

WASHINGTON SEA GRANT PROGRAM

WSG-WO 75-1

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OCEAN RANCHING IN WASHINGTON
A WORKSHOP SUMMARY

December 19, 1974
UNIVERSITY OF WASHINGTON

DIVISION OF MARINE RESOURCES
UNIVERSITY OF WASHINGTON 98195

Prepared under the
National Sea Grant Program

A WASHINGTON SEA GRANT REPORT



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A WORKSHOP SUMMARY

December 19, 1974
UNIVERSITY OF WASHINGTON

CHAIRMAN: *Ernest O. Salo*
EDITORS: *Terry Y. Noshov, Ernest O. Salo,*
and Jennifer Dee

Cosponsored by Washington Sea Grant Marine Advisory Program
and College of Fisheries, University of Washington

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American Salmon Growers Association
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FOREWORD

This report summarizes the proceedings of a workshop on ocean ranching held at the University of Washington, December 19, 1974, and sponsored by the Washington Sea Grant Marine Advisory Program and the College of Fisheries.

These university groups take no position on the current issue of ocean ranching of salmon but are endeavoring through the workshop and this report to provide an open forum for rational discussion of this issue. The intent of the workshop and this report is to provide everyone interested in ocean ranching of salmon, particularly state legislators, with information on a wide range of questions raised by groups concerned about the desirability and feasibility of such enterprises in Washington.

ACKNOWLEDGMENTS

Our special thanks go to each of the panel members and their respective organizations for the time and effort expended in participating in this workshop. Also, we express deep appreciation to the National Federation of Fishermen, Halibut Producer's Cooperative, Washington Salmon Fishermen's Marketing Association, Purse Seine Vessel Owners Association, Puget Sound Gillnetter's Association, and Association of Pacific Fisheries, American Salmon Growers Association, and Washington Department of Game for their written concerns and statements that provided basic materials for the meeting. Our thanks also go to the Washington State Charter Association, Grays Harbor Gillnetter's Association, and Northwest Steelheaders Council of Trout Unlimited for their inputs to the meeting. Finally, we thank all for their opinions and candor during the workshop.

T.Y.N. and E.O.S.

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P R E F A C E

This is a report of the third in a series of workshops on salmonid aquaculture sponsored by the Washington Sea Grant Marine Advisory Program and the College of Fisheries at the University of Washington. The first workshop, held September 21, 1973, encompassed all aspects of rearing salmon and particularly emphasized the topic of pen rearing salmon in saltwater. The second workshop, held April 17, 1974, dealt with the subject of salmonid diseases. This third workshop addressed the concerns of public groups about proposed legislation to permit ocean ranching of salmon in Washington.

Ocean ranching is a relatively new term applied to the practice of releasing juvenile salmon and recapturing the adults at some point upon their return. This practice dates back to 1877 when a private salmon hatchery was started in Oregon. More recently, researchers in Pacific coast states have developed this method for use by state and federal hatcheries to provide more fish for the common property commercial and recreational fisheries. In many of these cases, ocean ranching has proved to be an effective means for increasing diminishing natural salmon stocks.

Hatchery systems operated by public agencies produce surpluses of adult salmon which have amounted to as much as 4 percent of the juveniles released by a given facility, but which average about 1.5-2 percent for all salmon species produced in Washington hatcheries. This rate of return is considered to be a favorable one for potential private enterprise by investors.

Legislation for limited private ocean ranching has been enacted in California (1968), Oregon (1971), and Alaska (1974). Ocean ranching legislation in Alaska permits the operation of non-profit private salmon hatcheries. The goals of this program are twofold: (1) to provide more fish for the common property fishery and (2) to provide a means for hatcheries to pay for themselves rather than depending on state supplements. In Oregon there is no restriction on profit by a private enterprise. Additionally, Canada and Japan have begun large-scale enhancement programs through the use of spawning channels and gravel incubation channels, respectively. Data from Japan indicate a return of 6-8 million chum salmon in 1974.

Currently, there is a bill proposed to permit and encourage private ocean ranching in the State of Washington. This bill, which will be presented to the Washington legislature in January 1975, has created considerable concern among the various groups--notably commercial fishermen--who traditionally depend upon the salmon resource. Their concerns were the impetus for a workshop which was planned to facilitate and encourage an exchange of questions and information about ocean ranching among these user groups, those concerned with the language of the proposed legislation, and those charged with management of the resource.

In response to their concerns, personnel from the Washington Sea Grant Marine Advisory Program and the College of Fisheries, University of Washington, decided to sponsor jointly an informational workshop on the ocean ranching of salmon--particularly as it relates to the proposed legislation. They believed that the workshop should be based on the questions and viewpoints of those concerned with the private ocean ranching of salmon, and consequently solicited statements of concern from the following groups:

- . Washington Department of Game
- . National Federation of Fishermen
- . Halibut Producer's Cooperative
- . Purse Seine Vessel Owner's Association
- . Puget Sound Gillnetter's Association
- . Association of Pacific Fisheries
- . Washington Salmon Fishermen's Marketing Association
- . Northwest Steelheaders Council of Trout Unlimited
- . Washington State Sports Council
- . Washington State Charter Association
- . Indian Fish Commission

Comments and questions received were categorized by issue and presented to a panel of experts for discussion during the workshop held at the University of Washington, December 19, 1974. The issues included questions related to the biological, technical, marketing, and resource management aspects of ocean ranching; the panel consisted of recognized experts in the areas of research, marketing, and fishery management. Names and credentials of panel members are given in Appendix I.

This report is a summary of the workshop proceedings, and it deals with major points discussed by the panel members and workshop participants.

STATUS OF OCEAN RANCHING ON THE PACIFIC COAST

OVERVIEW OF OCEAN RANCHING

*Ernest O. Salo**

In recent years, both state and federal governments and private enterprise have become increasingly involved in salmonid aquaculture. Like the state hatchery system and private pen-rearing projects, ocean ranching may be viewed as another form of aquaculture. While the implementation or impact of ocean ranching may be complex, the process can be outlined simply:

- . collection of anadromous fish eggs in a freshwater environment,
- . hatching of these eggs,
- . rearing of fry by various techniques,
- . release into a freshwater or marine environment which allows free passage to foraging areas in ocean pastures, and
- . harvesting of adults at some point upon return.

This process may or may not include the rearing of fish and feeding of fish in saltwater or freshwater facilities prior to release. For example, pink and chum salmon can be released into the marine environment upon reaching the fry stage, while chinook and coho must be reared and fed to smolt before release.

The simplest types of ocean ranching may be those practiced by the University of Washington in its College of Fisheries hatchery on campus or in spawning channels at the University's Big Beef Creek Research Station on Hood Canal.

It should be noted here that ocean-ranching policies have been adopted by Canada and Japan. The Canadian government has committed a capital outlay of \$250 million to constructing spawning channels for the enhancement of the commercial fishery. Canadian fishermen are to be taxed on the amount of ranched fish they catch, and the tax revenue will go back into further research and development. In Japan, ocean-ranching hatcheries are also government operated, but there, fishermen cooperatives have been formed to harvest the returning adults and share in the profits. It is estimated that 6-8 million adult chum salmon were harvested by cooperatives in the 1974 season.

OCEAN RANCHING IN ALASKA

*William J. McNeil***

In August 1974, the Alaska legislature passed an act permitting the operation of non-profit, private salmon hatcheries. The focus of the non-profit

* Professor, Fisheries Research Institute, University of Washington.

** Chief, Anadromous Fishes Investigations, Auke Bay Fisheries Laboratory, National Marine Fisheries Service.

hatcheries is on commodity fish (pink and chum) rather than on fish with an added recreational value (chinook and coho). The goal of Alaska's ocean-ranching program is two-fold: (1) to provide more fish for the common-property fishery and (2) to provide a means for hatcheries to pay for themselves (through income from harvesting) rather than depending on state supplements.

Ocean ranching in Alaska is just getting underway, but already policy guidelines have been developed to implement the law. These guidelines are concerned primarily with protecting wild or native stocks and ensuring that hatchery fish will be fit for marine survival.

The following are some of the major regulations:

- . Private hatcheries must use stream systems that are depleted or are non-significant producers to avoid confounding hatchery and wild stocks.
- . The state will continue to manage the rate of hatchery development in order to conserve wild stocks that may be mingled in.
- . A review of a private hatchery for technical competence and financial stability is required before a permit is granted (as in Oregon's regulations).
- . Fish transplants over long distances are restricted. In developing brood stocks, native or hybrid-native stocks are emphasized (as in Oregon).
- . Genetic and disease controls have been established to ensure maximum fitness and variability in hatchery gene pools (as in Oregon).

OCEAN RANCHING IN OREGON

*Wallace F. Hublou**

The state of Oregon has permitted the private ocean ranching of chum salmon since 1971, but in 1973, the law was amended to include chinook and coho. The principal difference between the Alaska and Oregon laws is that in Oregon there is no definition of or restriction on profit by a private enterprise. The following concerns and suggestions about potential problem areas are based on Oregon's experience of more than 3 years in administering its policies on private ranching:

- . To reduce the impact of private hatchery fish on other stocks, it is suggested that
 - the minimum size and age of hatchery fish be regulated so that the fish will be ready for the ocean at the time of release and will migrate quickly through state waters.
 - hatchery sites be in close proximity to the ocean.
- . The relationship of private hatcheries to previously established public hatcheries should be clearly defined in the legislation, particularly in terms of the competition for stream or tributary rights.

* *Director, Management and Research Division, Fish Commission of Oregon.*

- . The ocean-ranching program has made a real impact on staff time, so the costs of administering such a program, including public communication and education projects, should be covered in the law.
- . The Oregon Fish Commission can now require a bond to ensure that there will be restitution if a private rancher destroys a natural run and recommends such a provision to states considering ocean-ranching legislation.

PROPOSED LEGISLATION
FOR OCEAN RANCHING IN WASHINGTON
*Rick Smith**

The proposed bill on ocean ranching allows for the creation of new enterprises and contributions to traditional fisheries. Through this legislation benefits would accrue not only to the commercial fishery but also to the recreational fishery. Therefore, the ranching of coho and chinook salmon should receive particular attention.

A regulation in the proposed bill that requires private hatcheries to be in close proximity to the ocean could restrict hatchery sites to coastal streams only. Since it is probably desirable to locate sites on Puget Sound as well as on the coast, this regulation should be clarified.

The terminal net fishery in the Sound will continue to harvest returning salmon; however, this harvest could influence the amount of return to the hatcheries.

AMERICAN SALMON GROWERS ASSOCIATION:
AN ADVOCATE OF OCEAN RANCHING
*Brian J. Allee***

There is a growing need for enhancing salmon resources through techniques such as ocean ranching. Over recent years, the total salmon catch in Washington has been declining gradually (Figure 1). The salmon plantings by state and federal agencies have not been sufficient to offset the general human impact on the salmon ecological system. Man's increasing water consumption, land use activities, etc., most likely are factors that contribute to the downward trend in the salmon catch.

Increasing the number of salmon will benefit the people of Washington--both commercially and recreationally. The American Salmon Growers Association represents private industry's interests in playing a role in salmon enhancement, and it endorses the following positions with regard to ocean ranching:

* *Washington State Representative, 23rd district.*

** *President, American Salmon Growers Association and Technical Director for Aquaculture, Weyerhaeuser Company.*

- . Salmon stocks released from a private hatchery into Washington state waters are the property of the people of Washington until caught in the recapture facility.
- . To protect public stocks of salmon, adequate separation of stocks must be maintained, both temporally and spatially, when salmon are released, harvested, and recaptured.
- . Salmon production should be expanded prudently and monitored rigorously in order to evaluate the impact of more salmon upon the marine ecological system and the food resources therein.

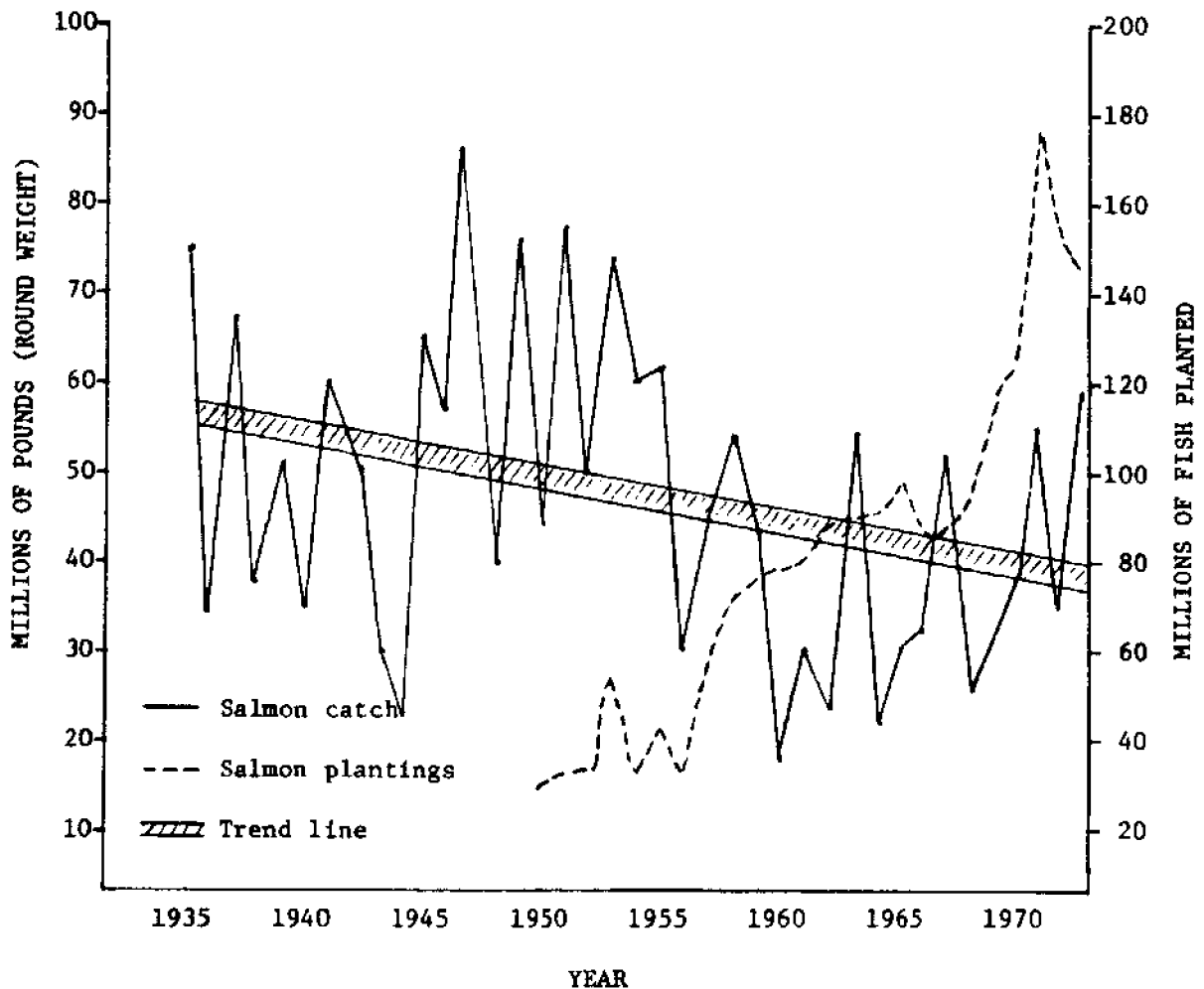


Figure 1. Total annual salmon catch, 1935-73, and total annual salmon plantings, 1950-73, in Washington State. (Statistics from Washington Department of Fisheries) *Editors' Note: This graph is a composite picture of the Washington salmon catch, and it does not indicate differences between species. For example, in recent years, the coho catch has increased, while the chin catch has decreased.*

CONCERNS ABOUT OCEAN RANCHING
FROM SPECIAL INTEREST GROUPS

THE OCEAN AS AN OPEN RANGE
*Timothy Joyner**

What is the justification for using the ocean as an open range?

Thoughtful consideration should be given to this question because ocean ranching has the potential for profoundly changing the attitudes and practices that have determined the manner in which our ocean resources have been used. A precedent for using the ocean as an open range can be found in agriculture. In animal husbandry the amount of human control has varied widely--from hunting and open-range herding to intensive forms of husbandry such as feedlot rearing.

Intensive practice is not necessarily the most efficient, *i.e.*, some animals are better suited for range than feedlot husbandry. In this regard, probably no animal is better suited to open-range husbandry than salmon. Salmon efficiently collect and store energy from the ocean as high-grade protein and fat and bring it ashore where it can be collected by man with a minimum of effort.

To ensure that the ocean range is optimally utilized by salmon, a management system which coordinates state, national, and international jurisdictions is needed. The areas of particular concern for managing the ocean as an open range are these:

- . Releases (coastal states jurisdiction)
 - stock selection
 - timing and location of releases
- . Monitoring and prediction of range conditions (national and international jurisdictions)
 - weather and climate
 - oceanographic conditions
 - abundance and distribution of stocks
- . Open range stock protection (international jurisdiction)
 - control over high seas fishing of salmon stocks

* *Manager, Aquaculture Program, Northwest Fisheries Center, National Marine Fisheries Service.*

SATURATION OF OCEAN PASTURES, STOCK SELECTION AND DEVELOPMENT

*Ernest L. Brannon**

Grouped under this topic are concerns expressed about the possible saturation of ocean pastures and the implications of stock selection techniques.

Little research has been done on the question of ocean saturation, so that it is difficult to predict the consequences of an increased number of salmon that would be produced by ocean ranching. The question of saturation involves two areas: the estuarine and the marine environments. A large increase in production in the estuaries could most likely have an impact on the resident fish populations; the effect on the ocean pastures is much more difficult to assess. According to historical catch records from the Pacific coast states, salmon have been much more abundant than at present--indicating that saturation is not being approached. Traditionally, the survival of salmon has been considered independent of their density in the ocean, but this assumption may have to be re-examined, especially in bay or sound areas. Thus, the question of saturation will need continuing research and monitoring input from all aquaculture groups.

The development of new stocks in streams depleted of natural runs or in streams showing no evidence of natural runs already has been undertaken by state hatcheries. Generally, these state programs have shown a fairly good percent return and very little straying of returnees. To reduce potential mixture between established and new runs, stocks should be separated, both spatially and temporally, by releasing into streams well separated from one another and by selecting for certain timings of return to hatchery sites that will not overlap with present runs. Unfortunately, adjusting the timing mechanism of the salmon probably will result in a smaller return. Other factors such as size or age at release also can be selected for; however, the rancher must be careful that his objectives are suitable to the natural requirements of the salmon.

TECHNICAL AND ECONOMIC PERSPECTIVES

*William J. McNeil***

This topic addresses a variety of concerns: (1) the availability of technology for ocean ranching, (2) cost projections for operating a private hatchery, and (3) the quality of ocean-ranching products.

The success of ocean ranching depends a great deal upon the development of techniques for mass-producing large quantities of hardy fry at a low cost.

* Assistant Professor, College of Fisheries, University of Washington.

** Chief, Anadromous Fishes Investigations, Auke Bay Fisheries Laboratory, National Marine Fisheries Service.

In pursuit of this goal, many hatcheries are beginning to depart from traditional (smooth substrate) incubation systems and are experimenting with gravel bed incubators. A Canadian system, the upwelling gravel bed, currently is being evaluated in Alaska. The marine survival of fry raised in the beds is roughly equivalent to the survival of natural stocks. Another system, the Netarts shallow gravel bed, is being used experimentally in Oregon. Because of its lighter weight, it appears to be more manageable than the upwelling incubators. Some hatcheries in Alaska have substituted astro-turf for gravel, and thus far it appears to be a success.

To give a perspective on the economics of ocean ranching, the basic operations of a hatchery can be filled out with some rough figures:

Starting with 50 million (chum) eggs,	
Approximately 85% will reach fry stage	
Return on fry to adulthood will be 1.5% = (over) 600,000	
Common-property fishing will harvest 60% = (under) 400,000	
Rest will return to the hatchery	= (approx.) 250,000
Needs for brood stock	= 37,000
Surplus for harvesting	= 213,000

In developing cost projections, a crucial element is the cost of producing (hatching) fry. Hatchery costs between \$4 and \$6/1000 fry should ensure profitability of a pink or chum salmon hatchery. If the figure of \$6/1000 fry is used, the projected cost of operating a modest-scale hatchery (10 million eggs) is \$60,000 per year.

The Oregon experience with ocean ranching has shown that, if handled carefully, the spawned salmon still may be marketable. There may be a market for this dark salmon in Japan.

MARKETING CONCERNS

*Raymond Kraatz**

This topic addresses concerns such as (1) how the marketplace, or prices, will be affected by the additional supply and by the quality of ocean ranched salmon and (2) whether ocean ranching products will hinder future markets.

The fishing industry in general is in deep trouble, with inventories backed up almost to the docks. The price of seafood has gotten out of line. It cannot compete with other protein products, and therefore it is simply not selling. This is particularly true of salmon, which has become a luxury item. In 1968, the consumer price index for salmon was 108.2; by 1973, the

*Fishery Marketing Specialist, Marketing Research and Services, National Marine Fisheries Service.

price index for salmon jumped to 307.2. This figure is double the consumer price index for all food products in 1973, which was 150.3. The high price makes salmon less marketable; this in turn results in a decline in income for the fisherman.

There is a much greater market for salmon than at present--if it can be supplied at a price that people can afford. For example, per capita consumption of salmon products in 1973 was 0.68 pounds in the United States. Export figures for 1973 indicate that salmon-importing countries consume salmon at a rate of 0.203 pounds per capita per year.

The understandable concerns of the fishermen are unfounded in view of the potential demand for salmon if prices are returned to a reasonable level. In the early days of American development, when the population was considerably less than the 213 million of today (Year 1800 - 4,879,820), people lived by hunting wildlife such as buffalo, elk, deer, and wild fowl as well as by fishing. It soon became apparent that these natural resources of protein could not sustain the demands of a growing population. Beef, pork, sheep, and poultry ranching had to be developed to supply the need.

That point seems to have been reached in the seafood industry. The yearly declines in salmon harvest indicate that the present hatchery programs cannot meet the needs of commercial fishermen to provide proper utilization of their capital investment in boats, gear, fuel, and time. Short seasons, quotas of catch, interrupted fishing time (*i.e.*, closed days during seasons) and declining salmon stocks are all contributing to a diminishing rate of productivity for fishermen. The fishermen are entitled to a return on their investment and payment for their time expended. Their demands for higher ex-vessel prices each year is an attempt to make up for a reduced catch by compensating with greater payment per pound, resulting in today's high salmon prices to the consumer.

Ocean farming will enhance the salmon stocks available to fishermen and provide a small percentage return of the planted stock to the ocean farmer to finance his hatchery efforts. With increased stocks available, fishermen should be able to experience larger catches for the same effort expended, take lower prices, yet maintain a return to investment and profit to themselves.

Grading standards will prevent poor quality, or spent, mature salmon from competing with or depressing the prices of quality, well handled, traditionally caught fish.

MANAGEMENT CONCERNS

*J. E. Lavater**

Questions and answers in this section refer to the authority of the state with regard to ocean ranching and the proposed bill. These questions were presented to the panel as a result of the concerns expressed by special interest groups.

* Assistant Director, Washington Department of Fisheries.

•Could the state regulate this private enterprise to the best interests of all? The decision that sea ranching is in the best interest of the state should be a matter of choice for the voters and the legislature. That decision is not made by the Department of Fisheries. The initial bill should also be as comprehensive as possible, for it will be more effective and easier to administer than a law that has been amended in a piece-meal fashion.

•Will ocean ranching encourage the state to go further into the salmon business, i.e., selling eggs and carcasses? For a while, private hatcheries probably will need supplies for eggs, and this may involve assistance from the state. But there is no real incentive for the state to expand its present program beyond that. Rather than outright selling, the state and ocean ranchers could work cooperatively, e.g., a hatchery would "pay" for eggs by returning some of the young salmon for planting by the state.

•Who could enter ocean ranching? There probably will not be any limitations on individuals beyond some qualifications concerning technical competence and financial stability. This may favor "big business" over the individual fisherman, but ocean ranching is a venture in which the profits will not be immediate and a solid financial base will be necessary.

•How will the stocks be identified, and at what point will they be private property? Identification of stocks by wire tags is preferable to marking them, i.e., fin clips. However, the regulation on identification should be flexible and should depend on the location of the hatchery, and identification should not be required if interaction with public stocks is minimized in some other way. The salmon will be private property when they enter the confinements set up by the ranchers. Until then, they belong to the public.

•How will hatchery sites be determined? Many factors will be considered such as the impact on wild stocks, the amount of rearing required, and the time of release. The Department of Fisheries probably will zone areas as appropriate, questionable, or prohibited to private hatchery sites.

•With the Boldt decision in effect, will the Indian ocean rancher have an advantage over a non-Indian? Ocean ranching can be affected by the Boldt ruling because the path of the fish could lead to Indian harvesting of salmon right up to the return facility. There are court cases pending that may have a serious impact. For example, in a pending case, the Indians claim that society owes them salmon since society has caused deterioration of the environment and a decline in the salmon run.

•Will the state change existing laws that prohibit the use of traps? Inferentially, the proposed bill makes those laws ineffective, but this problem should receive specific attention in the legislation rather than having to be settled in the courts. The law will not affect Indian treaty-rights to use traps, for that is under different jurisdiction.

•What species of salmon should be included? The proposed bill should include all native species of Pacific salmon rather than specifying only a few. This will save the state from a tedious amendment process at a later date.

Two other suggestions were made: (1) The acquisition of an adequate and suitable supply of eggs may be a problem in the early stages of private ocean ranching. The hatcheries should not depend totally on the state for stock because state eggs are selected for certain purposes which probably will not be the most appropriate for ocean ranching. (2) The legislation should make provisions for the administrative costs of staff time and money which will result from implementing such a program.

INTERNATIONAL IMPLICATIONS

*Donald L. McKernan**

Law of the sea negotiations are underway, and if they are successful, the protection of salmon will be guaranteed inside and beyond 200 miles. If the negotiations break down, investment in ocean ranching does become more risky, because salmon in the Gulf of Alaska will be vulnerable to international exploitation.

**Director, Institute for Marine Studies, and Professor of Marine Affairs and Fisheries, University of Washington.*

ADDITIONAL COMMENTS FROM WORKSHOP AUDIENCE

The concern most often raised by commercial fishermen was that ocean ranching would be dominated by large corporations and that this domination would threaten the existence of independent commercial fishermen. Because salmon is one of the state's natural resources, they felt that all enhancement techniques should be kept within the state's authority. They also fear that ocean ranching in Washington might lead to private industry controlling vast amounts of state waters (stream and tributaries) needed for hatchery operations.

A spokesman for the National Federation of Fishermen questioned the statement that lower salmon prices will create a greater demand. He wanted assurance that the increase of salmon through ocean ranching will create new markets rather than usurp the market of the traditional fishery. He suggested that the area of supply and demand needs more research.

A final concern expressed was the need for quality control. The spokesman indicated that there should be safeguards in the legislation to prevent an influx of spawned and other poor quality salmon from being dumped on the market. This could hurt the entire seafood industry. He advocated a grading system that would label the different qualities of salmon and thus, protect both the consumer and the commercial fisherman.

Editors' Note: See presentations of panel members for comments on the above summary of concerns, and also see appendix III for statements of concerns that were submitted prior to the workshop.

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A P P E N D I X I
W O R K S H O P P A N E L M E M B E R S

Dr. Brian J. Allee--Technical Director for Aquaculture, Weyerhaeuser Company, Inc. and recently elected President of the American Salmon Growers Association.

Dr. Ernest L. Brown--Presently Assistant Professor of Fisheries, University of Washington and formerly Chief Biologist, International Pacific Salmon Fisheries Commission.

Mr. Wallace F. Hublou--Director of Management and Research Division, Fish Commission of Oregon, State of Oregon.

Dr. Timothy Joyner--Presently Manager for Aquaculture Program, Northwest Fisheries Center, National Marine Fisheries Service and formerly with the Laboratory of Radiation Biology, University of Washington.

Mr. Raymond Kraatz--Presently Fishery Marketing Specialist for National Marine Fisheries Service, Northwest Region and formerly Domestic Trade Specialist, U.S. Dept. of Commerce.

Mr. J. E. Lasater--Assistant Director, Washington Department of Fisheries.

Prof. Donald L. McKernan--Presently Director of the Institute for Marine Studies and Professor of Marine Affairs and Fisheries, University of Washington and formerly Coordinator of Ocean Affairs and Special Assistant to the Secretary of State for fisheries and wildlife.

Dr. William J. McNeil--Presently Chief of Anadromous Fishes Investigations for the National Marine Fisheries Service, Biological Laboratory, Auke Bay, Alaska and formerly Professor of Fisheries at Oregon State University.

Dr. Ernest O. Salo--Presently Professor of Fisheries, University of Washington and formerly Chairman of the Division of Natural Resources, Humboldt State College and Fishery Biologist, Washington Department of Fisheries in the Division of Hatcheries and Division of Research.

Representative Rick Smith--Prime sponsor of proposed ocean-ranching bill, representative for the 23rd District, Kitsap County liaison to Congressman Floyd V. Hicks (6th Congressional District) and attorney-at-law with the Silverdale firm of Smith, Redman and O'Hare.

APPENDIX I I
WORKSHOP ATTENDANCE

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APPENDIX III
STATEMENTS OF CONCERN

Michael Harsila
C-3 Building
Fishermen's Terminal
Seattle, Wash. 98119
December 1, 1974

Terry Nosho
Division of Marine Resources
University of Washington
3716 Brooklyn Avenue N.E.
Seattle, Washington 98195

Subject: Concerns, viewpoints and questions in reference to the workshop on ocean-ranching of salmon of December 19, 1974.

Reference: Your letter of November 25, 1974.

Dear Mr. Nosho:

In response to your letter I have written an outline that could assist you and your colleagues in developing an agenda for the workshop.

I. Items of concern to commercial salmon fishermen.

A. The market place

1. Will the expansion and development of so-called ocean-ranching/release-recapture of salmon compete with commercially harvested salmon in product supply, product demand and product price in domestic and world markets?
 - a. "Little is known about marketing including costs and brokerage or similar fees."¹
 - b. "Pan-sized salmon have been marketed only in limited quantities, and consequently, very little information is available regarding market relationships."²
 - c. "I'm sure you will see fish of this sort on the market throughout the country some day."³ Conrad Mahrken predicted.
 - d. Knowing that it is the desire of the commercial salmon industry to broaden markets with a top quality salmon product, how does the aquaculture produced salmon compare? and could this type of product hinder future markets?
 - e. Assuming that markets do not expand on the basis of increased production and that production does increase on the basis of expanded markets with growing demands; Will increased salmon production from pen-rearing/release-recapture projects which create larger supplies, create lower prices for salmon generally in the market place?
 - f. Big business may engage in fish rearing projects. With large advertising budgets, could these large businesses position themselves to capitalize markets and market profits?

B. The Judge Boldt decision and Treaty Indian fishing rights.

1. Will Treaty Indian fishing rights effect the success or failure of ocean ranching/release-recapture programs and projects?
 - a. Indians are presently engaged in fish farming projects. Indians have proposed the useage of fish traps to harvest salmon.

- cont. a. Salmon growers have expressed the concern that "the law would have to be changed to allow the use of traps which were banned in 1933."⁴ In the future, Indians may run or be hired to operate fish traps incorporated in release/recapture projects with the Boldt ruling in effect which provides a State guarantee of up to 50% of all harvestable salmon and steelhead to Treaty Indian fishermen. Illegal fishing gear, i.e. traps, may be supported by aquaculturists but subsequently utilized by Indians under the Boldt decision.
- b. Knowing that extensive Non-Indian commercial fishing closures resulted from the implementation of the Boldt decision, could this provide excessive numbers of harvestable salmon to salmon growers? Could Non-Indian commercial salmon fishermen conceivably suffer by fishing time cut-backs while the Indian fishery and the ocean-ranchers will be prospering?
- c. Could ocean ranchers, wholly or in part, be successful by contribution or directly because of the Boldt decision? May only the private investors realize profits at the expense of the Non-Indian commercial fisheries due to the commercial fishing closures?
- C. What will be the effects of the proposed bill, (relating to private hatcheries) on the managerial authority or regulating agencies?
1. Could this proposed act create centralized authority which could determine the direction, motives and useage of fish farming/release-recapture projects in Washington State without stop-gap measures preventing any abuse creating harmful effects to the commercial salmon industry?
 - a. Does this bill propose state control (supported by the proposed act) of free enterprise and considering recent federal court rulings create support for the State's engagement in the salmon business?
 2. Considering that "Salmon may be cultivated under permit from the Washington State Department of Fisheries and payment of a \$100,000 annual license;"⁵ will the individual net fisherman have the necessary amounts of capital to engage in ocean ranching?
 - a. Ocean ranching/aquaculture/release-recapture apparently is being promoted by salmon growers associations, Indians, Washington State Dept. of Fisheries, Washington Sea Grant, National Marine Fisheries Service, Division of Marine Resources of the University of Washington and the Fisheries Research Institute of the U.W. Where is the promotion and support by the commercial Non-Indian salmon fishermen? Do the commercial salmon net fishermen support the development of future ocean ranching and aquaculture projects?
- II. Many other variables are being planned for the future of the Washington State fisheries which seem to relate to future proposed ocean ranching and/or private hatcheries and aquaculture.
- A. How does the proposed development of the aquaculture of Pacific salmon contained in the draft outline of the National Fisheries Plan effect regionally proposed entry into private fish rearing and what could be the secondary repercussions on the commercial salmon industry?

- B. How will the pending litigation in Pierce County Superior Court, Judge Brown presiding, (for the determination of whether propagated salmon should be included under Treaty Indian fishing rights) effect the development of ocean ranching/release-recapture?
 - C. Should federal, state and university researchers affect information basic to the formulation of legislation intended to approve entry by private investment groups into private salmon hatcheries, or ocean ranching/release-recapture?
 - D. What is the moral/philosophical justification for salmon growing, meaning human control of salmon production like a farmer's control of his crops as opposed to competitive harvestation by status quo methods?
- III. What is the status of current, various aquaculture projects in Wash.?
- A. Do release-recaptured and/or pen-reared salmon provide a supplement to the commercial market or will they become a substitute for commercially marine harvested salmon?
 - B. Is the aquaculture industry a viable industry presently and how many tax dollars will it consume if it is not?
 - C. Is it possible or probable that at this time costs of ocean ranching and/or aquaculture outstrip any markets and are based on principles of diminishing returns?

These are only some of the concerns and viewpoints of the commercial salmon industry as expressed by myself. Many fishermen may agree or disagree but moreover, the salmon industry of Washington State should pay close attention to any developments, future programs or plans which may effect the said industry or the resources on which it is based.

Sincerely,



Michael Harsila
Associate Director
National Federation of Fishermen

mh

Enclosure

FOOTNOTES

1. Division of Marine Resources, University of Washington, Workshop On Salmonid Aquaculture - A Summary Report, Sept. 21, 1973, p. 22.
2. Ibid., p. 23.
3. The Seattle Times, Farmed-Salmon Harvest Near, January 20, 1971.
4. Salo, Ernest O., Minutes of Planning Meeting For Workshop on Ocean Ranching, November 8, 1974, p. 2.
5. Fishermen's News, Aquaculture Regulations Adopted by Washington, February 1, 1972.

WASHINGTON SALMON FISHERMEN'S MARKETING ASSOCIATION

C-1 Bldg., #202, Fishermen's Terminal/Seattle, Wa. 98119

Phone (206) 282-1990

December 16, 1974

Terry Nosh
Division of Marine Resources
University of Washington
3716 Brooklyn Ave. N.E.
Seattle, Washington 98195

RE: OCEAN RANCHING - Concerns

Gentlemen:

The commercial fishermen, and, in particular the commercial salmon fishermen, have serious and grave reservations regarding "Ocean Ranching". The concept of "Ocean Ranching", propagation of fry for release and recapture from the ocean, is diametrically opposed to the free harvest and capture aspects of commercial fishing, and for that matter sports fishing. In the long run it can't be denied that "Ocean Ranchers" will assert ownership in and over propagated stocks such as salmon, where ever they may roam. Such assertions are inevitable from a sound business point of view, i.e., maximization of profit from a given unit of investment. The basis for such assertions are echoed by the Canadian suggestion of Country of origin control over anadromous stocks, e.g., salmon.

The obvious conclusion to the "Ocean Ranching" drama is the demise of the independent commercial fishermen vis-a-vis might, economic, makes right in the world of political and legal reality. Let's stop kidding ourselves gentlemen, platitudes aside, you are after a buck at the expense of another individuals right to make a living

"Ocean Ranching" will modify traditional concepts relating to the taking of fish on the high seas and the waterways over which a sovereign exercises control. Both sports and commercial fishermen will be conveniently "phased" out in the long run; that is our concern.

Very truly yours,

WSFMA

by 
Don Crouch, Pres.



Director / Carl N. Crouse

Assistant Directors / Ralph W. Larson
Ronald N. Andrews

Game Commission

Arthur S. Coffin, Yakima, Chairman
James R. Allen, Eatonville
Elmer G. Gerken, Quincy
Claude Bekins, Seattle
Glenn Galbraith, Wellpinit
Frank L. Cassidy, Jr., Vancouver

DEPARTMENT OF GAME

600 North Capitol Way Olympia, Washington 98504

December 5, 1974

Mr. Terry Noshko
Division of Marine Resources
3718 Brooklyn Avenue N.E.
Seattle, Washington 98195

Dear Mr. Noshko:

Thanks for the information on sea-ranching. Unfortunately, because of prior commitments, I will be unable to attend your proposed discussion on December 19.

Since most of the interest relates to salmon, we are not in a position to offer much in the way of comment. Generally speaking, however, we are very concerned over the impact of artificially produced salmonids on natural stocks. Programs on both salmon and steelhead have been tremendously expanded in recent years without any direct benefits shown in the total annual catch. Obviously there must be important factors involved and until we can identify them increase in fish culture should be carefully considered before implementation.

One further comment on steelhead -- we have noted considerable straying by returning adults and this could be a problem if commercial or private operations are to be considered.

Very truly yours,

THE DEPARTMENT OF GAME

Cliff Millenbach
Cliff Millenbach, Chief
Fishery Management Division

CM/wb

PURSE SEINE VESSEL OWNERS ASSOCIATION

P.O. BOX 70231 / 1111 N.W. 45TH ST. / SEATTLE, WASH. 98107 / TELEPHONE SU. 3-7733

December 11, 1974

Mr. Terry Nosho
Division of Marine Resources
3716 Brooklyn Avenue N. E.
Seattle, Washington 98195

Dear Terry:

The concept of ocean ranching introduces a new segment into the Washington salmon industry. This brief report presents the views of the Purse Seine Vessel Owners Association, the Puget Sound Gillnetters Association, and the Association of Pacific Fisheries relating to private salmon hatcheries.

The industry would not object to ocean ranching if it were controlled such that it would not interfere with Washington's natural resources and management programs. Also the proper location of a private hatchery would be extremely important so it would not interfere with commercial fishing operations.

Prior to the initiation of private hatcheries, a more effective population identification system should be established. The present smoltmark - adult recovery methods would not display the required exact distinction between private and state owned populations.

The ocean ranchers should examine the migrants grazing area to insure that an added salmon population would not affect the natural populations. The researchers should observe the food supply, predator-prey relationships, and space requirements of the fish in the area.

A major protest would arise from the industry if the market was flooded with low quality salmon carcasses. This was a major concern during the preceeding salmon season.

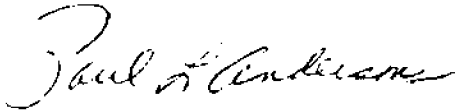
The Washington Department of Fisheries and the salmon fishing industry face enormous difficulties with treaty

Mr. Terry Nosho
December 11, 1974
Page 2

Indian fishing regulations. Under current laws there are approximately 20 Indian tribes plus the Department of Fisheries acting as regulatory agencies. The industry recommends that the Department review any increased management problems prior to the introduction of ocean ranching. The Washington salmon industry faces ample difficulties without adding another.

In conclusion, many of the above-mentioned points may be correctly handled in the event of private hatcheries. Basically Washington's salmon industry does not object to the concept as long as due considerations are given to added problems. Our major concern, as stated previously, is that ocean ranching should not interfere with the state's resources.

Very truly yours,



PAUL L. ANDERSON
Management Representative

PLA:maj

HALIBUT PRODUCERS COOPERATIVE

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December 11, 1974

Mr. Terry Nosho
Division of Marine Resources
University of Washington
3716 Brooklyn Avenue N.E.
Seattle, Washington 98195

Dear Mr. Nosho:

We do have some concerns on ocean-ranching salmon. Future conflict between private stream owners (ranchers) and the commercial fishery would develop as it would be difficult to resolve at what point fish would become private property. Each year, the ranchers would make stronger claims as to their proprietary right until the commercial fisherman was eliminated.

Perhaps the above could be prevented if the ranchers were not large corporations, but fishermen's cooperatives, then the fish could be harvested in the best manner after taking into consideration maximum quality and the common good.

We expect to have two from Halibut Producers Cooperative at the workshop.

Sincerely,

HALIBUT PRODUCERS COOPERATIVE


D.E. Reinhardt
Manager

DER:gl