusted	305,409*	42,437*	25,359	410	373,615
1979 Total	279,187	59,032			366,704
1979 Adjusted	224,285*	31,102*	28,225	260	283,872

mean catch 1973-1979 = 310,771

mean ± s.d. (45785) 264986, 356556

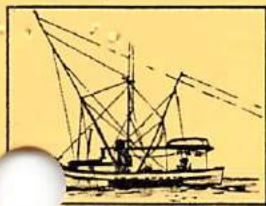
mean ± s.e. (17305) 293466, 328076



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Using effort adjusted data for 1978 and 1979 catches, we can recalculate OY based on the seven years between 1973 and 1979. Mean chinook catch was 310,771. Using \pm one standard deviation to describe the range would produce an OY range of 264,986 - 356,556. If the decision is made to stay with a range based on \pm one standard error (which is the way the current OY was calculated) the new OY range would be 293,466 - 328,076. Including 1978 and 1979 catches, even when they are adjusted to account for effort increases, raises the OY range for that calculated from 1971-1977 catches.

The underlying assumption used to adjust 1978 and 1979 catches is that catch rate is a function of fish availability. We have no way of knowing how many chinook are off Alaska's coast at any time, but catch rate, when calculated from a large enough sample size, may prove to be the best indicator. The relatively high catch in 1978 may seem a paradox to some in light of the states of certain stocks on the Columbia River. It is important to remember that we know very little about the composition of stocks off Alaska. In particular, we know little about the migration patterns of chinook stocks to the north and west in Alaska. We should keep in mind that the data on which the prevailing concepts of stock distribution are based is probably biased towards those systems where recovery effort was made (e.g., in the case of the Parker and Kirkness' 1956 study) or to those stocks which have been

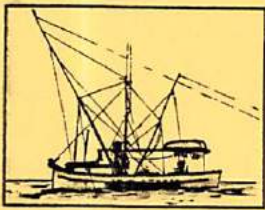


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tagged. Tagging effort has not been randomly applied to coast-wide stocks, and this may well have inflated the contribution of some areas while lessening that of others.

Catch quotas applied to the troll fishery create problems which make them an undesirable management option. It is considered to be far better to stabilize effort at the desired level and allow catch to fluctuate with availability. Using effort limitation, in years when few fish are available, the catch is low and vice-versa. Under catch quotas, in fisheries where too much effort exists, catches may be too high in years of low availability due to high effort, as no control is introduced until a catch quota is met.

Catch quotas may be useful as interim measures while effort controls are being formulated, if they are used as broad guidelines within which in-season management can adjust the catch. This method requires in-season assessments of catch rates and a data base from which to judge how the current season's catch rates compare to other years. Fortunately, Alaska is prepared to do this, having both a Port Sampling Program to gather catch rates in-season and four years of catch rate data from the Logbook Program. For in-season management to be effective, the range of allowable catches should be wide enough to encompass the normal variability of catches in the fishery. The current OY clearly



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does not provide an adequate range; only one of the years in the base period (1971-1977) falls within the OY range. We therefore propose that the OY be updated to include 1978 and 1979 catches, adjusted for effort change, and that standard deviation be used to set the range so that normal variability is accounted for.

* * *

MEMORANDUM

April 16, 1980

Re: Effects of Imposing the Current OY on the Southeast
Alaska Chinook Fishery

From: Bruce Bachen

I have studied the methodology used to calculate the optimum yield (OY) that has been proposed for chinook salmon management in Southeast Alaska this season and explored the effects of imposing this OY on the fishery. I concluded that enforcement of this OY will not stabilize the fishery at a level comparable to that of the base period used in its calculation, 1971-1977, but will result in average catches lower than those of the base period.

The current OY range has been selected to equal the Southeast Alaska 1971-1977 mean chinook catch plus or minus one standard error. This resulted in an extremely narrow range: so narrow, in fact, that only one of the seven base years fell within it. This is understandable since a standard error does not measure the variability of the catches, but rather that of the mean of the catches.

Since the OY is supposed to represent chinook catches from 1971 to 1977, it should have little or no impact on the mean catch if it is imposed on the base period. This was tested and results are presented in Figure 1. The catches in 1971, 1973 and 1974 were greater than the OY and hence would have been reduced to the upper OY limit, 320,000 fish. Under the OY, the mean catch would have been 296,507, which was 9,000 fish lower than the actual mean of the base period. The largest catch reduction would have occurred in 1974 when fishermen would have been precluded from harvesting 26,593 fish. Clearly, the current OY range does not describe the variability of catches in the base period and would reduce the future average catch to a lower level.

The current range of the OY is too narrow, as the upper limit is not high enough to offset catches in years which fall below the current lower limits of the OY. I suggest using the standard deviation, a statistical measurement of variability of individual yearly catches, would be more appropriate for setting OY limits in the future. Using the standard deviation, the limits would be 267,147 and 343,781. Applying the same test used above resulted in no significant difference between the mean of the base period and the mean calculated under the OY (Figure 2).

Enforcement of the current OY will not result in the desired stabilization of harvest at the level of the period 1971-1977. Unless the upper limit of the OY is increased, the Southeast Alaskan chinook fishery will effectively be cut back to average harvest levels lower than any seen in the past decade and this is not the stated intent of either the North Pacific Fisheries Management Council or the Alaska Board of Fisheries.

Figure 1. Test of the Effect of Imposing the Current OY on the Southeast Alaska Chinook Fishery, 1971-1977.

<u>Year</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Actual Catch	333,978	286,829	343,623	346,593	300,294	241,711	285,220
Catch Restricted by Current OY	320,000	286,829	320,000	320,000	300,294	241,711	285,220
Loss	13,978	---	23,623	26,593	---	---	---

Actual mean catch: 305,464

Mean catch under current OY restriction: 296,293

Average loss/year under current OY restriction: 9,170 (3%)

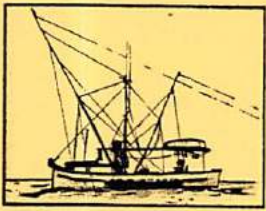
Figure 2. Test of the Effect of Imposing the Proposed OY on the Southeast Alaska Chinook Fishery, 1971-1977

<u>Year</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Actual catch	333,978	286,829	343,623	346,593	300,294	241,711	285,220
Catch Restricted by Proposed OY	333,978	286,829	343,623	343,781	300,294	241,711	285,220
Loss	-0-	-0-	-0-	2,812	-0-	-0-	-0-

Actual mean catch: 305,464

Mean catch under proposed OY restriction: 305,062

Average loss/year under proposed OY restriction: 57



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M E M O R A N D U M

January 2, 1981

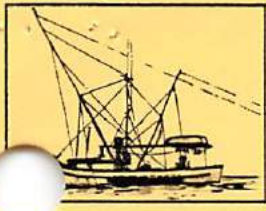
TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

FROM: Alaska Troll Legal Fund

RE: A Proposal for Limited Entry System for the FCZ

Under the existing FMP all holders of Alaska power troll limited entry permits are now allowed to fish in the FCZ. Although the Council adopted an FMP which banned hand trollers from fishing in the FCZ, the Secretary of Commerce disapproved this ban. Nonetheless, the Alaska Board of Fish enacted regulations prohibiting hand trollers from fishing outside of the surfline, which in effect, precluded hand trollers from fishing in the FCZ.

In June, 1980 four hand trollers brought suit against Alaska challenging the legality of the state's prohibition of hand troll fishing outside of the surfline. After considering the hand trollers' request for a preliminary injunction, the Sitka Superior Court concluded that the hand trollers were not likely to prevail on the merits, and the hand trollers had not established that the state's interests would not be harmed by the issuance of a preliminary injunction. The hand trollers appealed to the Supreme Court of Alaska and lost their appeal on the preliminary injunction issue. A trial on the merits of this case is still

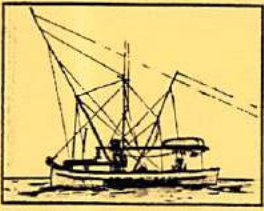


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pending, and its conclusion should settle the legal issue of whether hand and power trollers may be managed as two distinct fisheries.

Adoption of a limited entry system different than the state system for power trollers in the FCZ would not be appropriate this year. Although FCMA authorizes the creation of a separate limited entry system for the FCZ, it does so only after the Council has taken into account A) the present participation in fishery, B) the historical fishing practices in, and dependence on, the fishery, C) the economics of the fishery, D) the capability of fishing vessels to engage in other fisheries, E) the cultural and social framework relevant to the fishery, and F) other relevant considerations. Since the Council has not addressed any of these factors with regard to the power troll fishery, adoption of any limited entry system different than the state system for 1981 would be premature.

Although the Council has a number of options, ATLF requests that the Council make another attempt to persuade the incoming Republican Secretary of Commerce to accept Alaska's historical definition of its own fisheries. Our position is based on two considerations. First, there is a pressing need to stabilize effort in the FCZ and state waters. Second, the state of Alaska has determined that this can best be done by prohibiting hand



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trollers from fishing outside the surf line. This strategy, like most of Alaska's regulatory and effort limitation strategies, is based on the State's recognition of historical distinctions between the two gear types. See attached letter from Ronald Skoog, Commissioner of ADF&G, to Terry Lietzell, Assistant Administrator for NOAA. The Secretary's failure to recognize these distinctions with regard to the hand troll ban may have far reaching implications to all state salmon management. For example, the state has adopted an allocation policy between the two gear types. This policy may not be allowed to stand if the Secretary continues his existing interpretation of the law.

Continued Council support of the State position may persuade incoming officials at NMFS and NOAA of both the need and the strong factual basis for recognizing the distinction between the two gear types and the legitimate reasons for treating each differently. Such a change in policy would be in the best interests of all concerned.

* * *

STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF FISH AND GAME

via Telecopy 3/25/80 (4 pages)

333 RASPBERRY ROAD
ANCHORAGE, ALASKA 99502

March 19, 1980

Mr. Terry Leitzell
Asst. Administrator for Fisheries
National Oceanic and Atmospheric
Administration
Washington, D. C. 20235

Dear Mr. ~~Leitzell~~: *Terry*

Re: Alaska Salmon

I am in receipt of a copy of your letter of March 17, 1980 to Mr. Clem Tillion, chairman of the North Pacific Fishery Management Council, in regard to the amendment package for the High Seas Salmon Fishery Off Alaska. There are issues which you discuss in your letter to which I must reply.

You stress the need to recognize the depressed status of some stocks which appear in the troll fishery of Southeast Alaska. These concerns were paramount in the development of the High Seas Salmon FMP. The initial draft (1978) of the FMP which was released for public review contained a provision for a radical closure of large areas of the FCZ to protect immature chinook where high proportions of the fish caught are probably of Washington and Oregon origin. This proposal was rejected by the Council after a series of public hearings which warned that economic hardship would be suffered by some rural communities if such a closure was imposed, and that data were insufficient to define specific areas to protect immatures. In subsequent action the Council sought to address conservation of depressed natural stocks and to preserve the economic base of rural Southeast Alaska by limiting the high seas troll fishery to its recent historic level (1971-1977).

Out of respect for the highly unpredictable nature of salmon runs, National Standard 6, and the impracticality of applying an MSY to a mixed stock and mixed species salmonid fishery the Council opted for an Optimum Yield which is a long term goal of management and not an annual quota. The State of Alaska manages its salmon resource primarily by in-season assessment of the returning run. The decisions to open or close specific geographic areas are delegated to a regional or area biologist who is knowledgeable of the local fishery and local salmon stocks. The Alaska system of in-season management was the model for the current delegation of authority to National Marine Fisheries Service Regional Director for Alaska for time and area openings and closures.

Utilization of the Optimum Yield stated in the High Seas Salmon FMP as a basis for establishing a quota for this fishery, however popular it may be, is only a cosmetic solution to the seeming problem off Alaska.

Conservation of the depressed chinook stocks of the West Coast can only be achieved following resolution of U. S. - Canada salmon interception negotiations and completion of research to identify times and areas of concentration of these stocks. Once these two items are completed we can accomplish the goal of conservation of depressed stocks. At the present time the Alaska troll fishery and the High Seas Salmon FMP are being made the "whipping boy" for all the problems of Washington and the Columbia River stocks. The criticisms laid against the existing FMP and the amendment package are grossly overstated. For example, as Table 1 shows the salmon fisheries of Southeast Alaska account for only 9% of the chinook salmon harvested on the West Coast south of Cape Suckling, Alaska and north of California.

We recognize that all stocks are not harvested at the same rate. However, we have seen no data that demonstrates an unacceptable harvest of Columbia River stocks by the Alaska troll fishery. The only information we have seen was strongly biased against Alaska because it considered only the ocean harvest of Columbia River chinook and ignored the inshore and in-river harvests.

Also in your letter you mention an apparent overharvest of chinook during 1979. This overharvest is a complex subject and I wish to discuss this issue in detail. It is true that the 1979 commercial harvest of chinooks exceeded the upper limit of the Optimum Yield as stated in the FMP. The Optimum Yield was never intended as the criterion for evaluating the achievement of the FMP's objective to "control the expansion of the salmon troll fishery conservation zone." The Council's intent was to establish a status quo fishery. This intent has been interpreted as limiting the fishery to a level of effort and harvest comparable to the base years 1971-1977. Harvests for these years are given in the following table.

Commercial Harvest of Chinook in Southeast Alaska
State waters and FCZ

<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
334,000	287,000	344,000	347,000	302,000	242,000	285,000

mean harvest = 306,000

standard error = 14,500

The Optimum Yield for the FMP is the mean harvest plus and minus one standard error (291,500 - 320,500 chinook). For the years 1971-1977 in only one year did the harvest fall within the range. This means that in only one year out of seven was the Optimum Yield achieved. Even when the Optimum Yield range is the mean plus and minus two standard errors only four of the seven years fell within the range. It was not necessarily the Council's intent to measure the success of its plan on the basis of annual harvests relative to the Optimum Yield or to establish the upper end of the Optimum Yield range as the maximum acceptable harvest.

The largest harvest during the base period was 344,000 chinook. The 1979 harvest was 360,000 chinook which is only 16,000 fish above the highest catch of the period. An overharvest of this magnitude (i.e., fine-tuning to within a few percent of the total harvest) is very diffi-

TABLE 1

Pacific Coast Chinook Harvests
all fisheries - troll, net, and sport
(1000's of fish)

(North of California and Southwest of Cape Suckling, Alaska)

	1974	1975	1976	1977	1978	1979	Mean	%
S.E. Alaska	374	321	249	302	407	374	338	8.9
Canada	1,785	1,820	2,127	2,067	1,889	1,557	1,874	49.4
Washington	1,103	1,298	1,286	1,085	840	709	1,054	27.8
Oregon	466	532	575	698	449	450	528	13.9
Totals	3,728	3,971	4,237	4,152	3,585	3,090	3,794	100

Source: 1974-1976 INPFC Reports
1977-1979 Respective Resource Agencies (some data preliminary)

cult to anticipate prior to the end of the season. Most of the chinook harvest is taken over a five to six month period and much of it is taken incidental to other fisheries. Further, the holding capacity of the troll fleets is greater than the experienced "overharvest."

We do not pretend that there are not problems associated with the harvest of depressed chinook stocks or that nothing more can be done to control expansion of the high seas troll fishery. Last year the fishery did expand. A larger proportion of the troll catch occurred in outside waters of Southeast Alaska than has occurred in the past. We are seeking to ensure that this does not happen again this year. The elements included in the amendment package for the FMP are helpful in accomplishing this. The limits on the number of lines which can be used will obviously impact fishing effort. The conditional midseason closure during July will help in reducing fishing effort on chinook. During recent years the catch for this time period has exceeded 30,000 chinooks.

The Alaska Department of Fish and Game is continuing to address the troll fishery by: one, conducting a biometrical analysis of logbook data, catch information, and coded wire tag data for the troll fishery through a contract funded by the North Pacific Fishery Management Council; two, continuing to expand the coverage of the coded wire tag recovery program; and three, beginning in July the Department will commence a port sampling program to document fishing performance and to enhance our in-season management capability based on catch per unit effort data; and four, unlike many other jurisdictions, Alaska is conducting an aggressive program on tagging native stocks of chinook and coho.

You must realize that the troll fishery occurs predominantly in State waters. Alaska has on its own initiative without court involvement or threat of litigation imposed regulations on the troll fishery as the need became evident. Among the actions which the State has taken to protect chinooks are:

1. Limited entry for power trollers (1975);
2. A 28 inch minimum size limit for chinooks (1977);
3. Elimination of directed net fisheries for chinook (1975-1977);
4. Closure of terminal areas to trolling (1975-1977);
5. Closure of outside waters to hand trolling (1978);
6. Establishment of 8 day opening/6 day closure fishing periods (1979);
7. Restrictions on sport fishing bag and possession limits (1975);
8. Moritorium on entry into the hand troll fishery (1980) and limited entry for hand trollers (1981); and
9. Reduced line limits for power and hand troll fisheries (1980).

Needless to say, I feel that the ban on handtrolling in the FCZ is a critical element in controlling effort in the troll fishery. We have supplied your office with ample documentation of our position and justification for the ban. For the sake of my staff I greatly fear the impacts that would fall upon us if you should specifically authorize

March 19, 1980


handtrolling in the FCZ. It would be a true tragi-comedy if you were to allow handtrolling in the FCZ and then subsequently impose severe restrictions on the entire troll fleet because of the greatly increased effort.

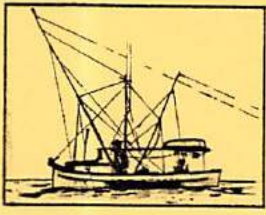
I strongly urged you last year to take an administrative position on handtrolling that would compliment Alaska's current regulations. Action by you at that time would have enhanced the effectiveness of the high seas salmon FMP, rather than hinder it. The fishing industry would have respected such a decision.

The Alaska Department of Fish and Game is responsible for the management of salmon fisheries which catch an average of over 50 million fish each year. The Department is virtually the only source of data and expertise for these fisheries. Any information you receive from any other agency is second hand. We have established a close working relationship with the Alaska Region of the National Marine Fisheries Service. We consider the Regional Office to be our link between your office and the State of Alaska. I hope that you respect the actions and advice of the Alaska Regional Office as representative of regional fishery management expertise that can be only acquired by proximity to the resource and industry. If the management decisions for this fishery are taken out of the hands of the Regional Office it is incumbent upon you to consult with my staff prior to taking any action.

You have asked us to recognize your sincerity in the decisions which you make. We only request that you recognize the well established sincerity of our efforts to address the problems which may be associated with the high seas troll fishery. Your forbearance is requested that we can achieve our own solution without the complicating involvement of Washington D. C. A more equitable and speedier resolution to the issues is certain to occur if the West Coast Councils can address them with a minimum of outside involvement. We ask you not succumb to the pressures from the various interest groups which seek selective advantage by your involvement in the allocation of high seas chinook.

Sincerely,


Ronald O. Skoog
Commissioner



Alaska
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Association

M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

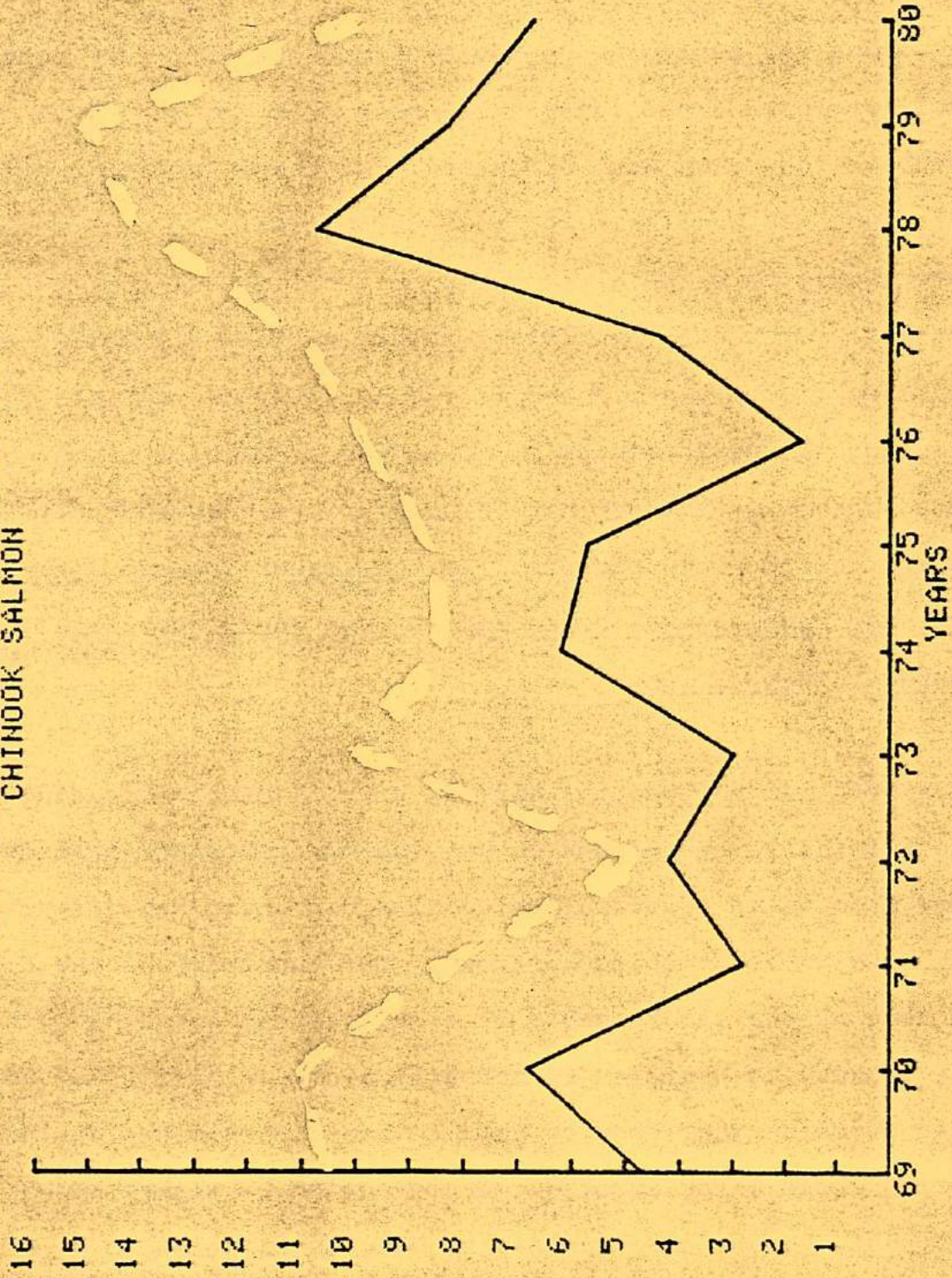
FROM: Alaska Troll Legal Fund

RE: Proposed Season Time Reductions

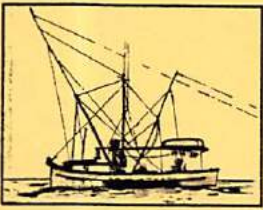
The Plan Development Team has proposed that the opening of the troll season be delayed from April 15 to May 15. Justification given in the public review document includes curtailment of expanding early season effort and conservation of Alaskan chinook stocks. We have examined early season catch data from January 1 to May 15 for outer coastal districts and note that the proportion of chinook caught prior to May 15 this year is comparable to that of past years. (Fig. 1)

We have reviewed the available data regarding Alaska stock distribution and find it inadequate to justify the proposed delayed opening on the theory that significant benefit would accrue to Alaska stocks. Major tagging work has been limited to stocks in the Stikine and Taku Rivers. While initial tag recoveries have begun to appear in the past two years, the numbers of recoveries are small. In 1979, five Taku tags were recovered, two of which were by trollers and three by gillnetters. Of the two troll

PROPORTION OF ENTIRE OUTSIDE TROLL CATCH
TAKEN BETWEEN JAN 1 AND MAY 15
CHINOOK SALMON



PROPORTION OF CHINOOK CAUGHT



Alaska
Trollers
Association

tags, one was recovered on May 17 from area 513. The other troll tag came from District 106 near Wrangell in July. In 1980, 12 Taku tags were recovered. Of these, no information on gear type was available for five recoveries. Of the remaining seven tags, three were recovered by trollers and four by gill-netters. Of the three troll recoveries, two were collected in late May from Areas 113 and 513; both outside districts. No tag sampling was performed prior to May 20 so we have no tag recovery data to show whether or not Taku chinook are present outside during the proposed closure. If the fishery opened on April 15, 1981 and sampling was begun earlier, we would have data to answer this question.

Much work and expense has already been devoted to tagging Taku and Stikine River chinook to provide management with an information base from which to formulate regulations which would improve the status of Alaskan chinook stocks. Our knowledge of the distribution of some Alaska stocks could be significantly enhanced by allowing the fishery to begin as it normally would on April 15. We could then evaluate tag recovery data to see if a closure during this time period would offer substantial protection to Alaska stocks. Fortunately, the 1981 run to the Taku is expected to be relatively good; comparable to this year's run.* This, coupled with the fact that substantial numbers of returning chinook are tagged, makes

*Paul Kissner, Personal Conversation

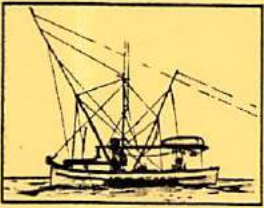


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1981 a good year to learn about the migration routes of the Taku fish without jeopardizing escapement. This information may be critical for the protection of future Taku chinook runs weakened by a major landslide in 1977.

Allowing the fishery to open April 15 and gathering tag recovery data will provide necessary data to formulate effective management regulations that may increase chinook escapement to the Taku River. Altering fishing patterns now will destroy work begun four and five years ago, and may prevent us from ever knowing if early season outside closures significantly aid Alaska stocks.

* * *



Alaska
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Association

M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

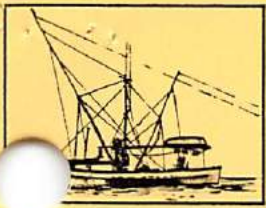
FROM: Alaska Troll Legal Fund

RE: An Analysis of Inside/Outside Effort and Response to the
Management Proposal to Close Whole FCZ.

A good deal of the management pressure on the Alaska Troll fishery has been engendered by a widely-held perception that troll effort in the FCZ has increased substantially. While some increase has occurred, our analysis demonstrates that it is of a much smaller magnitude than it may appear.

MANAGEMENT PROPOSAL: CLOSE WHOLE FCZ

A total closure of the Fishery Conservation Zone (FCZ) off Alaska to salmon trolling has been proposed as an amendment to the troll fishery management plan. The narrative accompanying the proposals that were distributed for public comment states that this proposal will "offer greater protection for non-Alaskan stocks." An evaluation of the effects of a FCZ closure on non-Alaskan and Alaskan stocks is presented here.

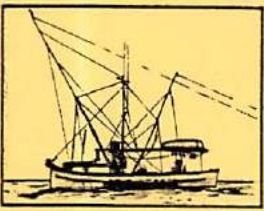


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DISTRIBUTION OF CATCH

It is difficult to define the actual percentage of catches taken from the FCZ compared to state waters. Although fish ticket information collected at the time of sale is supposed to include fishing area, pounds of fish landed, and numbers of fish landed there are significant problems associated with mis-reporting catch areas. A 3% aquaculture tax applied to gross landed value has been in effect since 1977. The tax only applies to fish caught in state waters; hence a fisherman can avoid the tax by declaring his catch was from the FCZ. Falsifying catch location became such common practice that by 1980 some buyers automatically recorded a FCZ area without asking the troller where he fished. These inaccuracies of catch location data have made interpretation of catch distribution between the FCZ and state waters impossible.

Given the possibility of tax avoidance, it is not surprising that the relative proportion of catch from the FCZ compared to the total catch as shown by fish tickets has substantially increased during the past two years. From 1978 to 1979 the percentage of chinook reported caught in the FCZ doubled, increasing from 17 to 35%. Between 1979 and 1980 the percentage of chinook taken from the FCZ increased an additional 10 points from 1979 levels. Thus, according to fish ticket data from 1978 to 1980 the percentage of chinook caught in the FCZ compared to total catch soared 265% increasing from 17% to 45%. It is the consensus of fishermen,

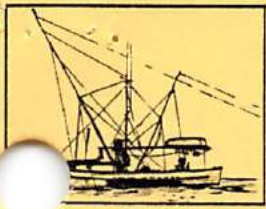


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managers and others familiar with the Alaskan troll fishery that the magnitude of this increase is not realistic. (Refer to the 11-80 Homan-McDowell study for Alaska Trollers Association, p. 18 ff, for a detailed analysis of catch mis-reporting.)

Alaska Trollers Association Logbook Program data is an alternative data source which can be used to examine catch and effort distribution between state and federal waters. Since participants in the Logbook Program are anonymous, catch location information recorded in logbooks is likely to be more reliable than that reported on fish tickets. Three years of effort data were analyzed: 1977, 1978 and 1979. The percentage of days fished by logbook participants in the FCZ of the total effort has increased only 8.6% from 1977 to 1979, going from 14.8 to 23.4%, respectively.

Of the chinook catch taken from the outer coastal area (exclusive of water inside the surfline), 38% of the logbook participants' catch came from the FCZ in 1978 and 33% of the chinook were caught in the FCZ in 1979. Using fish ticket data to determine inside/outside catch distribution, 77% and 75% of the chinook catch came from outer coastal areas in 1978 and 1979, respectively. Applying the logbook-derived estimate for outer coast catch distribution between state and federal waters, 29% and 25% of the total chinook catch came from the FCZ in 1978 and 1979, respectively.

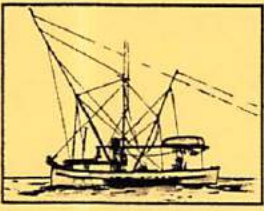


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The 1978 logbook-derived estimate of the contribution of FCZ-caught chinook substantially exceeds the percentage derived from fish ticket data (17%) since 1978 data do not appear to have been affected by the aquaculture tax. This suggests that logbook data is biased in having a disproportionate amount of catch reported in the FCZ. If this is so, then logbook-derived percentage contribution of chinook may be taken as a maximum, assuming little change in sample from year to year. The maximum contribution of chinook catch by the FCZ in 1979 calculated from logbook data would then be 25%, substantially less than the 35% calculated from fish ticket data. Based on the relationship between fish ticket data and logbook data (in 1978) estimates of FCZ contribution, a correction factor may be calculated which, if used with the logbook-based estimate in 1979, would reduce the contribution by FCZ fishermen even further. The important point to be recognized is that fish ticket-derived estimates of 35 and 45% of the total chinook catch coming from the FCZ in 1979 and 1980, respectively, are probably excessive, and that the percentage catch in 1979 was probably somewhat less than 25%.

IMPACTS OF FCZ CLOSURE

The greatest impact of an FCZ closure would be felt in the area north and west of Cape Spencer where traditional fishing areas extend out to 40-50 miles offshore. Below Cape Spencer most popular fishing areas are close to shore, with a number of drags

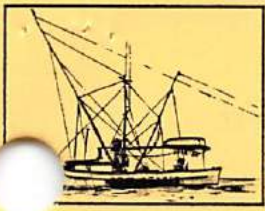


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extending beyond three miles into federal waters. An FCZ closure will force those fishermen that currently fish the FCZ to seek other areas. In most cases they will move to drags along the outer coast within three miles, but in some other cases, fishermen will fish the inside areas.

The proportion of trollers which will be affected by an FCZ closure is large, as shown by logbook data. In 1978, 80% of the trollers returning logbooks indicated that they had fished outside 3 miles at least once. In 1979, 84% of the logbook participants had fished in the FCZ that year. All trollers would be affected by an FCZ closure either directly or indirectly.

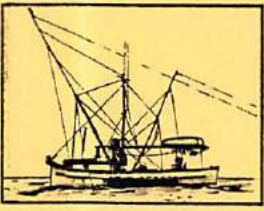
Increased effort in inside areas is undesirable due to the impact this increased effort would have on Alaskan stocks. Evidence from Kissner (1973, 1974) and recent coded wire tag recovery data suggests that the proportion of Alaskan chinook relative to non-Alaskan stocks is much higher in inside waters than along the outer coast. Unfortunately, pooling of some tag recoveries into composite recovery areas containing both inside and outside districts prevents an accurate accounting of inside/outside recoveries. A minimum estimate of Alaskan origin chinook recoveries may be made for inside waters by assigning all pooled area recoveries to the outside; also, the average sampling percentage is lower from inside districts, so when the numbers of tag recoveries



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are expanded, the relative proportion of tagged chinook caught inside will be greater compared to those taken outside. In 1979, 37% of the catch was sampled from outside districts while 25% was sampled inside. The number of observed Alaskan coded wire tag recoveries of chinook of Alaska origin was 130 in 1979. (ADF&G, 1980) In 1979, a minimum estimate of the observed inside tag recoveries is 82%, as 106 of 130 recoveries came from inside districts. The actual number of Alaskan marks recovered in inside waters is probably greater. The very large proportion of inside tag recoveries suggests that the availability of Alaskan stocks is greater inside than outside. Consequently shifting effort to the inside would add additional pressure on Alaska stocks.

Movement of the fleet out of the FCZ would not eliminate the troll fishery's impact on non-Alaskan stocks in the state's inside and coastal waters. Tag recoveries from inside areas (not including the state's coastal waters) indicate that a substantial numbers of non-Alaskan chinook are caught in inside areas. With tag recoveries assigned to pooled areas grouped with tag recoveries from outside areas, 31% of the recovered tags in 1978 from the Columbia River came from inside areas. The estimate that 31% of Columbia River chinook are taken from inside waters is a minimum estimate due to pooled area recoveries being assigned to the outside, and due to variable tag recovery effort between outside

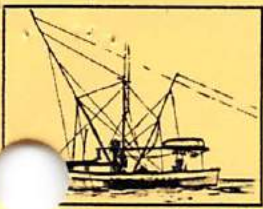


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and inside areas. Since this 31% does not include coastal catches, it must be concluded that the actual percentage of Columbia River chinook caught in state waters is substantially larger.

An adverse impact of an FCZ closure from a National prospective is that it will likely limit the opportunity for Alaskan trollers to harvest their traditional share of chinook bound for British Columbia Streams. In 1979, 651 British Columbia tagged chinook were recovered. Of these, 196 (30%) recoveries came from inside areas, 375 (58%) came from outside areas and 80 (12%) recoveries were assigned to recovery areas including both inside and outside areas. These data suggest that the majority of Canadian chinook caught in Alaska are taken in outside areas. Elimination of fishing effort in the FCZ could lead to lower take of Canadian chinook through an increase in effort inside and by lowering efficiency outside.

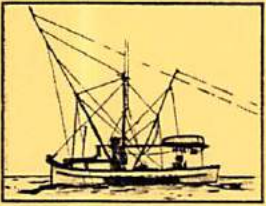
The Canadians' catch probably would increase for two reasons due to an FCZ closure. First, more Canadian chinook would reach Canadian fisheries increasing their catch. Second, additional U.S. chinook would enter the Canadian fishery where many would be caught. International policy regarding the distribution of catch appears to be nearing formalization, at which the conservation problems may be treated on a coastwide basis. It also appears essential to maintain a stabilized catch until a workable con-



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servation strategy between the U.S. and Canada is developed, to ensure that cutbacks in Alaska will lead to increased escapements and not to increased Canadian catches.

As noted before, most effort will transfer to state coastal waters extending from the surfline to three miles offshore. To date there have been no data to indicate that stock composition differs between the zone from 0-3 miles offshore and the FCZ. Redistribution of effort will place increased pressure on the fish that are distributed inside three miles, which we know through tag recovery data include Columbia River stocks. (ADF&G 1980) We do not know how many of the fish that would have been caught in the FCZ will move into state waters and be taken there. Closure of the FCZ will lead to an increase of pressure on certain, and as yet undefined, stocks, as well as decreased efficiency of individual trollers. There is no guarantee that an FCZ closure will decrease the Alaskan troll fishery's impact on non-Alaskan stocks and, could do more harm than good by forcing pressure on stocks in state waters. Moreover, it could be disadvantageous from a national prospective by reducing U.S. traditional take of B.C. chinook. Time restrictions or quotas would not necessarily relieve the problem of increased pressure on stocks in state waters because the effort will be intense during the openings, and may coincide with periods when certain stocks are vulnerable. Wide distribution of effort is preferable to forcing effort into



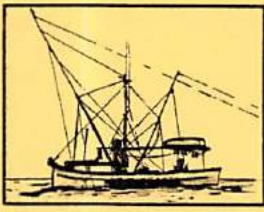
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smaller areas (which would be the result of an FCZ closure)
because our understanding of the distribution of various stocks
is inadequate to predict the negative effects of such an action.

* * *

REFERENCE CITED:

ADF&G, 1980. Ocean Salmon Micro-wire Tag Recovery Program,
Southeast Alaska--1979.



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M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

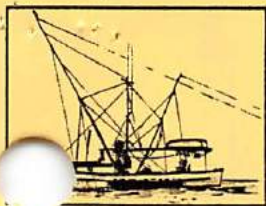
FROM: Alaska Troll Legal Fund

RE: Proposal to Move Coho Effort Inside (State # 257)

The North Pacific Council and Board of Fisheries are now being urged to adopt a policy of limiting the outside power troll coho catch so that a greater proportion will be caught in inside waters. This paper examines some of the effects of the outside shift in catch and evaluates the proposed policy as a conservation tool.

There is no doubt that power trollers in recent years have been catching more coho outside than inside, a reversal of earlier fishing patterns. Gear crowding, caused by the rapid expansion of the hand troll fleet from 1975 to 1978, and the imposition of fishing periods (8 days on, 6 days off) are two of the most obvious reasons for a shift in effort to outside areas.

Whether the same amount of power troll effort in outside areas will result in a greater catch of coho compared to inside areas is open to question. The additional question of the total



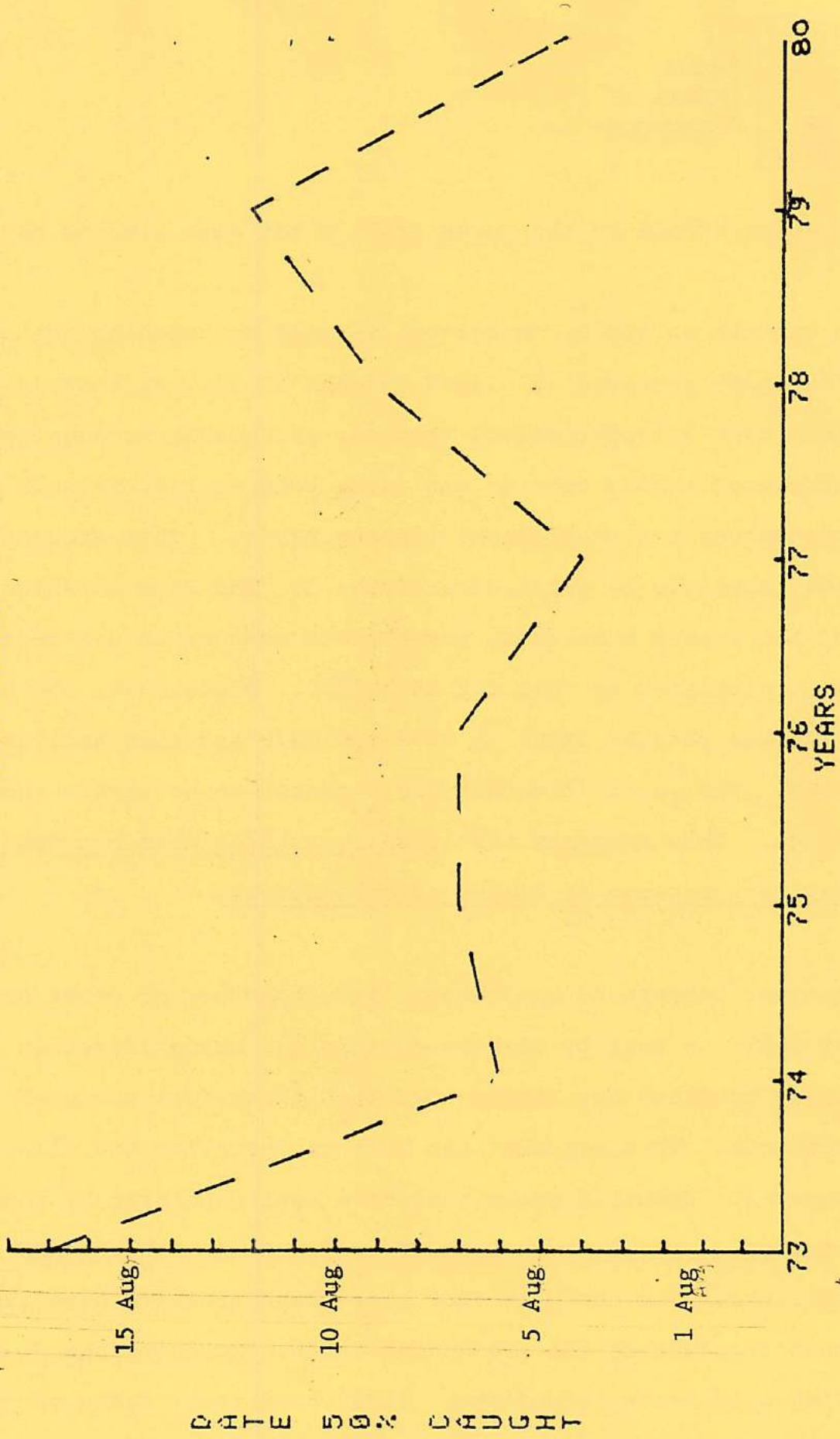
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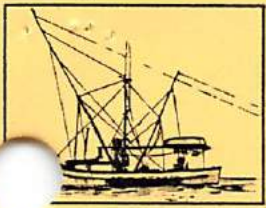
fishing effort by the power troll fleet must also be addressed.

A concern voiced by management is that by catching the coho outside more pressure is placed on coho stocks, as they are vulnerable over a longer period of time; presumably because power trollers fishing outside can catch coho earlier as well as throughout the traditional fishing period. This argument is not supported by catch data. (Fig. 1) The date on which 50% of the year's cumulative power troll coho catch was reached was calculated by year for 1973-1980. Since 1977, the 50% date was reached later in 1978 and 1979 and then earlier in 1980. The yearly fluctuations appeared to be within the normal range. This suggests that fishing outside does not mean that earlier pressure is placed on coho stocks.

Another concern by management, and fishermen of other gear groups as well, is that by fishing outside and being "first in line," power trollers are taking more than their fair share of the coho run. This argument has both conservation and allocation aspects. Specific guidelines have been developed by the Board of Fish on the distribution of troll catch between hand and power trollers. For the past four years hand trollers have caught more than 20% of the troll coho catch, exceeding the Board of Fish allocation guidelines. (1980 hand troll catch of coho was 26%.) The outside power troll catch is clearly not preventing

(FIGURE 1)
DATE 50% OF TOTAL POWER TROLL CATCH CAUGHT
SOUTHEAST ALASKA POWER TROLL FISHERY
COHO SALMON





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hand trollers from harvesting their share.

Coho harvest proportions were calculated for all gear from 1960-1980. (Fig. 2) The recent percentage of the coho harvest taken by power trollers has remained relatively stable, showing no signs of an increasing trend. Other gear groups have experienced substantial changes. Seiners who enjoyed 20-40% of the coho catch through the 1960's and early 1970's now catch 10-20%. Gillnetters are currently at the low end of the range of their historic catch percentages at 10%. The group that has gained in the 1970's is the hand trollers, who have now gone from 10% in 1975 to approximately 20% of the coho catch. Net gear groups have lost some of their historic allocation to hand trollers. That the power troll percentage has not changed over time indicates that the fishing pressure exerted by power trollers has not changed relative to that of the other gear groups, collectively.

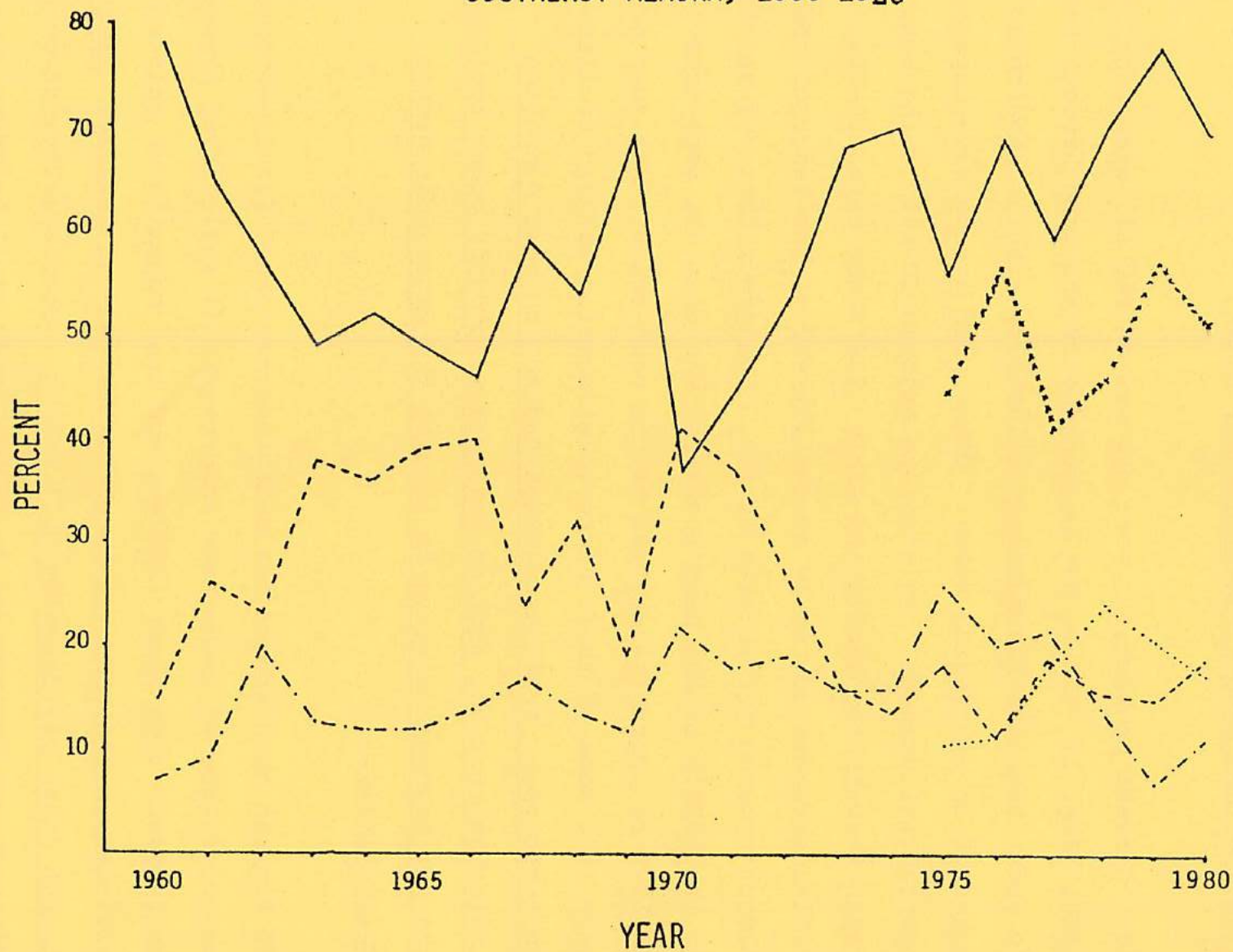
If Alaskan coho stocks are being overharvested (an issue open to doubt, due to inadequate coho research) and fishing pressure is reduced, then power trollers and the composite of seiners, gillnetters and hand trollers must be reduced equally. If this is not done, reallocation will result. Specifically, if outside closures are implemented to reduce power troll pressure the cumulative pressure by hand troll, gillnet and seine gear must

PERCENTAGE OF COHO HARVEST BY GEAR TYPE

(FIGURE 2)

(TROLL, DRIFT GILL NET, SEINE)

SOUTHEAST ALASKA, 1960-1980

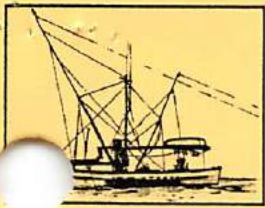


Drift Gill Net
Seine
Troll

-.-.-.-
—————

Hand Troll

Power Troll

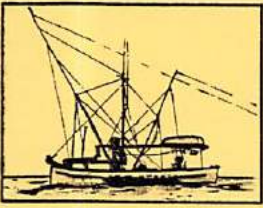


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be reduced in equal amount, or power trollers will lose their historic coho allocation.

Forcing power troll effort back into inside areas may have some undesirable effects. Although data are lacking, nearly all fishermen that we have talked with recognize that the abundance of undersize chinook is substantially greater in inside areas compared to outside areas, and many of these shakers are suspected to be of Alaska origin. Gear conflicts would certainly arise between power and hand trollers, as there are far more hand trollers now fishing inside drags than there were five years ago. These costs associated with moving power troll effort back to the inside may make other solutions to conservation problems more appealing.

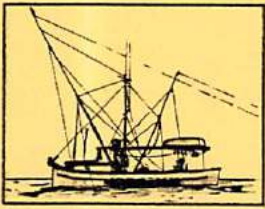
Another concern over outside catches is that management is unable to assess run strength and respond to weak runs if coho are caught outside. We currently have four years of catch rate data through the Alaska Trollers Association Logbook Program which may be used to compare catch trends in-season. The State has recently funded a Port Sampling Program designed to get up-to-date catch data in-season. The basic tools for run size assessment on the outer coast are in place, but are as yet unused.



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If careful analysis of the status of Alaskan coho stocks results in a decision to reduce fishing pressure, a number of management options exist. Power troll effort does not have to shift to the inside to accomplish conservation or allocation goals, and adopting a policy to do so may unnecessarily narrow the range of management options available; some which may be far less disruptive.

* * *



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M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Board of Fisheries

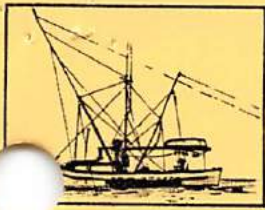
FROM: Alaska Troll Legal Fund

RE: Proposal to Set Seaward Line Beyond Which
Trolling Would Not be Allowed

This proposal by the PDT, which also appears as state proposal #240, is based on the management perception that there is increased fishing effort in offshore areas--and that this effort is moving further and further offshore.

THERE IS NO SIGNIFICANT SEAWARD MOVEMENT OF TROLL EFFORT

The proposal would define an offshore area beyond traditional fishing areas in which trolling would be banned. It is the stated intent of the proposal not to interfere with fishing areas now in use. The point that management has missed is that trollers have and will go to where fish can be caught, and that simply going offshore into deep water will not result in the same availability of fish. Further, the acknowledged problems with inshore/offshore catch statistics, and the lack of verifiable data showing this alleged effort shift, added to wide reporting by fishermen that they are not aware of any significant offshore



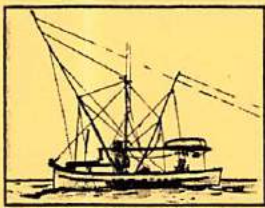
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movement, raises considerable doubts about whether a problem actually exists.

This proposal has been put forward not as an an attempt to reduce present troll area but as a means of keeping trolling within its present boundaries. As there is almost no incentive to fish where there are few fish, and since fishing already occurs everywhere fish are known to be, this extra regulation will have no beneficial effects. The OY now serves to limit total troll catch.

There is only one circumstance where trollers go further offshore than the now-used drags. Occasionally, if fishing is poor in the usual areas, a boat will head offshore on the off-chance that a concentration of coho will be encountered. This technique is rarely successful, and accounts for a small proportion of the catch. Increases in the costs of diesel and boat operation should also be a powerful disincentive to "exploratory fishing."

The assertion made in the Public Review document that "[in] this offshore area there is a greater degree of mixing of salmon stocks from many sources, and it is impossible to selectively harvest healthy stocks while protecting depressed stocks" has absolutely no basis in fact. To our knowledge there is not a scrap of data to suggest that the mix of salmon stocks is any



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different 40 miles offshore than it is at 20 miles. Further, the suggestion that we are now presently capable of selectively harvesting healthy stocks, while pleasant to consider, is simply fantasy at today's level of knowledge. Trolling is a mixed-stock fishery, and this will be part of its nature until far more is known about the ocean distribution of particular stocks.

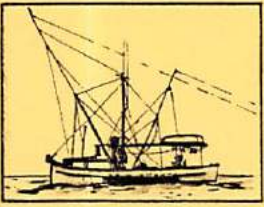
A SEAWARD LINE WOULD NOT PARALLEL THE SURFLINE, AND WOULD BE EXTREMELY DIFFICULT BOTH TO MARK AND ENFORCE.

The Alaska Trollers Association has discussed this proposal with a number of fishermen, including a number of the most experienced "outside" trollers. The drags that they have marked for us do not, especially in the northern part of Southeast, parallel the coast, and some areas now in use are over 20 miles offshore (not including the Fairweather Grounds).

Enforcement is a special problem for the troll fleet. Not only does the spread-out character of the fleet and the difficulty of spotting violations make troll enforcement difficult, but the fact that troll enforcement is a low priority for enforcement agencies argues strongly against imposing rules which are not only unnecessary but which will almost certainly not be enforced.

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MEMO 9 : PROPOSED FOUR-LINE LIMIT NORTH OF CAPE SPENCER



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M E M O R A N D U M

January 2, 1981

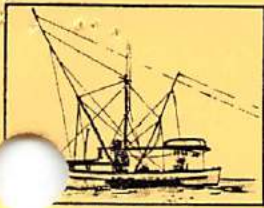
TO: North Pacific Fisheries Management Council
Board of Fisheries

FROM: Alaska Troll Legal Fund

RE: Proposed 4-Line Limit North of Cape Spencer
(State #276)

This proposal stems from both the PDT and the state Fish and Wildlife Protection Division's attempt to deal with the problem of trollers occasionally violating the law and using six-lines in the four-line area south of Cape Spencer. The state asserts no biological necessity for the regulation, while the federal government says that the major reason is enforcement, with secondary benefits of "preventing expanded effort" and "standardizing effort."

While this regulation, if adopted, would make the job of enforcement officers easier, its adoption would impose economic costs on the fishery far beyond any benefits which might occur.



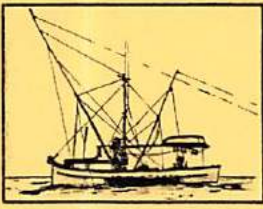
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PROBLEMS WITH ENFORCEMENT OF THE FOUR-LINE LIMIT ARE CAUSED BY
A LACK OF ENFORCEMENT ATTENTION AND RESOURCES, NOT BY THE
NUMBER OF LINES ALLOWED TO BE MOUNTED ON POWER TROLL BOATS

This is a problem which has only existed for the past year, when NPFMC set the Cape Spencer line, and allowed boats to retain their six lines above that point. This was done after an exhaustive debate over the biological and economic factors of using six-lines on the Fairweather Grounds [FWG], and the Council made its decision with all available knowledge before it.

Now, simply to ease the task of enforcement officers, who readily admit that they lack the resources and the direction to enforce troll regulations, the fishermen who fish the FWG, and those communities which depend on FWG fish to exist, like Pelican and Elfin Cove, will have to make major sacrifices.

We have been told by enforcement officials that not only do they lack the funds to mount effective enforcement patrols in troll areas, but that because there are other fisheries with far heavier impacts on the resources, troll enforcement is considered a low priority. An Alaska Protection supervisor has told us that there were no arrests last year on troll line charges, and that the reason that the division requested the



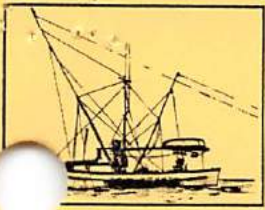
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four-line limit was that "We are looking for simplicity because we don't have the resources [to do effective enforcement] (Sgt. Graham, personal communication) While this is a real problem, there is no reason that the law-abiding fishermen should have to pay to provide a solution.

Additionally, power trollers themselves have made an effort to enforce troll regulations. Last season was marked by numerous radio conversations warning those who were seen to violate regulations that their action would hurt the whole fleet. A number of calls were made to both state and federal enforcement agencies, and each time no official action resulted.

FISHERMEN NEED SIX LINES TO EFFECTIVELY FISH THE FAIRWEATHER
GROUNDS. REDUCING THEM TO FOUR LINES WOULD EFFECTIVELY CLOSE
THIS AREA AND INCREASE EFFORT IN OTHER PLACES.

The nature of fishing the Fairweather Grounds is such that a maximum number of hooks must be in the water to make fishing in that area economic. First, the amount of time that fishermen can actually fish the FWG is severely limited by weather; an average FWG ten-day trip usually includes four days not fishing because of heavy wind and seas. Then, as there are no natural features such as capes or bays to concentrate the fish, fishing the FWG means that when one finds the fish there is little



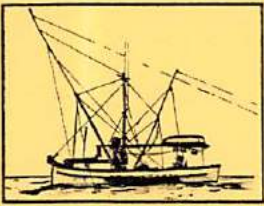
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opportunity to make repeated passes on them. Finally, due to the larger boats that are needed to fish the FWG, and their higher operating expenses, the economics of that portion of the fishery will not allow further gear reduction, and the number of boats fishing there is not likely to increase. Should boats be driven off of the FWG this must increase pressure in other areas.

You will hear testimony from FWG fishermen about the effects of a reduction, and the necessity to maintain the present gear. At the same time, it appears that the percentage of the total king catch taken in the FWG has fallen off dramatically.

PERCENTAGE OF POWER TROLL CATCH OF CHINOOK TAKEN
IN FAIRWEATHER GROUNDS - (AREA 157)

<u>YEAR</u>	<u>TOTAL PT</u>	<u>AREA 157</u>	<u>%</u>
1975	259,187	39,696	15.3
1976	204,894	28,488	13.9
1977	238,601	20,217	8.4
1978	321,090	13,481	4.1
1979	279,187	14,335	5.1
1980	248,292	8,429	3.3



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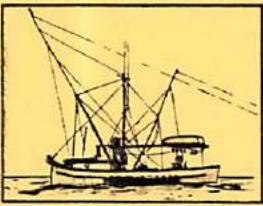
FOR MANY TROLLERS, THE EXTRA SPOOLS ARE EXTREMELY IMPORTANT,
EVEN IN AREAS WHERE ONLY FOUR LINES ARE ALLOWED.

The extra spools on many trollers are important pieces of gear-- not for fishing, but for operating auxillary equipment. The most prevalent use is to pull the boat's stabilizers, but many fishermen are also using one spool to carry a lure-speed indicator. As is extremely difficult to replace a stainless-steel troll line at sea, a number of fishermen carry extra lines mounted on gurdies.

THE OY OBVIATES THE NEED TO EITHER "PREVENT EXPANDED EFFORT," OR TO "STANDARDIZE EFFORT."

The PDT says that there are two secondary benefits from this proposal, as listed above. We can see no reason to either "prevent expanded effort" or to "standardize effort" given the presence of a quota on king salmon. The economics of FWG fishing now dictate that fishing in that area will almost certainly decrease, especially if fuel costs continue to rise and the number of fish taken in the FWG does not increase. Standard effort might be a useful concept if any management agency was collecting effort data but, despite the widely admitted need for such information, it is not being collected.

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M E M O R A N D U M

January 2, 1981

TO: North Pacific Fisheries Management Council
Board of Fisheries

FROM: Alaska Troll Legal Fund

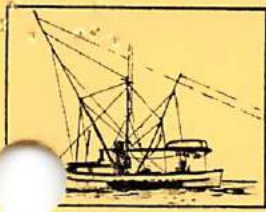
RE: Heads-On Landing Requirements (State #268)

Last year, in response to ADF&G's feeling that certain freezer-boats were not cooperating in the retention of heads from fin-clipped fish, the Board of Fisheries made heads-on land mandatory for all trollers.

While this certainly got the attention of those few fishermen who had under-rated the importance of recovering coded wire tags, it also imposed extreme penalties on all of those fishermen who froze their salmon at sea.

THE ECONOMIC CONSEQUENCES OF THE HEADS-ON
POLICY ARE EXTREME

Many freezer boat operators have already testified about the nature and extent of the costs associated with this policy. First, some boats had to modify their freezing equipment to handle heads-on fish. Then, handling heads-on fish at sea was slower



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and more difficult, raising costs. (The reason for this was that following the glazing process it wasn't possible to stand the fish on their noses.)

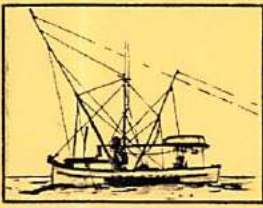
The most extreme costs came once the fish were taken ashore for sale. Many markets, especially those overseas, will not accept head-on salmon, and even if they would the additional costs of shipping the extra eight percent of weight is prohibitive. Removing the heads from sea-frozen fish must be done by bandsaw, and following this operation the fish must be re-glazed. This operation adds an additional 4-5 cents per pound to the costs, and reduces the quality of the product. Troll-caught fish usually offer no waste disposal problems to processors, but when heads must be removed disposal and hauling costs add an additional one or two cents per pound. (All estimates are by Halibut Producers Cooperative.)

Thus, those fishermen who have sacrificed quantity and convenience to produce the highest possible quality Alaska salmon are the very people who are penalized by this policy.

THE NUMBER OF ADDITIONAL TAGS GENERATED BY THIS POLICY

DO NOT BEGIN TO JUSTIFY ITS COSTS

In the Public Review document the PDT characterizes the number



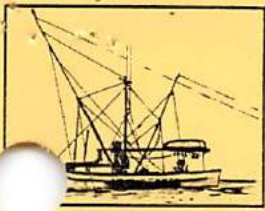
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of tags recovered from freezer boats as "a small percentage of total tags recovered in Southeast Alaska," and says that "the number of tags involved in freezer boats is relatively small...." Our latest information is that there are approximately 40 boats which froze fish in 1980, and 16 boats that have the capability but which didn't freeze. This is in sharp contrast to ADF&G troll biologist Alan Davis' estimate that there were 180 freezer boats last year.

The same economic pressures which are keeping fishermen out of the Fairweather Grounds are acting on the freezer boat owners. High fuel, crew, and refrigeration costs, plus the loss in fishing efficiency (you must stop fishing after a certain number of fish are taken or you get beyond your freezer capacity) and fishing time (many boats can't glaze at sea and must anchor up every three or so days--especially hard for Fairweather boats) are putting ice back into the holds of many freezer boats.

POTENTIAL VIOLATORS HAVE BEEN WARNED: WE PROPOSE A
ONE-YEAR MORITORIUM ON THE HEADS-ON POLICY

Any fishermen who might be tempted to not retain the heads of fin-clipped fish are now well aware of the possible consequences. We strongly suggest that the responsibility for carefully examining fish for fin-clips and retaining them intact should be

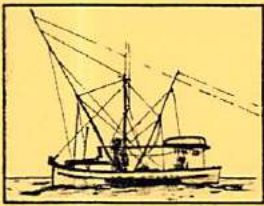


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returned to the fishermen. ATA will publicize the fact that this is a trial period, and will encourage fishermen to make all possible efforts to return coded wire tags.

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MEMO 11: PROPOSAL TO BAN TREBLE HOOKS



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M E M O R A N D U M

January 2, 1980

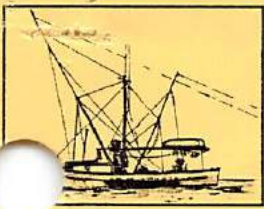
TO: North Pacific Fisheries Management Council
Alaska Board of Fisheries

FROM: Alaska Troll Legal Fund

RE: Management Proposal to Ban Treble Hooks.

The North Pacific Council and Board of Fish will be considering a proposal to ban the use of treble hooks by the troll fishery in Alaska. Scientific evidence does not support the belief that single hooks cause less shaker mortality than treble hooks. We feel that without scientific justification of the merits of the ban of treble hooks, management should not dictate the configuration of hooks.

A literature review on the subject of comparative mortality of chinook and coho salmon caused by single and treble hooks has produced two pertinent studies. One study (Haw, 1963) concluded that there was "no evidence that released treble hooked chinook salmon suffered greater mortality than released single hooked fish." In a similar study done with coho (Lecaster and Haw, 1961) concluded, "there is no significant difference in recovery of silver salmon tagged using a treble hook compared to those using a single hook." Thus, neither study provided any evidence



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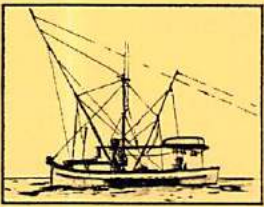
that banning treble hooks would significantly reduce mortality of released fish.

Haw (1963) did comment on the relationship between hooking location and type of hook. He wrote,

"Although treble hooked fish often suffered multiple wounds (50 per cent), the hook's size and shape caused more superficial wounding than the single hook. In addition, small fish were seldom hooked far back in the oral cavity with the bulkier treble hook. In practice, of course, large fish capable of taking the treble hook deeply will most often be retained and hooking mortality will be irrelevant. Without the interference of multiple bends and points and with the greater distance from pont to bend, it was felt the single hook generally wounded more deeply."

These observations suggest that single hooks may damage small chinook more than treble hooks by hooking the sensitive gill area more frequently. Actual recoveries of treble hooked chinook were greater than those from single hooked chinook, but the difference was not statistically significant.

Numerous trollers have testified both for and against banning treble hooks; this diversity of views suggests that the effects of using treble hooks are not readily apparent. The only scientific data available to our knowledge indicates that banning treble hooks will have no significant impact on shaker mortality. Consequently, we oppose banning treble hooks until scientific evidence indicates that the results would be beneficial.



Alaska
Trollers
Association

Literature Cited

Haw, F., 1963. Comparative hooking mortality between treble and single hooks on chinook salmon. Ann. Rept. Pac. Mar. Fish. Comm. 15(1962):22-24.

Lasater, J. E. and Haw, F., 1961. Comparative hooking mortality between treble and single hooks on silver salmon. Pac. Mar. Fish. Comm. Bull. 5:73-76.

Richard Lundahl
1/7/81

The following is a counter proposal package presented for consideration and adoption at the January 8, 1981 Alaska Board of Fisheries meetings.

1. We reject the following ADF&G proposed regulatory changes for 1981 numbers. 272-273, 232, 233, 238, 239, and 240 relating to troll time and area closures ~~276, 277~~

Justification:

We feel that the Alaskan stocks have shown to be stable and/or building so that no further restrictions are necessary.

In the event that management feels that Alaskan stocks are not building fast enough we feel that there are alternate measures that can be taken, as outlined below.

We also feel that your proposed regulations are incomplete, see item 7 below.

We recognize the fact that ADF&G biologist and management plans are geared toward a terminal fishery. The troll fishery is a high seas fishery targeted on mixed stocks which produces a quality product, not a terminal fishery.

The terminal fishery does not produce quality product that fulfills market demands. The troll industry is an economically viable industry and could be kept that way as outlined below.

2. We reject the N.P.F.M.C. proposals in the 1981 draft amendment package to the S.E. Alaska troll fishery management plan items number 3-C-1 and 2, and 4-A-1 relating to reduction in O.Y. and time and area closures in outside waters.

Justification:

For the same reasons outlined in 1 above.

As an alternative we offer the following:

3. With the exception of the following proposals the 1980 status quo be maintained during a five year moratorium on all restrictive troll plans to allow the necessary information to be gathered for a comprehensive management plan.

Justification:

We were stabilized by limited entry in 1974 and since that time restrictions have been put into effect that we do not know the results from yet.

- A. 8 on/6 off inside closures
- B. 28" size limit
- C. Reduction of area from state-wide to Southeast and Yakutat
- D. Reduction in legal line limits.
- E. In-season King & Coho closures.

4. Option A: The foreign trawl fleet be removed from the Eastern Gulf of Alaska.

Option B: The foreign trawl fleet be reduced in effort, be required 100% observer participation, and be subjected to time and area closures to protect prohibited species.

Justification:

- A. There are prohibitive numbers of incidental catch of protected species which cannot be allowed.
- B. Continued depletion of Pacific Ocean perch and sablefish
- C. Ground pre-emption
- D. Gear conflicts
- E. Except for joint ventures, foreign trawlers have been removed from all other areas of the West Coast except for Alaska.

5. The troll fleet be allowed to fish statewide.

Justification:

The problems faced by the troll fleet today are caused by it being managed as a corridor or terminal fishery rather than as a high seas mobile fishery.

This proposal would also alleviate some of the problems that are building with the hand troll industry.

This proposal is #312 and further justification can be found with that proposal.

6. Hand Troll:

1. Reduce fleet to 500-800 permits and manage as one fishery.
2. Reduce fleet to 500-800 permits with 80-20% allocation.
3. Group Permits:
 - a. highly efficient full-time fishermen (200-300 permits)
 - b. multi-fishery (500-600 permits)
 - c. recreational/sports fishermen (1200 permits)

Justification:

We feel that opening state-wide would make all of these options easier to implement. Please read the enclosed letter to Commercial Fisheries Entry Commission.

7. In the proposition or adoption of regulations and policy we request that the Board and Department state: 1. the objectives to be achieved, 2. the time frame needed to achieve them, and 3. the projected benefits to that fishery be listed.

Justification:

The past system of adoption has led us into the difficulties that most of our fisheries are experiencing today in that there is no system of review of regulations that were adopted in the past. The goals and benefits of these regulations were often very unclear.

Page Four

8. The traditional and historic incidental halibut harvest be reinstated to the troll fishery.

Justification:

In the past the halibut season ran for most of the troll season. During that time the trollers were allowed to harvest a traditional incidental catch. Since the halibut fishery has become subjected to shorter and shorter openings the troll fishery has lost its ability to harvest an incidental catch.

We are requesting that the halibut incidental catch by the trollers be determined and that this percentage be allocated to the troll fleet. This would alleviate the problem that the troll fleet is experiencing in shaking the halibut during the troll season.

Recd

POSITION OF PELICAN ADF&G ADVISORY
COMMITTEE ON PROPOSALS TO
BOARD OF FISHERIES FOR DECEMBER 1980 - JANUARY 1981
MEETINGS

<u>PROPOSAL</u>	<u>PELICAN'S POSITION</u>	<u>COMMENTS</u>
197	No	Don't create new precedent.
198	No	Would wipe out Pelican's three river gill netters.
218	No	Creates a completely new fishery.
219	No	#229 instead.
220	No	Keep status quo for at least one cycle.
221	No	Keep status quo for at least one cycle.
223	No	Keep status quo for at least one cycle.
224	No	Keep status quo for at least one cycle.
225	Yes	1) Changes status quo, but no other fishery on those local stocks. 2) Don't help Park Service take areas away from commercial fisheries. Bad precedent.
228	Yes	Changes status quo but Elfin Cove will definitely die without this proposal.
229	Yes	Improves fishing without changing status quo.
230	No	Against legislative intent on two separate fisheries.
231	No	Keep status quo for at least one cycle.
232	No	Keep status quo for at least one cycle.
233	No	Keep status quo for at least one cycle.
234	No	Keep status quo for at least one cycle.
238	No	Changes status quo.
239	No	Changes status quo.
240	No	1) Changes status quo. 2) Giving up more area - and to foreigners yet
244	No	1) Changes status quo 2) Not true - It's a traditional Pelican power troll drag.
245	No	Changes status quo.
246	No	Changes status quo.
251	No	Changes status quo.
253	Yes	These areas were open in past.
257	No	1) Changes status quo. 2) We will support the 80/20 section which does not change status quo.
258 (Option 1)	Yes	Maintains status quo plus saves Alaskan winter fishery.
(Option 2)	No	Changes status quo.
260	Yes	Status quo.
261 (Option 1)	No	Changes status quo.
(Option 2)	Yes	Maintains status quo.
262	Yes	Trollers are able to target species.

266	No	1) Changes status quo. 2) Biologically detrimental to the fisheries resource.
267	Yes	1) Would increase value of fish. 2) Wording of the sentence to be deleted could be altered to read: "The heads of all <u>fin-clipped</u> king salmon must remain attached to the fish until sold." Same arguments as in #267.
268	Yes	Saves time and money.
270	Yes	Saves time and money.
271	No	Changes status quo.
272	No	1) Changes status quo. 2) Will hurt pelican financially.
273	No	Changes status quo.
276	No	Wire would have to be pulled off on gurdies when coming in from Fairweather Grounds.
277	No	1) Personal allocation of fish from treble hook users. 2) Adoption would be biologically detrimental to resource. 3) How would you enforce it?
280	No	Please protect our rearing feed stocks.
292	Yes	Save time, money and hassle.
294	Yes	Help restore traditional harvest of other species to troll fleets as alternative income.
303	No	1) Not limited enough in area and scope. 2) Punishes law-abiding with and because of a few lawbreakers.
307	No	Will lead to whole new offshore seine fishery.
307A	No comment.	
312	Yes	1) See justification. 2) Biologically acceptable alternative to further restrictions. 3) Political and/or biological areas needing protection can be closed by specific area.
317	No	IPHC is doing an excellent job by themselves.
319	No	Makes power troll and hand troll the same gear.
320	No	1) Too much hassle - unload and weigh and reload entire seasons catch. 2) Won't know who they were going to sell to.
321	Yes	Gives due process to user groups.
323	Yes	Obvious.

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FIGURE . 'COSTS' AND 'BENEFITS' ASSOCIATED WITH REDUCTION OF SOUTHEAST ALASKA CHINOOK SALMON HARVEST BELOW THE 1980 OPTIMUM YIELD CEILING OF 32 0,000 (ESTIMATES REFLECT CONDITIONS EXPECTED AFTER FULL IMPACT OF IMMATURE HARVEST REDUCTION OCCURS.)

