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FLEET RATIONALIZATION

COMMITTEE

R E P O R T

NOVEMBER 1982

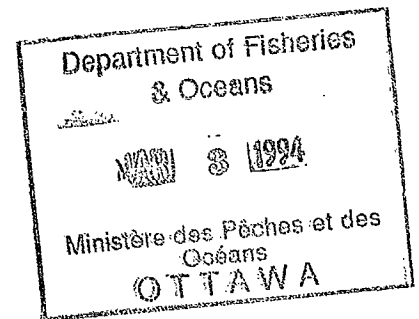
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INTRODUCTION

The Fleet Rationalization Committee was appointed by the Minister of Fisheries and Oceans, the Honourable Romeo LeBlanc, on April 28, 1982. The Committee's Terms of Reference were as follows:

The Committee will advise the Minister on the issue of fleet rationalization in the salmon and roe-herring fisheries. In particular, the Committee will advise on the following questions:

1. How should fleet capacity be reduced? How should further growth of fleet capacity be prevented?
2. If there is to be a buy-back program, what types of vessels should be bought back?
3. What should the fleet size and mix be after rationalization?
4. How should the current vessel replacement rules be strengthened?
5. What administration arrangements should be put in place to implement recommendations?

The Committee will report to the Regional Director-General from time to time and to the Minister's Advisory Council as appropriate.

The Committee will complete its work by September 30, 1982. Thereafter, the Committee may be asked to advise on details of implementation for fleet

rationalization measures that are adopted and may be asked to consider rationalization in other fisheries such as groundfish, for example.

Mr. Gordon Bisaro, LLB. was appointed to the Fleet Rationalization Committee as a member ex-officio on May 14, 1982 and has served as secretariat and legal advisor to the Committee.

The Fleet Rationalization Committee met on 15 occasions:

June 2, 1982	-	September 20, 1982
June 10, 1982	-	October 4, 1982
July 5, 1982	-	October 5, 1982
July 21, 1982	-	October 20, 1982
July 30, 1982	-	October 21, 1982
August 13, 1982	-	November 3, 1982
August 27, 1982	-	November 15, 1982
September 10, 1982	-	

The Commission on Pacific Fisheries Policy Final Report, "TURNING THE TIDE", A NEW POLICY FOR CANADA'S PACIFIC FISHERIES was published prior to this report. Its provisions have been reviewed by this Committee.

The recommendations contained in this Report of the Fleet Rationalization Committee are unanimously endorsed by the members of this Committee.

CHAPTER I

FLEET RATIONALIZATION

"Too many boats chasing too few fish".

This is the main issue underlying the need for fleet rationalization. How best, then, to go about it? Shall rationalization be by the hard-nosed economic policy suggested in the licensing arrangements of the Pearse Report? Such licensing arrangements could have only one ultimate result: the elimination of the independent fisherman from the Canadian West Coast fishing industry. Are not the cultural, economic and social values inherent in the retention of the independence of these individual fishermen worth saving?

Commercial fishing on the Pacific Coast of Canada is more than just an industry; it is a way of life, and is the only stable economic base for many coastal communities that still have relatively large fishing fleets.

However, commercial fishing is no different than any other industry in this respect: in the current atmosphere towards centralization, which narrows control down to a few companies, it could be efficiently arranged so that a very few people with nets and traps would wipe out the need for, and therefore the existence of a fishing fleet. We are faced with fatal decisions: do we want a coast with no fishermen, or at best, a few large seiners? The majority of our coastal communities will then become dependent on one, frequently unstable, limited-season tourist resort for an economic base, with the outcast fishermen added to the welfare rolls.

This committee sees fishermen as being as endangered as the supply of fish. We believe that both are vital to the economic health and the cultural well-being of Canada. Neither the fish nor the fishermen can be permitted to be sacrificed

to an economic theory that pits fisherman against fisherman bidding for the privilege of fishing. This economic theory allows big business to further dominate and control the industry, along the way destroying a cultural heritage that generations of West Coast fishermen have given to this country. Any fleet rationalization must balance efficiency against social, economic and cultural disruptions.

Keeping that balance always in mind, an acceptable formula must be found to meet the basic criteria: reducing the capacity of the fleet; increasing the size of the resource; or a combination of both. The formula must minimize human dislocation and industrial disruption. Cost and benefits should be clearly projected and defined.

The fact remains there are too many boats and there are too few fish. Each is a problem that requires a separate solution, with full recognition of interrelationships and interdependencies. In British Columbia, the size and efficiency of the salmon and roe-herring fleets are not correlated to the resources, causing an imbalance. The present fishing capacity of the fleet is not based on the size of the fish resource but on individual ambitions to catch more fish. Fleet size and overcapacity have contributed to, and continue to be major factors in the decrease in available stocks in both the salmon and roe-herring fisheries.

An acceptable formula for fleet rationalization must meet the basic criteria of reducing the capacity of the fleet; increasing the size of the resource; or a combination of both. It must minimize human dislocation and industrial disruption. Cost and benefits should be clearly projected and defined. This committee analysed possible methods of rationalization: most have been the subject of industry consideration for many years. We have categorized these into two groups, Unacceptable Methods of Rationalization and Acceptable Methods of Rationalization, stating why each was rejected or accepted to meet our basic criteria.

A. UNACCEPTABLE METHODS OF RATIONALIZATION

1. Gear and Vessel Efficiency Restrictions

Each of the gear sectors of the fleet suggest an endless array of curtailments for the other two gear types. Gillnetters offer solutions to the over-efficiency of the seines or the trollers; seiners perceive obvious measures to be applied to the gillnet and troll fleets. The "rag pickers", "vacuum cleaners" or "swivel necks" each regard their sector as having made disproportionate contributions to the cause of conservation through efficiency restrictions. In truth, the individual units in each sector have been curtailed to the breaking point; further restrictions would set in motion the law of diminishing returns. Gillnetters face restrictions in the length, depth, mesh size and allowable percentage of web in their nets, and are prohibited from using monofilament netting for salmon. Seines are restricted in length, in the duration of time they may hold a set, and recently have been subjected to depth restrictions, which curtails their ability to harvest certain species. Trollers are limited to six gurdies, the use of barbless hooks and most are now prohibited from retaining incidentally caught halibut. This list is incomplete, and only indicates that restrictions are being applied to each gear type. All fishermen are restricted in the times and locations for their fishing effort.

In the opinion of this Committee, further gear and vessel efficiency restrictions would be counterproductive and of limited benefit to the resource.

2. Personal Quotas

Personal quotas for quantities of fish on a before-season species distribution of the total allowable catch has attracted some advocates. The assumed benefits of this theory are said to be twofold: first, that it will discourage additional capitalization of the fleet; second, that it will

reduce the need for curtailed fishing times, gear restrictions and enforcement.

This Committee is of the opinion that answers to the following concerns must be made before applying any personal quota system.

- a) We believe that the unrestricted transfer or marketability of quotas will lead to rapidly escalating values on the market for such quotas. We have already witnessed increased capitalization - the huge increase in the value per ton of an "A" licence, and other inequities that resulted from the original license limitation system in the British Columbia salmon fishery. This was a regressive step. Instead, we should be seeking now to control the inflated values of the fishing privilege. An ever-present danger is the eventual control of such quotas by other than genuine or bona fide fishermen.
- b) Regardless of intent to prohibit concentration of quotas eventually to a few quota holders, actual enforcement of this restriction would be extremely difficult. This type of enforcement is more suited to the federal laws governing combines and restrictive trade practices than to the Fisheries Act and Regulations. Corporate stratagems developed in the interest of "tax planning" should be sufficient indication of the overwhelming options available to any individual or corporation, armed with a battery of lawyers and accountants, intent on circumventing the regulation. These possibilities of avoidance were recognized by Dr. Pearse in "Turning the Tide", when he stated with reference to the prohibition of license transfers, "...restrictions can be circumvented through legal manoeuvres involving changes in company shareholding, leases, trusts and so on". Dr. Pearse's statement can be applied equally to the transferrability of quotas.

- c) Consider the basic question of where a quota should be placed; on the vessel or on the fisherman? On the one hand, quotas attached to a vessel would prove far too cumbersome when that vessel comes up for sale, if the intent is to reduce the number of participants through the cannibalistic approach suggested by Dr. Pearse, where one operator would purchase licenses to fish in several places. On the other hand, security for vessel or gear financing is seriously diminished, or totally eroded, when the quota is held personally by the fisherman. It is a case of being damned if you do and damned if you don't.
- d) Would quotas make enforcement simpler or in actuality be so unenforceable that they would further diminish public respect for the department? There is a growing trend among fishermen to market fish directly to the public. An almost limitless number of landing points exist (isolated docks, floats, government wharves; wherever a boat can go for unloading) on the British Columbia coast for direct sales to housewives, fish stores, restaurants and small processors. Enforcement to ensure compliance with each individual's quota would present an almost impossible challenge. The public and this industry already see that enforcement of current regulations is becoming ineffectual. An unenforceable quota limit would further strain an already overburdened and understaffed enforcement section, further demoralizing the staff of the Department and industry. How would you enforce a quota, once the fish has been sold and delivered? The public buys in good faith and cannot be liable.
- e) The philosophical conundrum of relegating fishermen to the status of farmers who harvest the crop they sow when their status historically has been as hunters, who compete, exceeds the qualifications of our resource managers. Tampering with an

individual's personal perception is a gross interference with his rights. The abalone fishery has been cited as an example of a functioning and successful quota fishery. In reality it has proved impossible to police even a fleet of only 26 quota holders for the reasons above.

Personal quotas for salmon as a licensing mechanism is a mind-boggling concept. The predetermined distribution of the total allowable catch from hundreds of salmon streams, with five species, to multiples of three basic gear types presents a problem of logistics better left in the classroom. We are opposed to the application of personal quotas on any fishermen.

3. Catch Allocation

A sub-Committee of the Pacific Fisheries Advisory Council was appointed on June 14, 1979 to study the topic of catch allocation and to recommend to the Advisory Council the share of the salmon catch to be apportioned to each sector of the salmon fleet. The sub-Committee interim report was presented to the Director General of the Pacific Region on April 17, 1980, ten months later. Fundamental disagreement between sub-Committee members on the sensitive question of the base year period for determination of the historical levels of catch by the three gear types led to an inconclusive report. The determination of the historical levels of catch and the degree to which this history is relevant in today's rapidly changing salmon fishery is a complex and controversial issue. Some fishermen's organizations participating in the Minister's Advisory Council have serious reservations about catch allocation and the value of this concept to stabilize the catch for each gear type. The wisdom of pursuing this idea without a thorough study of the ramifications of such a dramatic change in management policy was questioned.

After all their meetings, the Pacific Fisheries Advisory Council sub-Committee was only able to agree on one motion:

"Upon implementation of a catch allocation program, we recommend that salmon vessels should be licensed to fish one type of gear only".

What the above statement means is: there must be single gear licensing as a prerequisite to catch allocation, because otherwise a combination boat could participate in the catch of more than one gear type. It does not imply that there is a need for single gear licensing, if catch allocation is not implemented.

Catch allocation, like most topics related to our fisheries resource, has been studied to death. In addition to the sub-Committee report quoted above, our Committee examined the issue in the following reports:

- A. Licence Limitations - British Columbia, Sol Sinclair, 1960
- B. West Coast Salmon Fleet Development Committee - Report - 1973
- C. A Licensing and Fee System For The Coastal Fisheries of British Columbia, Sol Sinclair - 1978
- D. Fisheries Policy For The Pacific Coast, Issues And Advice, F.J. Doucet and P.H. Pearse - 1980
- E. Gear Licensing/Allocation, (A Department Of Fisheries And Ocean internal paper) D.J. Reid - 1980
- F. A method of Allocating Salmon Catch Among Gear Types, D.J. Reid - 1981
- G. Conflict And Opportunity, A preliminary Report Of The Commission On Pacific Fisheries Policy, P.H. Pearse - 1981
- H. Turning The Tide, A New Policy For Canada's Pacific Fisheries, P.H. Pearse - 1982

The determination of the share of the salmon catch to be apportioned to each gear type was dealt with in each of these studies. Any catch allocation system would have to recognize two fixed conditions: priority of use and evaluation of stocks.

i) Priorities in fishing:

The priority in the use of the salmon resource must, by law, first satisfy the demands of resource conservation, then the needs

of the Indian food fishery, with the commercial and sports fisheries following. What actually happens is the reverse, as it must be. Within the commercial fishery, offshore trollers get first opportunity, then the inshore net and troll fleets, followed by the river gillnetters. The Indian food fishery is satisfied and whatever remains goes for resource conservation.

ii) Pre-fishing evaluations of stocks:

The size of the total stock is not reliably known until the commercial and sport fishing fleets have taken their share, when it is too late to apportion divisions. We recommend that before drawing up catch allocations, the Department revive the high seas tagging and research program conducted for a number of years that terminated in 1967, to ascertain the level of stock abundance each season, immediately before the fish is available to the commercial fleets.

4. Single Gear Licensing

Single gear licensing, the prohibition or restriction of combination salmon vessels, is considered a mandatory prerequisite to catch allocation, but there is no indication that allocation problems will be resolved in the foreseeable future. Therefore, single gear licensing should be considered on its own merits, not as part of a package that includes allocation.

Departmental policy currently practices a form of single gear licensing with the salmon seine fleet and the roe-herring seine and gillnet fleets. Pacific Fishery Regulations And Licensing Regulations state:

"No person shall use a vessel in salmon fishing by means of a purse seine unless that vessel, or the vessel or vessels from which the salmon license privilege was transferred, made landings of purse seine caught salmon during 1975 and 1976 and before

July 28, 1977."

and

"No roe herring fishing licence tabs shall be issued...in respect of a vessel that uses gear other than that specified in the application for a roe herring licence for the vessel for 1974, unless the issue of such licence is authorized by the Minister."

The single gear restriction does not apply now to salmon seines. The conversion of "A" licensed trollers or gillnetters to seiners is prohibited, but "A" licensed seiners are permitted to troll or gillnet. The salmon seine fleet cannot be permitted to further proliferate and we urge single gear licensing for this sector.

We recommend that a reciprocal restriction be imposed on single gear licences for salmon seines, and that the moratorium on the pyramiding of "A" licences for all sectors of the fleet be retained.

A word of warning: the application of single gear licensing on the small boat fleets - trollers and gillnetters - would have an adverse effect on their future viability and on the peaceful coexistence of these fleets. For example:

- (a) Negotiation of an agreement between Canada and the U.S. for the management of Pacific salmon, to regulate the interception by Canadian and U.S. fishermen of salmon originating in the other country, is now in progress. The terms of this agreement may possibly incorporate the principle of trading permissible interceptions by species. Canadian fishermen could then harvest U.S. coho and chinook in exchange for the Americans harvesting Canadian sockeye and pinks of an equal value. Our gillnet and troll fleets tend to be species specific and this form of agreement could adversely affect either of these as a single gear type. This scenario of an interceptory agreement is oversimplified, but it underlines the potential threat imposed on an

inflexible fleet. Single gear licensing might inadvertently place an impediment in the path of ratification of an international agreement at a time when the commendable efforts of our negotiators could be reaching culmination.

- b) Phase I of the Salmonid Enhancement Program has had considerable success with the propagation of sockeye, and although the target production for chums was not reached the increased facility capacity of this species was significant. The need for a favourable cost/benefit ratio has dictated the implementation of the chum hatchery program and lake enrichment for sockeye. Phase II of the Salmonid Enhancement Program is scheduled to commence in 1984, but has no present budget commitments and the geographic or species targets for precedence during the ensuing seven year plan have not been decided. The potential influence of the Salmonid Enhancement Program on single gear fleets is obvious. The imposition of restrictions on this program to enhance specific species of salmon to satisfy the needs of single gear fleets is not advisable.

With these serious problems unresolved, we recommend that single gear licensing should be imposed only on salmon seine vessels and roe-herring seine and gillnet vessels.

5. Area Licensing

The division of the British Columbia coast into separate districts or areas for the purpose of licensing a specified fleet for each area has some support within the commercial fishing industry. This concept has been applied to the roe-herring fishery for the past two seasons and has been recommended for application to the salmon fishery in the Final Report of The Commission On Pacific Fisheries Policy.

The salmon runs of British Columbia, as a general rule, return to their spawning destinations travelling from the north to the south. Major runs, such as the Adams River sockeye, are caught at different times at locations as far north as the Queen Charlotte Islands, then in the vicinity of Milbanke Sound in the central coast, throughout the length of the west coast of Vancouver Island and in Juan de Fuca Straits. The same run can be harvested in Queen Charlotte Sound, around the top of Vancouver Island, in Johnstone Straits, in the Gulf of Georgia and finally in the Fraser River. By comparison, Skeena River sockeye are only caught in the northern areas.

This pattern of fish movement offers a greater opportunity to those vessels fishing the northern areas and consequently most proponents of area licensing are northern area fishermen.

The theoretical advantages of area licensing are:

- a) Simplicity of management. The Department of Fisheries And Oceans could predetermine the number of vessels in each area from year to year. There would be less likelihood of an excessive concentration of fishing power directed at any single salmon run.
- b) Fishermen would realize a benefit from reduced fuel costs and less travelling time.
- c) Fishermen could benefit from the reduced competition in each area.

The disadvantages identified by this Committee are:

- a) Restricted freedom to move may adversely affect the income of some fishermen when the salmon runs for their area do not reach projected levels. This could coincide with runs of greater than anticipated strength in other areas, putting fisheries management under extreme pressure.

- b) The decentralization of management authority to each licensed area could result in varying management philosophies and an absence of uniform opportunity to each gear type in different areas.
- c) The specific designation of three salmon areas to correspond to the roe-herring management plan, north, south and west areas, shows resource management myopia - a lack of foresight. It would be impractical for the following reasons:
- i) The roe-herring area designations do not provide for equal opportunity to harvest each species of salmon, for each gear type. An acceptable area license scheme would have to provide sufficient early and late fisheries, in fairness to the fleet. There is a shortage of early runs of sockeye in the south and late runs of chums in the north.
 - ii) These designations ignore the historic fishing patterns of all three gear types, and the consequent loss in earnings to those fishermen. The troll fleet, for example, has many participants who range between Cape Cook and Goose Island Banks during their season. An imaginary boundary line drawn due west of Cape Caution cuts across the traditional fishing tacks of those fishermen who make their annual contribution of lead to the "Danger Shoals". Local knowledge of his fishing grounds is the stock in trade of every fisherman who's worth his salt, and must not be swept aside by arbitrary placement of a line on a map.
- d) In the preceding section reference was made to the impending Canada/U.S. salmon interceptory agreement and how this agreement could affect single gear licensing. Of greater consequence is the potential for inequities in area licensing after formal consummation of an agreement between the two countries.

Five categories of interceptions have been identified by the Technical Committee on Salmon Interceptions:

- "A" Interceptions by Alaska fisheries of salmon originating in British Columbia coastal rivers.
- "B" Interceptions by Alaska fisheries of salmon originating in Canadian sections of rivers which drain to the sea through Southeastern Alaska.
- "C" Interceptions by Canadian fisheries of salmon originating in Alaska rivers.
- "D" Interceptions by Canadian fisheries of salmon originating in Washington, Oregon, and California rivers.
- "E" Interceptions by Washington, Oregon, and California fisheries of salmon originating in British Columbia rivers.

The Canadian estimates of interceptions of all species of salmon, based on the fourteen-year-average for the period 1967 through 1980, by category follows:

"A"	857,000 salmon
"B"	381,000 salmon
"C"	437,000 salmon
"D"	2,025,000 salmon
"E"	3,686,000 salmon

These figures show an imbalance in the number of salmon intercepted by each country favouring the U.S. catch. Americans intercept a greater number of Canadian salmon than the number of U.S. salmon intercepted by Canadian fishermen. The estimated numbers of

interceptions and the geographic categorization of these interceptions reveal that the northern and the southern areas of the British Columbia coast are not affected equally. The northern balance is represented by categories "A" plus "B" minus "C", roughly 800,000 salmon annually. The southern balance is "E" minus "D", roughly twice the northern balance.

Area licensing would create a severe inequity relative to the location of salmon interceptions, and to the species intercepted:

For example, a comparison of the chinook catch of categories "D" and "E", the interceptions of chinooks originating in Washington and Oregon by Canadian fishermen, and the interception of chinooks originating in British Columbia by American fishermen reveals the following fourteen- year averages:

"D"	655,000 pieces of chinook salmon
"E"	135,000 pieces of chinook salmon

The interception by our fleet is almost five times as great as the interception by the American fleet. Over 90 percent of the interception of chinook is by the Canadian troll fleet.

A similar comparison of the coho catch represented in categories "D" and "E" produce the following Canadian estimates, averaged for the same fourteen year period:

"D"	1,073,000 pieces of coho salmon
"E"	512,000 pieces of coho salmon

The interception by Canadian fishermen of U.S. coho is more than double the interception of Canadian coho by American fishermen. The troll catch represents over 77 percent of the interceptions in "D".

The "Draft Framework Agreement Between Canada And The United States For The Management Of Pacific Salmon" included the following statement of principles: "to...provide for each Party to receive benefits equivalent to the production of salmon originating in its waters". Subject to further negotiations, it is expected that a common reference or evaluation will be applied to the interceptions by each country and agreement reached on the trading or balancing of interceptions. If this happens, Canadian troll interception of U.S. chinook and coho on the west coast of Vancouver Island could be permissible, defrayable by an equivalent value of Skeena or Fraser sockeye.

With area licensing, one licensed fishing area would be paying the bill for another licensed area. The harmonious relationship that exists between area fleets and gear types would be strained, to say the least. The future of our valuable troll fleet would be in jeopardy, if area licensing is implemented.

- e) The implementation of Area Licensing could represent an untenable frustration to the Salmonid Enhancement Program. Our expectations should be sufficiently satisfied if this program can be adequately funded and then produce salmon within its cost/benefit parameters. The requirement to do so by species (to satisfy each gear type,) and by location, (to satisfy area fleets,) would be an unreasonable imposition.

We therefore are opposed to any further implementation of area licensing beyond the present roe-herring restrictions.

B. ACCEPTABLE METHODS OF RATIONALIZATION

It is the consensus of the Fleet Rationalization Committee that a significant reduction in fishing capacity is a mandatory requirement for any formula designed to effect the rationalization of the salmon and roe-herring fleets. We have reached this conclusion only after in-depth discussions with the resource managers in the Department and an exhaustive search for potential alternatives.

The members of this Committee initiated their work from the fundamental position that, where practical, resource enhancement was more acceptable than fleet reduction as the criterion for fleet rationalization. Buy-back was to be avoided, unless there was no alternative. We view as unsavoury the dislocation of fishermen and we feel it is the paramount concern of government to optimize employment potentials in this industry. The view was shared by the Committee that, as recipients of the natural wealth of the sea, Canadians are morally obliged to expand this resource. A United Nations FAO publication discussing world fisheries in the year 2000 has predicted that "By the end of this century, given stability in relative prices for fish, demand for food fish alone could be double the 50 million tonnes consumed in the mid-70's, mainly due to population growth." Administrative simplicity should not be the primary objective of fleet rationalization.

However, we believe that in conjunction with an assurance of adequate funding of the Salmonid Enhancement Program, there must be a reduction in the effort of the salmon fleet. This consolidation must be planned and concise in its objectives, designed to protect the diminishing level of wild stocks of salmon while permitting the harvest of enhanced stocks. It must be specific in its goals.

Tactics required for rationalization of the roe-herring fleet are entirely different from our base objective of Salmonid Enhancement. Unlike salmon, the herring resource offers limited scope for enhancement. The roe-herring fleet is simply too large for proper management of the available catch and must be reduced to ensure the survival and increase of the herring resource.

We know that any proposal for the rationalization of the salmon and roe-herring fleets, which effectively reduces the fleet to conserve the stock, will be controversial. Various interests, with different perspectives and conflicting objectives, must be expected to react with contention. On the topic of fleet size, for example, which of two basic concepts should prevail? Should our objective be the minimum fleet size that is required to harvest the available stocks, or the maximum fleet that can be supported by the resources? If we opt for the former, what adjustments may be necessary to the fleet as enhancement efforts produce results? What is the optimum fleet size for "fair and reasonable returns to fishing enterprises"? Fair and reasonable, based on what an economist says is needed for normal business endeavours, might be considerably more than what an individual fisherman feels he needs for his personal requirements.

Rationalization of these two fleets will be costly. In Chapters II and III we identify potential sources of funding and the targets for expenditures.

For the difficult process of fleet rationalization, which only begins with the drafting of proposals, a forum must be provided for review, criticism and improvement before acceptance and implementation. Patience is essential. This industry didn't deteriorate overnight, nor will it be improved quickly. Commercial fishermen must be prepared to make a commitment to their resource, and the government must be prepared to facilitate this commitment with funding and planning to ensure success.

This Committee believes that an acceptable concept for fleet reduction must involve fishermen on a voluntary basis. We cannot support any theory that arbitrarily deprives an established fisherman from pursuit of his livelihood. We disapprove of the imposition of a legally narrow concept, based on the dubious premise that the Department has no obligation to issue annual licenses. The Department of Fisheries and Oceans permitted and condoned, even encouraged, the present status through their commissions and omissions. The Department issued more licenses than the resources can reasonably support. The pyramiding of "A" licenses was allowed to continue despite industry recommendations to the contrary, and inadequate current vessel replacement rules have contributed to fleet growth and overcapitalization. The abrogation of the established rights of fishermen by naked economic force would remove the burden of mismanagement from the Department, by placing excessive, inhumane hardships on fishermen.

The Final Report of The Commission On Pacific Fisheries Policy repeatedly presents the establishment of a ten year license term as an advantage to fishermen: "Existing fishermen will enjoy greater security and certainty about their fishing privileges under long-term licenses" or "... (it) offers most fishing enterprises much greater security than they now have under annual licenses". The Commissioner also states, "My review of the history of restrictive licensing during the past decade suggests that licensees were indeed encouraged to believe their fishing privilege would be renewed indefinitely, and this has lead to awkward problems in reducing license holdings in overcrowded fisheries". Perpetuity of the fishing privilege was implicit in past license management. The Department was fully cognizant of the spiraling cost of tonnage paid by fishermen as they attempted to secure their position in the industry. We condemn an attitude

that ignores this commitment and advocates the elimination of fishermen by decree as a governmental legal right. The end does not justify the means.

Opening fishing licenses to bids, the initiation of a bidding war designed to extract the optimum resource rent from the fishing fleet, is absurd to the extreme. Displaying deep misunderstanding of and contempt for fishing values, this manoeuvre ignores the need to retain professional fishermen in the industry and reduces participation to those with the greatest ability to pay. Independent fishermen will be squeezed out by those enjoying the support of corporate financing, or those capable of investing in a license for future gains. It has been suggested by the Commissioner that an Indian corporation, supported by the Department of Indian And Northern Affairs, would participate in the bidding for new licenses. Independent fishermen would then be expected to bid in competition with the virtually limitless resources of the government, as well as with outside corporations. There is not a single fisherman on this coast who could outbid a corporate or government body. In addition, sealed bids expose the fisherman to the nightmare of finding himself suddenly with no licence, an unmarketable boat, and no means of earning a living.

Any encouragement of soaring licence costs is regressive; we should be seeking a method of curtailing this anomaly, not legislating its continuance and proliferation, with license bidding.

We are unalterably opposed to any bidding for fishing licenses.

In Chapters II and III of this Report specific recommendations are presented for the rationalization of the salmon and roe-herring fleets. The projected fleet size and mix for each fishery, as requested in our Terms of Reference, will be identified. In more general terms, our approach to fleet rationalization is two fold: Fleet Reduction and Resource Enhancement.

1. Fleet Reduction

Because it is the fastest means of reducing the roe-herring fleet especially, at this time, we reluctantly recommend that a buy-back program should be re-instituted with consideration for the following basic criteria:
(See also Chapter Three)

- a) The administrative structure of this program should be patterned on the experience of the past two buy-back programs. This would include appointment of a buy-back committee this is representative of industry, and retention of a manager for the program. Chairmanship of the buy-back committee should be provided by a senior departmental official.
- b) Terms of Reference for this program should include the provision to purchase licensed vessels from defined categories. The purchase of the complete entity, vessel and license, is most convenient to the seller and avoids the uncertain legal validity of separating vessel and licence.
- c) Specific species and gear targets should be identified in the Terms of Reference of the buy-back committee. A clearly defined fleet size and mix should be the objective of the program. Price incentives should be the mechanism employed to achieve the buy-back targets.
- d) The invitation to fishermen to participate in the buy-back program should include provision for the committee to secure an option to purchase the vessel and license, within a specified time period, at a mutually agreed upon price. The price should be based on fair market value, with provision for adequate compensation for the option privilege. The options clause is intended to provide uniformity and stabilization of the vessel prices paid by the committee during the

term of the program. The operation of the option agreement would be similar to its use in land assembly for a building project. All options would first be in place before they are all triggered as a single event. Vessel and license values would otherwise rise with each purchase resulting in increased costs to the program.

- e) An appraisal system, similar to former buy-back programs, would determine the fair market value of vessels and licences.
- f) All vessels within the species and gear target categories of the program should be eligible for sale to the program. All regular licences and Indian licences should contribute to the program and have access to services of the program. The topic of Indian licenses is dealt with in the next chapter.
- g) Vessels acquired by the buy-back program should be disposed of by the committee by either of the following procedures:
 - i. By public auction, as was the case in the original Buy-Back Program operating from 1971 to 1973.
 - or:
 - ii. By the sale of vessels to developing nations. This concept is expanded later in this chapter.
- h) Vessels sold by the buy-back committee should be eligible for reentry into the fishing industry only as replacement vessels, subject to the vessel replacement rules described in Chapter IV. Replacement poses no significant problem if the improved replacement rules are strictly followed and enforced.
- i) Revenue generated by the sale of vessels should go back into the buy-back fund and, in conjunction with sources of financing identified

in Chapter II, will provide a revolving fund adequate to finance the purchase of the target objectives.

- j) The terms of the buy-back program are determined by the economic model projections of subsequent chapters.

The potential sale or transfer of British Columbia fishing vessels to developing nations, within the context of fishery related international aid projects, should be pursued as an objective of the buy-back committee. The export sale of surplus vessels, on favourable terms, could offset part of the cost of the program. In conjunction with training and maintenance programs, this would offer an effective development tool; it would be cost-efficient in comparison to other forms of relatively capital intensive international aid.

The Canadian International Development Agency (C.I.D.A.) has already shown an interest in proposals of this nature and, in May, 1982, commissioned a study to determine whether Canadian fishing technology would be appropriate for Nicaraguan fisheries. There is need for the assessment of potential markets for suitable vessels, determination of the conditions upon which sales could be based, and a review of the government's international aid objectives towards countries offering a potential market.

This feasibility assessment should be a co-operative undertaking of the buy-back committee and C.I.D.A. Also, consideration should be given to the possible participation of private sector funding from those lending institutions, which have discovered, to their dismay, that they now have a vested interest in the British Columbia fishing industry.

The buy-back committee could benefit from the knowledge of a predetermined market, and could then selectively target on suitable vessels

within the target categories. The removal of modern vessels, particularly from the roe-herring seine fleet, may be very difficult without this alternative.

The scheduled replacement of the Department's fleet of patrol and research vessels offers the opportunity for the Department itself to be a potential customer for suitable surplus vessels; many of the overcapitalized seine boats, and even some larger off-shore trollers, could be sufficiently modified to perform adequately as Fisheries patrol boats. If the 6.6 million dollars for the patrol boat "James Sinclair" were spent instead to pick up large seine boats, through the buy-back, it would make a noticeable dent in the size of the salmon fleet.

2. Resource Enhancement

It was stated earlier in this Report that this Committee favoured resource enhancement as the most acceptable option for fleet rationalization. Enhancement, in all of its forms, is more than a method aimed at bringing the resource and the fishing fleets into balance. It cannot be interpreted only in the narrowest context of a fish rearing facility, intent on maintaining the present levels of productivity or recapturing some of our lost opportunities. Enhancement is the restoration of our marine habitat, the protection of our supply of clean water and the assurance of a fisheries resource to future generations. It is community developed programs generating economic, social and environmental benefits. Enhancement is a commitment to an environmental quality standard that this nation should be striving to attain.

The Salmonid Enhancement Program is the fundamental tool for managing and developing our salmon fisheries. The object of this program is to restore to historic levels of abundance the stocks of salmon and anadromous trout on the west coast.

This objective is expressed in the planning framework of the Program:

1. increased national income
2. increased employment
3. increased regional development
4. improved Native Indian well-being
5. improved salmonid resources and environmental preservation

These are ambitious objectives, but the Salmonid Enhancement Program is an ambitious and challenging approach to resource management. However, it is not without its critics. The relative merits of Phase I and the advisability to provide sufficient funds for Phase II are being questioned. Is the Program a financial success? The goals for Phase I were projected on the expenditure of \$150 million, in 1976 constant dollars, over a five year period. Phase I is being completed with \$150 million, in current year dollars, over seven years. The Federal government extended the term by two years and did not index the budget to reflect the effect of inflation. In spite of these financial constraints, (the budget for Phase I has about half of its expected purchasing power) the Salmonid Enhancement Program estimates it will attain 80 percent of the original production target. Not a bad investment!

The size of the budget for the Salmonid Enhancement Program will continue to be a source of contention and frustration, unless the expenditure can be seen in terms of the overall benefits provided, as compared to other Federal government programs. The annual grant of \$64 million to the Canada Council for the advancement of poetry and painting, for example, improves the quality of life of Canadians. Why not apply the same criteria to an enhancement project for improving the quality of life for the Owikeno people of Rivers Inlet? This isolated community is

dependent on the fishery resource. The only employed person in this village of a hundred Indians now is the Band Manager. The provision of employment and the promise, or hope, of a future for these people should have as high a priority as artistic endeavours, and higher than the welfare payments they are now offered.

The Salmonid Enhancement Program suffers from a level of expectation that it might never achieve, but what does matter is what it has achieved. We had been lead to believe that the Salmon Enhancement Program would double our supply of salmon, and we expected it to happen overnight. The idea had been a dream for so many years, promised and planned, discussed and dismissed, that its very existence implies total success. Some disappointments, and the realizations of the immensity and complexity of the challenge have resulted in criticism of the results so far. The commercial fishing industry must be prepared to accept some imperfections and adjustments, and must consent to the responsibilities that are a condition of a successful and continued enhancement program.

Two provisos stipulated in the Federal/Provincial Agreement On The Salmonid Enhancement Program now bear heavily on the success or continuation of this Program. The Federal government is bound to a provision for the recovery of direct costs of projects within the Program, and to a restraint of the primary and secondary sectors of the commercial fishing industry from incurring unnecessary capital investments, which could dissipate the benefits generated by the Program. The Treasury Board of the Federal government has made the the funding of Phase II of the Salmonid Enhancement Program contingent on cost recovery and restraint plans being operative.

The government can recoup its direct costs in either of two ways: increased licence fees, beyond their present increased level; or the collection of a royalty or resource rent levied on the weight or value of the catch. Universally increased licence fees represent a particular

hardship on those fishermen who place the least demand on the resource, and consequently have the least ability to pay. Royalties levied on the value of the catch would be difficult to apply with uniform effect or equity. Different prices are paid to the various gear types for the same species and existing bonus arrangements and share agreements render this form of royalty impractical. A royalty levied on the weight of the catch with consideration for the relative value of each species relates economic rent payments to gross earnings, while avoiding the inequities of a direct percentage of recorded landing values. The opponents to royalties, or cost recovery, must accept the fact that the debate is not over the pros and cons of resource rent, but whether we will have the Salmonid Enhancement Program, with its inherent cost recovery; or if we will have neither.

This Committee recommends that the Salmonid Enhancement Program continue, with cost recovery; but suggests that the share of the cost of projects in the Program that are to be ascribed to the commercial fishing industry be scrutinized. The total benefit package should be reviewed to ascertain a reasonable and fair share of the costs between all parties who may benefit, as determined by the five-account planning framework. Our recommendations for royalties to be applied to the salmon and roe-herring fisheries are contained in Chapter II. In Chapter III we will propose the aims or targets that the Enhancement Program should consider as contributing toward the rationalization of the salmon fleet.

CHAPTER II

FINANCING FLEET RATIONALIZATION

This chapter is an economic assessment of the Committee's recommendations for fleet rationalization. How much will it cost and who pays the bill?

Our analysis gives priority to potential economic effects on the current commercial fishermen. The aim of our proposals is to cause the least dislocation, while ensuring recovery of the cost of a fleet rationalization program. In our program some of the benefits of rationalization will accrue directly to commercial fishermen, and some to the people of Canada, as the owners of the resource. Determination of what an equitable share would be for each is the basic factor governing any rationalization scheme.

To achieve this equitable balance, the Fleet Rationalization Committee employed the advice of experts, the compilation of previously unavailable data on fishermen's incomes, and a complex computer program to meld the information.

A. INCOME TAX

The need to determine fishermen's net income and their ability to pay, is the prerequisite for any fleet rationalization program involving cost recovery. Then, it was necessary to determine the incremental increase in fishermen's earnings that would occur after fleet rationalization. Only then could we allow for deduction of a royalty that would not impoverish the fleet.

To establish these facts the Committee requested statistics on fishermen's incomes and expenses, and hired a firm of chartered accountants to gather and process these. Anonymous information was collected from several private accountants whose clientele included a significant number of fishermen. These accountants recognized the need to co-operate, if we were to come up with a solution that would ultimately be beneficial to the economic well-being of their clients and the resource. It was necessary to compile accurate statistics, originating from fishermen's income tax returns, while protecting the confidentiality of the accountant/client relationship. This was accomplished by the designation of specific gear categories and each accountant then combining the figures of his fishermen clients in each category. No fisherman could be identified, since all information pertaining to individual income was presented as part of a list of total figures by gear type. Further protection of confidentiality was assured by compiling all information under the supervision of a nationally recognized firm of chartered accountants, Thorne Riddell. The information presented to the Fleet Rationalization Committee was in the form of computer printouts showing the income and expenses by gear type and the number of fishermen represented in each group. The information was sorted by gear types, seine, gillnet or troll, and all combinations of gear types, for fishermen whose earnings were derived from salmon or salmon and roe-herring. In addition, the Committee recognized that it is seldom the "average" fisherman who is dislocated by changes in the industry. Therefore, information was prepared from 25 percent in the high income bracket, the 50 percent in the medium, and the 25 percent from the low income brackets for each of the gear types and each of the combinations of gear types. Income tax returns of 405 fishermen were analyzed and included in the report from Thorne Riddell to the Fleet Rationalization Committee. This representative cross section of the fleet provided an essential data-base for the determination of specific

rationalization procedures.

In addition to assembling this information and reporting on the results, Thorne Riddell was directed to make an assessment of the effect of specific fleet rationalization proposals on the taxable income of the fishing fleet and the subsequent benefits in increased income taxes that would flow to the government of Canada.

A copy of the Thorne Riddell Report is attached as Appendix 'A' to this Report. This Committee has studied this information and arrived at the following conclusions:

- a) There is a vast difference in the earnings of fishermen in each gear class between the high, medium and low income groups. Care must be exercised that none of these income groups be critically affected by proposals for fleet rationalization.
- b) An analysis of taxable income and net fishing income in each category shows that royalties must follow increased earnings, resulting from fleet reduction and resource enhancement. Presently there is no money available.
- c) The net fishing income of each group bears virtually no relationship to the gross fishing income of the same group. The additional costs that are involved in increasing gross income were found to reduce the net to a living wage, regardless of the gross. The continuation of increased capitalization and the subsequent increases in operating expenses preclude the possibility of a resource rent. Capitalization must be contained.

- d) A substantial benefit, in the form of increased returns from income taxes will accrue to the federal government. The average gross income of each gear type was compared to the Department of Fisheries and Oceans' statistics for the gross earnings for each of these categories for the same tax year, 1981, and found to be representative of the average income for the total fleet. The increase in taxes payable, as shown in the Thorne Riddell report, Table 2, was then applied to the projected fleet size and mix, following rationalization. In 1981 there was an average deferred loss, for the entire fleet, of \$13,617.00. A projection of 1994 benefits from our proposals for rationalization would produce an annual increase in income taxes of \$23 million, substantial.

The Fleet Rationalization Committee recommends that this form of survey or general examination of fishermen's income and expenses become a regular procedure for the Department of Fisheries and Oceans, to determine increases in the operating costs of the fleet, to determine the consequent impact of royalties, and to define the relative income of each gear class.

B. ROYALTIES

The information that was provided by the survey of fishermen's income was systematically incorporated into a computerized economic model; this was done by Environmental and Social Systems Analysts Ltd., E.S.S.A., assisted by Fisheries and Oceans staff from Economics and Statistical Services and the Salmonid Enhancement Program, with members of the Fleet Rationalization Committee acting as observers and offering guidance.

The basic information in our model was from the program for a "Cost Income Model of the B.C. Salmon Fishing Industry", CISFIN. This was developed for the enhancement program to determine the effects of S.E.P. on

the profits of the fishing industry. To this program, we added the projected fleet reduction, by production class, which would result from our proposals for a buy-back program, including an estimate of the net cost of fleet reduction. The projected cost of operating S.E.P. Phase I facilities, the capital cost projections for S.E.P. Phase II, and the projected operating cost of S.E.P. Phase II were included. The program was expanded to provide for additional herring production resulting from the shift of roe-herring seines to roe on kelp, and herring impoundment fisheries. Future benefits of a Canada/U.S. interceptory agreement were accounted for. Provision was made for increases in vessel capitalization resulting from a net increase in fishermen's earnings. This information was scheduled to determine the timing of expenses and income resulting from these changes.

The objectives of this economic model were:

- a) To determine future annual fixed costs, operating costs, gross income and net income for all salmon and salmon and roe-herring fishermen, by production class, based on a series of variables that could be applied to these factors. The variables were:
 - i) Different levels of investment in S.E.P. projects, including the possible discontinuance of S.E.P. following Phase I.
 - ii) A variety of proposals for the reduction of fleet capacity, including the possibilities of no reduction and/or the buy-back program proposed in this Report.
 - iii) The inclusion or exclusion of a Canada/U.S. interceptory agreement.

iv) A mixture of government policy alternatives concerning the contribution to buy-back, the recoverable share of enhancement, both Phase I and Phase II, and the share of net benefits that should accrue to fishermen following rationalization. These alternatives are discussed in detail following this list of model objectives.

- b. To determine the amount of revenue to be generated for the implementation of cost-recovery mechanisms.
- c. To determine the timing of S.E.P. expenses, buy-back expenses and cost-recovery revenues.

Four government policy alternatives were identified and applied to the model in different degrees. Each would be vital in determining the economic success of rationalizing the salmon and roe-herring fisheries. Our recommendations for these alternatives involved value judgments and are therefore dealt with in greater detail than the input of hard facts in the computer model.

a) Contributions to Buy-Back

The initial funding of the buy-back program should include the accumulated increment in increased license fees previously collected and intended for buy-back, but not yet expended, plus the interest on this money. This sum is roughly \$10 million; to this should be added a federal government grant that would bring the total seed money to \$50 million. This portion of the net cost of the buy-back program should not be subject to cost recovery from the commercial fishing industry. The balance of the cost of the buy-back program should be provided in

the form of a government loan, at reasonable rates, to be recovered from license fees and royalties.

It might be argued that the benefit of increased production, resulting from a reduced fleet, accrues to commercial fishermen, and that they therefore should assume the total cost. We have projected fishermen's net earnings to include the benefits of a reduced fleet and an enhanced resource. We resorted to the use of a computer to determine the fleet's ability to provide recoverable costs. It became clear that if either the Salmonid Enhancement Program or the buy-back program was to be adequately funded to effect the depressed state of the fish resource, then the fishermen's contribution must be supplemented by contributions from other beneficiaries of the resource.

Additionally, to a large degree, the present fleet capacity and overcapitalization is the direct result of government inefficiency. Fleet size and capacity has expanded because of a series of misjudgments and inaction. The original "license for license" replacement rule, adopted with the limited entry program, permitted a seiner to be licensed as the replacement for a small gillnetter, or inside troller. The change to the "ton for ton" and "foot for foot" replacement rule has been ineffectual, allowing the licensing of vessels that are bigger, more costly and more efficient than those they replaced. The pyramiding of "A" licenses, combining the licenses or tonnage of several small boats to permit the entry of another seiner or another freezer troller, continued, in spite of industry opposition. Even the present roe-herring licensing scheme makes no attempt at controlling capacity. Ministerial edicts, responding to compassionate appeals or disputed claims for a license, have added vessels to both the salmon and roe-herring fleets. Government subsidies sponsored by Fisheries and Oceans, Industry, Trade and Commerce, the Federal Business Development

Bank, and the Department of Indian and Northern Affairs, with tax shelters provided by Revenue Canada, (such as accelerated rates of depreciation), encouraged new vessel construction. New boats were being built, capacity and capitalization were increasing, at the same time as fishermen were paying increased license fees to fund two buy-backs, so the fleet could be reduced. Fishermen responded to this need, but government did not. The cost of rectifying these errors cannot now be added to the economic burden of fishermen. A grant is necessary and justifiable.

b. A Division of Benefits

A net increase in fishermen's earnings must be the objective of rationalization. Virtually all gear classifications and every gross income level is now operating at a loss, if fair and reasonable returns for labour are considered. Stability and professionalism in the primary sector will remain elusive until this is corrected.

Competitive bidding for future licenses will create an economically unstable fishing fleet, not only because it treats licenses as gambling or lottery commodities, but because it exploits fishermen's natural optimism. Every fisherman is inclined to think that his catch will be above average, his ability to bid at least as favourable as the next fisherman's. Obviously, the whole fleet cannot be above average so the cost of licenses and royalties would absorb all of the potential benefits of rationalization and exceed the fleet's ability to pay. We recommend that the increase in fishermen's earnings that result from rationalization be shared between the government's recoverable costs and increases in fishermen's net income. The fleet's share of the total

benefit should be at least 20 percent of the increase. We also recommend that the royalty directed toward cost-recovery be applied as a result of the benefits of rationalization, not as the initiative to provide these benefits.

Most fishermen agree with the payment of resource rent, if the funds are directed to fleet reduction and resource enhancement, and not buried in government general revenue. Our recommendations ensure that the funds are directed to benefit the resource.

c) S.E.P. Cost-Recovery Sharing

Chapter III of this Report explains the need for greater emphasis on small projects and community development projects. The distribution of advantages to all of the five accounts of the planning framework is detailed. The Salmonid Enhancement Program, Phase II, is being planned over a seven year term and is designed to be job-creation intensive, a change from Phase I. This necessitates change in government expectations, and therefore the recovery of 85 percent of the direct costs of enhancement projects from the commercial industry is unrealistic.

We recommend that the recoverable portion of the continuing operating costs of S.E.P. Phase I, the capital cost of S.E.P. Phase II and the operating costs of S.E.P. Phase II be reduced to 50% of this sum and that the remaining 50% be considered a contribution to social benefits, not recoverable through license fees or royalties.

d) S.E.P. Phase I Capital Costs

The cost of the Salmonid Enhancement Program, Phase I, that has been spent and is presently unrecovered should be written off by the federal government. This Committee recognizes, as the government must, that the need for a massive enhancement program is not the result of commercial fishing alone. Other resource user groups, habitat abuse, and a former lack of clear policy objectives have contributed to this need. Placing blame now will serve no useful purpose. We must introduce tougher habitat protection laws, and controls on other users of the resource as well. We must adopt recommendations from Commissioner Pearse's report, and from this Committee's report. A general enthusiasm is evident in the Department's Pacific Region management, indicating that this is the time for change. We have a new Minister, a new Deputy-Minister, and a new Assistant Deputy-Minister, so there should be no posturing to justify past decisions. This is the moment to start clean and work for the future of the resource.

The Fleet Rationalization Committee recommends that the following schedule of royalties be applied to the salmon and roe-herring fisheries. The level and timing of this schedule is contingent on the expenditure of funds for fleet reduction and resource enhancement, as provided for in this report, and subject to adjustment as the benefits of rationalization are exhibited in fishermen's income.

PROJECTED SCHEDULE OF ROYALTIES

YEAR	SALMON			ROE HERRING	
	Pinks, Chums	Chinook, Sockeye, Cohoe	%	Dollars per ton	%
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	.01	.02	1.5	50.00	5.0
1984	.02	.04	3.0	100.00	10.0
1985	.03	.06	4.5	200.00	20.0
1986	.03	.06	4.5	300.00	30.0
1987	.04	.08	6.0	300.00	30.0
1988	.04	.08	6.0	300.00	30.0
1989	.05	.10	7.5	300.00	30.0
1990	.06	.12	9.0	300.00	30.0
1991	.07	.14	10.5	300.00	30.0
1992	.07	.14	10.5	300.00	30.0
1993	.07	.14	10.5	300.00	30.0
1994	.07	.14	10.5	300.00	30.0
1995	.07	.14	10.5	300.00	30.0
1996	.07	.14	10.5	300.00	30.0
1997	.07	.14	10.5	300.00	30.0
1998	.07	.14	10.5	300.00	30.0
1999	.07	.14	10.5	300.00	30.0
2000	.07	.14	10.5	300.00	30.0
2001	.07	.14	10.5	300.00	30.0
2002	.07	.14	10.5	300.00	30.0
2003	.07	.14	10.5	300.00	30.0
2004	.07	.14	10.5	300.00	30.0
2005	.07	.14	10.5	300.00	30.0
2006	.07	.14	10.5	300.00	30.0
2007	.07	.14	10.5	300.00	30.0
2008	.07	.14	10.5	300.00	30.0
2009	.07	.14	10.5	300.00	30.0
2010	.07	.14	10.5	300.00	30.0
2011	.07	.14	10.5	300.00	30.0

This schedule of royalties, having attained the optimum percentage in 1991, continues at this constant percentage for the duration of the thirty-year projection, until the year 2011.

We emphasize that the royalty projected in cents per pound, for salmon, and dollars per ton, for roe-herring, are not fixed amounts, but are premised on a percentage of landed value that exists in each year. The base year for this projection is 1981; therefore the schedule of royalties is based on 1981 landed values. The actual cents per pound or dollars per ton to be assessed will fluctuate to reflect the current year's landed values, while maintaining the same ratio as in the base year.

Royalty fees are based on the round weight of salmon; a fraction of the landed weight should be added for dressed fish.

The royalty percentage on roe-herring is approximately three times as much as the royalty percentage on salmon. This levy is necessary because the buy-back program proposed in our Report is directed at roe-herring vessels, both seine and gillnet. The most significant fleet reduction will be evident in the roe-herring fishery, so fishermen's herring income will increase more dramatically. The initial costs of rationalization are primarily the costs of the buy-back program. This money is spent immediately, whereas the cost of enhancement is spread over many years. It is necessary to off-set quickly the cost of buy-back to avoid an economic burden that would reduce the funds available to the enhancement program. This principle is consistent with our intention to relate royalties to

fishermen's increased earnings, and their ability to pay those royalties.

C. LICENCE FEES

A third source of direct revenue is in the collection of licence fees. As shown in the following schedule, virtually every fishery is subject to the issuance of a licence and the payment of a licence fee.

1. COMMERCIAL FISHING LICENCES FOR 1982

Annual Personal Commercial Fishing Licence.....	\$ 10.00
5-Year Personal Commercial Fishing Licence.....	\$ 40.00
Registration Plates (Issued at time of registration).....	\$ 10.00
Annual licence tabs for:	
Category A (Salmon), where vessel is:	
i. less than 9.14 m in length.....	\$ 200.00
ii. not less than 9.14 m in length but less than 42.45 m ³	\$ 400.00
iii. not less than 42.45 m ³	\$ 800.00
Category A-1 (Indian) (Salmon).....	\$ 20.00
Category B (Salmon) vessel.....	\$ 20.00
Category C (Groundfish by hook and line; crab, shrimp, prawn by trap, octopus and eulachons with a vessel, and other species not covered by a restricted entry licence).....	\$ 10.00
Category D (Packer).....	\$ 10.00
Category E (Abalone).....	\$ 200.00
Category G (Geoduck, horse clams (subtidal)).....	\$ 10.00
Category H (Roe Herring), operating:	
i. roe herring gill net.....	\$ 200.00

ii. roe herring seine net.....	\$ 10.00
Category H-1 (Indian) (Roe Herring).....	\$ 10.00
Category K (Sablefish (Blackcod)).....	\$ 10.00
Category L (Halibut).....	\$ 10.00
Category S (Shrimp Trawl).....	\$ 10.00
Category T (Groundfish Trawl).....	\$ 10.00
Category Z (See section on Other Commercial Fisheries for species).....	\$ 10.00
Replacements for licence tabs, licence plates or 5-year licences lost or illegible.....	\$ 10.00

2. SPORTS FISHING LICENCES FOR 1982

B.C. Tidal Waters Sports Fishing Licence:

Residents of Canada (annual).....	\$ 5.00
Non-resident (annual).....	\$ 20.00
Resident or non-resident 1-day.....	\$ 3.50
Non-resident 3-day.....	\$ 10.00

Fishing licence categories scale the alphabetic gamut from "A" to "Z". Sometimes they are issued in respect of a vessel; sometimes a person, (in the salmon fishery there is some of each); or for a specific quantity of fish, (as with the Abalone "E" licence); or no licence is required and the fleet regulated by an imposed quality standard, (the case with food herring). There is no relationship between the value of the resource harvested or the cost of administration and the fee levied. One of the most rewarding fisheries, roe on kelp, requires a permit; this fishery is allocated by quota, is difficult to police, but has no licence fee.

The Fleet Rationalization Committee makes the following recommendations for licences and licence fees:

Commercial

- a. The annual commercial fishing vessel licence fee for all fisheries be based on a single levy that will off-set the cost of this service. The Commission on Pacific Fisheries Policy recommends a \$50.00 fee. This is adequate, if it covers the cost of registration and administration.
- b. The schedule of salmon and roe-herring royalties proposed in this chapter should be implemented in conjunction with a comparable schedule of royalties on all commercial fisheries, for all species.
- c. The annual commercial fishing vessel license fee, and the applicable royalty, should be applied equally to each commercial fishery and licensee, regardless of any perceived need for social considerations.

The designation of special Indian licences for salmon or roe-herring, or any other commercial fishery, should be discontinued immediately. This is to ensure that the position of Indians in the commercial fishery is strengthened. There is need to improve their

position in the industry, but this objective is not being accomplished by discriminatory and fragmented policies. A concerted effort by the Department of Indian and Northern Affairs, the proper vehicle for such action, would be more productive.

Unfair restrictions have been placed on the sale or use of "AI" or "HI" licences. Individual rights and freedoms are impaired. The buy-back program, proposed in this Report, should be available to all fishermen, and all fishermen should be eligible if they have a permanent vessel licence.

- d. The fishing charter boat industry is a commercial exploitation of the fishery resource, with no licence fees, unrestricted entry, and open access to virtually all fishing areas. These ventures should be regulated as a commercial fishery.

This Committee agrees with Dr. Pearse's proposal for a \$50 licence fee, but further suggests that consideration be given to the application of an annual royalty based on the total number of passengers that each charter vessel can accommodate. Commercial charter fishing vessels must be regulated in accordance with area closures and conservation measures applicable to the rest of the commercial industry.

Sport

The schedule of fees applicable to the B.C. Tidal Waters Sport Fishing Licences contributed approximately \$1.7 million to the Department of Fisheries and Oceans revenue in 1982. This sum cannot off-set the costs of administration and enforcement, or the enhancement efforts directed to sports fishing species and areas.

This Committee supports the recommendation of the Commission on Pacific Fisheries Policy that sport fishing licence fees should be doubled for 1983.

CHAPTER III

SPECIFIC PROPOSALS FOR SALMON AND ROE-HERRING

A. ROE-HERRING FLEET

The present roe-herring fleet, both seine and gillnet, is entirely out of balance, damaging both the resource and the operators. It is too big, too efficient, and suffers from inconsistencies caused by earlier incompetent attempts to license and control this fishery. Resource managers have struggled with the administration of roe-herring since the fishery's inception in 1972. The industry has experienced some odd management experiments in this decade; an attempt to relate herring quotas to the harvest of dogfish, and a limited entry program that failed to contain the fleet because it limited only non-Indians. There have been two classes of licenses: transferrable, if acquired in 1972 or 1973; and non-transferrable for all others. An owner-operator restriction was implemented, found unenforceable and removed.

Several other solutions to the roe-herring management dilemma have been considered:

- a) A personal quota system was proposed and rejected as unwieldy, unenforceable, and philosophically unacceptable.
- b) A seine boat pooling system was examined, but it offered no solution for the gillnet fleet.
- c) Splitting the fleets, so that one half of the seine and one half of the gillnet fleets fish alternate years has been

proposed. The uncertainty of total herring stock abundance or specific age class stocks, and the precarious nature of the market for the finished product preclude this alternative. Also, many fishermen have financial commitments such as boat payments and interest or insurance that must be met every year.

- d) Area licensing for the roe-herring fishery was adopted in 1981 as a stop-gap until a more permanent solution could be determined. This scheme has provided the resource managers with some flexibility and breathing space by reducing the concentration of gear focussed in a single spot, which had been occurring because of the increasing mobility of the fleet. An adverse result of the confinement of area licensing, which restricts movement of vessels to one of three areas, is the tough lobbying from fishermen and processors for openings to satisfy their area-restricted fleets, when each fishery should be based solely on the biological determination of an allowable catch. District Supervisors and Fishery Officers are under extreme pressure to permit fisheries that will balance the catch for each gear type for each of the three areas. In 1981 when it was implemented, however, area licensing may well have been the only alternative to no roe-herring fishery at all; at that time the fleet was unmanageable, because of its size and mobility.

The present roe-herring fleet is comprised of 1,309 gillnet licences and 252 seine licences. This fleet is far larger than is required to harvest the current

annual allowable catch of approximately 30,000 tons. An attempt is made each season to divide the total catch between the two gear types on the basis of 55 percent for the seines and 45 percent for the gillnets. With a total catch of 30,000 tons, this distribution results in 16,500 tons for the seine fleet, 65 tons per licence; and 13,500 tons for the gillnet fleet, 10 tons per licence. Neither of these target quotas represents an adequate return on the capital investment or the labour involved to harvest the catch.

The excessive efficiency of each licensed unit compounds the problem of too large a fleet. An average herring seiner is capable of catching several hundred tons of herring in one set. This has resulted in seine openings for as short a duration as fifteen minutes: one set for each vessel located and ready to set when an opening is announced. Many locations cannot be opened because their stocks of herring could be wiped out by a relatively small fleet. Competitive seine fisheries have been reduced to approximately six locations for the entire coast, with a few additional locations that may be available if there is not an excessive concentration of gear when the fish are reaching maturity. A gillnetter is capable of catching his ten ton equal share in a few hours, if there is an abundance of herring moving to the beach to spawn. Obviously, there is need to reduce the capacity of the roe-herring fleet.

The following recommendations are proposed by this committee:

1. Licensing

Attempts to rationalize the roe-herring fleet have been confused and thwarted by the inability to identify the fleet itself. Loose administrative control of roe-herring licenses has produced a chaotic and ugly situation. As opposed to salmon licenses, which are placed on the vessel, roe-herring licenses are on the person or company, nontransferrable technically from one fisherman or company to another; but they can be moved

freely from vessel to vessel or skiff to skiff with a person. The nontransferrable status was negated by the removal of the original owner/operator provision and there now exists an active market in the leasing of herring licences to other than the licensed holder. Licences have been leased for terms varying from one year to ninety-nine years: in reality, this amounts to the virtual sale of this privilege. The current list of licence holders bears no resemblance to any list of the actual participants in the fishery. The most repugnant aspect of this situation is the existence of individuals or corporate entities who annually generate a profit from their position as the lessor of the privilege to harvest a common resource. Under the present system any available resource rent accrues to the benefit of a few licensees, not always fishermen, who had the foresight to secure the rights to this resource, while no rent accrues to the Canadian people, who are the true owners of the resource.

The term "personal licence" is misleading as it is now used in the roe-herring fishery. This term implies that an individual is granted a single licence or privilege, but this is not the case. The roe-herring seine licences number 252, but they are not issued on the basis of one licence per licensee. Of the 252 total number, 57 licences are held by 15 licensees. One licensee, a company, has 18 seine privileges; another licensee, also a processing company, has 11 seine privileges; two licensees have three seine privileges each; and 11 licensees each have two seine privileges. The roe-herring gillnet licences number 1,309 but 159 of these are held by 42 licensees. Thirty-three individuals hold two personal licences, one holds three licences, and two hold four personal licences. Processing companies, or former processing companies, hold 82 personal roe-herring gillnet licences, ranging from 6, 8, 9, 13, 15 and 21 personal licences issued to six companies.

Several licencees have been identified as individuals who were formerly active in both the salmon and roe-herring fisheries. These fishermen's salmon vessels have been sold and they have retired from the industry; however, they have retained their personal roe-herring licences and lease them out on an annual or long-term basis. One group of roe-herring seine licencees has no apparent connection with any fishing vessel; a few do not even have the personal fishing licences required to participate in a fishery, but nevertheless lease their roe-herring seine privileges for sums in excess of \$10,000 annually. The roe-herring licence, then, is not a fishing licence; it's a licence to rake in money at the expense of the owners and harvesters of the resource; the people of Canada, and the commercial fishermen.

In order to rationalize the roe-herring fleet and to put the fishing privilege in the hands of bona fide fishermen, this Committee recommends:

- a) that the present area licensing procedures, as they apply to the roe-herring fishery, be retained until the fleet is sufficiently reduced to make their removal practical for the resource managers.
- b) that the renewal of all personal roe-herring licences be withheld and each existing licencee be advised that the reissuance of a licence is contingent on an application to the Department of Fisheries and Oceans, Licensing Division, naming one specific qualifying vessel as the recipient of a new roe-herring vessel licence, to replace each personal licence.
- c) that qualifying vessels be restricted to those vessels that presently have a valid C.F.V. license for any limited entry fishery, other than roe-herring.

- d) that each qualifying vessel be permitted to hold one licence for each of the existing roe-herring areas, if each such licence replaces an existing personal licence. The intent of this recommendation is to permit two personal licencees who have joint ownership in one vessel to make that vessel the recipient of both licences, each in a different area. This also supports the objective that the fishing privilege be retained by fishermen. The result will assist in the prohibition of one licensed vessel fishing more than one net.
- e) that in the roe-herring gillnet fleet, the herring gillnet vessel licence be attached to the main vessel, which already displays its vessel licence for some other limited entry fishery; and supplementary licence plates be issued for identification on the accompanying gillnet skiff. The main fishing vessel should be in attendance during the fishing operation at all times in a location identified for this purpose by the attendant Fishery Officer, as is presently the case for packers and other vessels anchored adjacent to the spawning area.
- f) that seine vessels simply display their roe-herring licence plates and area identification as in the past; but the licence be assigned to the vessel if it meets the qualifying criterion, which is a licence for any other limited entry fishery.

Advantages:

- a) This concept places the fishing privilege in the hands of bona fide fishermen who can use the roe-herring fishery as a supplement to their other fishing enterprises. Speculators would be eliminated from the industry.

- b) The roe-herring fleet can be identified, and changes in the capitalization of the fleet ascertained.
- c) This vessel licence is a necessity before any attempt can be made to control the capitalization of the fleet. "Gold rush" attitudes which have prevailed previously will ensure the continued entry of bigger, better and even more efficient and expensive vessels into the roe-herring fishery, unless the licence is attached to a vessel, subject to more stringent replacement rules.
- d) The proposed buy-back program should apply equally to salmon and roe-herring vessels. The rationalization of both fleets would be accomplished simultaneously. Present licence regulations prohibit the splitting off of any one licence from a vessel in a transfer to a replacing vessel. All licences must be transferred together, at one time.

Disadvantages:

There are some, but they are not insurmountable.

- a. An undetermined number of roe-herring gillnet licences are held by bona fide fishermen who do not own a qualifying vessel licensed for limited entry fishery other than roe herring. We have identified two such categories for consideration:
 - i) Fishermen who hold a personal roe-herring gillnet licence, and lease a vessel for other limited entry fisheries.
 - or
 - ii) Fishermen who hold a personal roe-herring gillnet licence, and fish as a crew member of vessels licensed for other limited entry fisheries.

This Committee recommends that specific criteria be prepared for the Vessel Licence Appeal Committee and the Pacific Region Licence Appeal Board to handle appeals from fishermen with roe-herring gillnet licences who lease, or are crew members of vessels licensed for limited entry fishing. Following approval of the appeal process, the transfer of the vessel licence would be permitted, if all other restrictions were met, upon annual application until the licensee is the owner of a qualifying licensed vessel. The sale or transfer of such licence should only be permissible if attached to a qualifying vessel, and the leasing of any licence not permanently attached to a vessel should result in the cancellation of that licence.

- b) The potential increase in the number of mother vessels adjacent to the fishing grounds has been identified as a possible disadvantage of this plan. This applies only to the gillnet fleet and resource managers involved in the roe-herring fishery feel it is more than offset by the proposed reduction in the total herring fleet.
- c) This Committee was concerned that the requirement that the licensed vessel be in attendance could result in a higher level of exposure to marine accidents. Smaller boats could be participating in the fishery at a time of year when weather conditions are uncertain. The safety of the fleet was a major concern; a study of M.O.T. investigations of sinkings associated with the roe-herring fishery indicates that this threat can be minimized.

The "West Coast Fishing Vessel Casualties Inquiry - March 1975", prepared by the Marine Investigations Section, Ministry of Transport, May 1975 reveals that:

- a) Eighteen vessels were involved in the Fishing Vessel Casualty List and the Fishing Vessel Incident List.

- b) Thirteen lives were lost as a result of these accidents.
- c) Twelve seiners were involved, resulting in the loss of 10 lives and the total loss of six vessels.
- d) Four gillnet vessel incidents caused the loss of three lives, all from one vessel, and the total loss of two vessels.
- e) Two packers sustained total loss with no loss of lives.

The gillnet fleet comprised over 80 percent of the vessels in the fishery, but just over 20 percent of the vessels involved in those accidents. The roe-herring seine fleet dominated these casualty statistics. With reduction of seine and gillnet boats, casualties should be less.

This Committee believes that the advantages of licensing the vessel and requiring that it be in attendance far outweigh any disadvantages.

2. Fleet Reduction

This Committee recommends that once the Roe-Herring Vessel Licence criteria has been established, reduction of the roe-herring fleet should proceed in the following manner:

The buy-back program described in Chapter I should be directed at the purchase of seine, troll and gillnet vessels that hold both an "A" licence for salmon and an "H" licence for roe-herring. An initial 60 seine boats and 315 troll and gillnet boats, each with both "A" and "H" licences should be encouraged to sell to the program. The price offered should encourage this sale. It is estimated that the purchase of these "A" and "H" licensed vessels will require an investment of \$75 million. Proceeds from the sale of these vessels will reduce this cost and will provide funding for additional reduction of the fleets. The target numbers and gear categories

in this proposal reflect the pro rata share of the herring catch allocated to each of the seine and gillnet sectors to maintain the 55 percent - 45 percent catch division.

3. Roe on Kelp

We recommend increasing the present number of roe-on-kelp harvesting licences from 28 to a total of 38 licence holders in exchange for the retirement of two roe-herring seine licences for each roe-on-kelp licence created. This should be done over a period of five years to minimize the effect of additional product on a delicate market. A recent review of the Japanese market for herring roe on kelp indicates a greater market potential than British Columbia is now capable of supplying. Additional production should be phased in to match this increased demand. Ultimately this exchange would reduce the roe-herring seine fleet by a further 20 vessels.

4. Impoundment

The potential opportunity exists for the exchange of roe-herring seine licences to roe-herring impoundment licences. For the past three years, research into the impoundment of roe-herring has been conducted at the Pacific Biological Station in Nanaimo. These experiments started with a pilot-scale analysis; then proceeded to the study of small lots of herring to identify the biological and technological problems of capturing, transporting and impounding maturing herring; and finally, to a recent larger study simulating a commercial operation.

The project's purpose is to diversify the roe-herring fishery by producing sac roe. Fish are caught away from the spawning grounds before they reach maturity, then transported to an impoundment where they are held

until they mature. Results have been promising; they demonstrate that it is possible to hold fully mature roe-herring in impoundments for up to 40 days before spawning occurs.

This concept is similar to the roe on kelp fishery in that the fish are caught, then transported and held in an impoundment. A fundamental difference is that with roe on kelp the spawning is induced to ensure an adequate deposition of eggs on the kelp fronds that have been placed in the impoundment for that purpose. Impoundment for sac roe involves affecting behavioural patterns to obtain the opposite results. Spawning is delayed in mature herring to permit an orderly harvest and to optimize roe yield and quality.

Roe-herring impoundment offers a possibility for commercial development with substantial economic benefits. In addition to the improved yield and quality compared to the current seine fishery, exploitation of small stocks identified in "pocket areas" would be possible. A competitive seine fishery for these stocks now is too great a risk, considering the technological efficiency of the seine fleet.

This project is still experimental and offers no immediate relief from the pressures of fleet size and efficiency. The continuation of experimental roe-herring impoundment is strongly recommended by the Fleet Rationalization Committee, however, to determine its feasibility when exposed to normal commercial conditions. Control of mortality and the determination of impoundment allocations, either by the quantity of herring caught and impounded, or by the quantity of herring sold, are some of the questions still without answers.

If herring seine licences could be transferred to an impoundment

fishery and the stocks harvested were in addition to the open fishery quota, an impressive ratio of benefits to costs would result. This Committee foresees the potential transfer of at least 20 seine licences to impoundment licences. A more optimistic assessment might even view impoundment as the ultimate rationalization of the roe-herring fishery. However, we recommend caution in the commercial application of the impoundment concept. Seines could be granted a temporary transfer from the open fishery, possibly as soon as the 1984 season, with assurance of reverting if the expertise of impoundment requires further study and research.

5. Projected Fleet Size and Mix

Seine

The roe-herring seine fishery presently has 252 licencees. In the 1982 seasons, 23 of these were doubled on single vessels. That is, 23 vessels had licences to fish in two areas. After the conversion of personal licences to vessel licences and at the end of the initial phase of the buy-back program, we project a maximum of 192 licensed herring seine vessels. The actual number of licensed vessels may be less, depending on how many single vessels have more than one area licence. The transfer of 20 vessels opting for roe on kelp licences over a five-year period, and a similar reduction, if the roe-herring impoundment experiments are successful, will reduce the seine fleet to approximately 150 vessels.

Based on the area quotas that have been projected for the 1983 fishery, future roe-herring seine fleet distributions would reflect the following differences:

	Present Fleet Size	Future Maximum Fleet Size
West Coast	44	27
Gulf of Georgia	83	50
North Coast	<u>125</u>	<u>75</u>
	252	152

Gillnet

The roe-herring gillnet fleet of 1,309 licencees will be reduced to approximately 994 licensed vessels following the conversion of personal licences to vessel licences and the initial phase of the buy-back program.

Based on the area quotas that have been projected for the 1983 fishery, future roe-herring gillnet fleet distributions would reflect the following differences:

	Present Fleet Size	Future Maximum Fleet Size
West Coast	188	145
Gulf of Georgia	688	500
North Coast	<u>433</u>	<u>349</u>
	1,309	994

The Committee has based the projected fleet size on two considerations: the fleet that is required to harvest the allowable

catch and the fleet that can be safely supported by the allowable catch.

Assuming that the herring stocks designated for additional roe-on-kelp licences, and for impoundment licences are allocated from those stocks not included in the present quota, the total catch will increase. Coincident with the transfer of seine licences to these two fisheries, the pro rata share of the normal quota must be adjusted to reflect the decrease in seine participation. The present ratio of 55 percent seine to 45 percent gillnet is premised on a fleet of 252 seines and 1,309 gillnets, reducing to 192 seines and 994 gillnets. The reduction of the seine fleet to 152 licenses versus a constant 994 gillnet licences will reflect the following catch distribution of the 30,900 ton 1983 quota:

Seine - 15,200 tons

Gillnets - 15,700 tons

The average seine catch will increase from 67 tons per vessel to 100 tons per vessel; a 50 percent increase. The gillnet catch will increase from 10 tons per vessel to 15 tons per vessel, reflecting the same percentage increase as the seines. A significant increase in revenue will accrue to each remaining participant in the roe-herring fishery and this factor has influenced our recommended fleet size. The application of royalties to the roe-herring fishery is premised on this increase in revenue, with the royalties to be applicable following receipt of these benefits rather than in anticipation of the benefits.

The Committee, in determining fleet size, was concerned about restricted entry as it affects fishermen who are excluded from participation in the roe-herring fishery; but the resource does not permit any further expansion. We recognize that salmon fishermen, gillnet, troll or seine, with no herring licence, must compete with those fishermen who have the

right to supplement their salmon income from the herring fishery. This Committee views the roe-herring fishery as a means of augmenting the income of as many fishermen as possible to moderate the fluctuations of income from a single-species fishery. A poor salmon season, for example, might be offset by income from herring. Any further reduction in the roe-herring fleet size other than what we suggest to simplify resource management would make that fishery an exclusive club of a relatively few wealthy herring fishermen who would prosper unduly at the expense of the other fleets.

B. SALMON FLEET

Fleet Composition

When the limited entry program was initiated in 1969 there were 6,104 vessels in the salmon fleet; today there are 4,707. This would appear to represent a reduction in fleet capacity; but to consider only the number of vessels is misleading. The salmon seine fleet has actually increased by over 40 percent, from 369 to 532 during this period, while the troll and gillnet fleets have decreased from 5,737 to 4,175 vessels.

The distribution of the catch by value and weight is an indication of the imbalance that has developed.

1981 Seine Catch

\$ 63,864,000.00

90,350,000 lbs.

1981 Troll & Gillnet Catch

\$ 94,203,000.00

77,069,000 lbs.

The salmon seine fleet represents 11 percent of the total number of licensed salmon vessels , but accounts for about 40 percent of the capital invested in the fleet, 40% of the value of the catch and over 50% of the weight of the catch.

Vessel Ownership

In 1969 processing companies were reported to own slightly more than 13 percent of all licensed salmon vessels; that figure has since been reduced by about 2 percent. The composition of fleet ownership has changed, however, and the true level of company equity or control is virtually impossible to ascertain. The control of the small boat fleets, trollers and gillnetters, by processing company ownership appears to be less than in the past, but the overall increase in the seine fleet and the control of this fleet in relatively few hands may negate the apparent decrease in the number of licenses tied to buyers.

Government control of salmon production should not be relaxed, nor should the Minister become complacent as a result of misleading statistics. It is common practice for processors to enter into equity partnerships with fishermen; to hold mortgages or beneficial trusts; or to employ similar methods of controlling production. The real concern should not be the number of licences held, but the share of production that is controlled by processors. Individual vessel ownership and optimum efficiency in the secondary sector should be primary objectives of licensing policy.

1. The Salmonid Enhancement Program

This Committee has defined its commitment to S.E.P. in Chapter I. We absolutely support the S.E.P. Program and recommend the continuation and expansion of this undertaking.

The employment support programs that have recently been announced as cooperative ventures by Employment and Immigration and Fisheries and Oceans are commended as steps in the right direction: fulfilling the governments' commitment to the enhancement program. There is almost unlimited opportunity for the expansion of the enhancement idea, using committed funds for the generation of national income, the relief of social ills and preservation of the environment.

Small projects and community development projects that were started in Phase I have generated a high level of public awareness and participation of volunteer workers. They have been less attractive from an economic point of view, with benefit - cost ratios of 0.6:1 for small projects and 0.8:1 for community development projects. If the human factor is ignored, and economics are the only consideration, it might make more sense to direct future efforts to major projects, such as hatcheries with a 1.4:1 benefit-cost ratio, or lake fertilization with a 2.4:1 ratio. However, while the first four of the five accounts in the planning framework of S.E.P. (i. increased employment, ii. regional development, iii. Native Indian well-being, iv. the preservation of the environment, and v. improved national income) are difficult factors to assess in benefit-cost ratios, they are just as

vital objectives as the fifth, improved national income. Even more important, the success of the enhancement program depends on our ability to preserve and enhance the wild stocks of salmon. We must avoid the pitfalls of enhancement projects in Washington and Oregon, where the fear now is that hatchery reared stocks, have simply replaced wild or natural stocks when both are required for a healthy economically viable resource. The uncertain and potentially threatening interactions of artificially enhanced and pure natural stocks demand that we direct more effort to small projects. Beware of the bookkeeper mentality that dictates a favourable benefit-cost ratio, at the expense of the other four accounts!

We recommend two approaches that would produce a more favourable ratio for small projects and community development projects:

- a) Commercial fisherman annually receive benefits in the form of Unemployment Insurance totaling more than \$13 million. During the period November 1, 1981 to May 28, 1982, 4,379 fishermen received \$13,325,000, a sum greater than the actual purchasing power of the S.E.P. budget through each of the seven years of Phase I. The distribution of recipients of U.I. benefits in B.C., as recorded by the district offices of Employment and Immigration Canada, shows that the majority of fishermen reside in those areas that are target objectives of the enhancement program.

Commercial fishermen are naturally attracted to enhancement projects that are close to home, and that have a direct effect on the areas they fish and the species most beneficial to their gear

type. Fishermen see the enhancement program as an exciting challenge and are anxious to be part of it, but there is a detrimental and frustrating lack of direction. Groups of fishermen have initiated projects, have defined objectives and locations and have generated the local interest that must precede a successful small project, only to find that fishermen have insufficient knowledge to prescribe the procedures to be followed. There must be a trained individual to guide each project, to advise on the construction of an incubation box, the harvesting of mature fish, or simply the organization of work parties.

Community advisors are available from S.E.P., but they have large areas to administer and too little time to devote to small projects in remote communities. Fishermen could be trained to fill this void as first-line supervisors, taking their direction from existing community advisors.

An effective community college system now exists in B.C. providing convenient locations for courses in salmon husbandry and enhancement techniques. A combination of classroom theory and field technology, sponsored by Employment and Immigration Canada and the provincial Department of Education, would produce significant improvement in the benefit-cost ratios of community projects, and would reaffirm the Province of British Columbia's commitment to enhancement, without draining the S.E.P. budget. We recommend that commercial fishermen be trained by S.E.P. and community colleges to administer local enhancement projects.

- b) One of the most potentially rewarding, but presently least effective, of the five account objectives of the S.E.P. planning

framework is the improvement of Native Indian well being. This is not a failure of S.E.P. administration, but is the direct result of government budget allocations based on department precedent, rather than goal-oriented initiatives. Selective government spending could attain economic, social and environmental benefits. In reality, we observe individual government departments jealously guarding the authority of their particular enclaves. The budget allocations to the Bella Coola Band Council from the Department of Indian and Northern Affairs, for example, provide for both social assistance and economic development. One village within this Band Council is allotted thirteen times more money for social assistance, or welfare, than for economic development. These people don't want to collect welfare: they want to work and make some meaningful contribution. They want to share in the enhancement and restoration of the resource that is part of their heritage.

We recommend that the Minister of Fisheries and Oceans, in co-operation with the Minister of Indian and Northern Affairs, initiate a stated government policy to provide for the replacement of some welfare spending with job-producing investment under the direction of the Salmonid Enhancement Program among the Indian people on the B.C. coast.

Small Projects and Community Development Projects

In addition to these two specific recommendations we believe that greater emphasis should be placed on the Special Projects Division of S.E.P. This organization is responsible for community development projects, small projects, public involvement, and information. There should be less emphasis on the Engineering Division, responsible for construction and maintenance of

enhancement projects; and more emphasis on the Special Projects Division.

Cohoe and Chinook

Our emphasis on small projects and community development projects reflects our deep concern for the diminishing coho and chinook stocks. They must have immediate attention to reverse an alarming coast-wide decline.

Shifts in species balances have forced changes in fishing patterns and caused difficult management decisions. Historically, the troll fleet has depended on chinook and coho; now there is even greater targeting by trollers on sockeye, pinks and most recently chums. Trolling is the only gear type permitted to fish seaward of the surf line and gets the first opportunity at any salmon run. This has resulted in a contentious issue of allocation, which will undoubtedly be aired following the 1982 season as regards the distribution of the catch of Adams River sockeye. The net fleet catch of chinook and coho further exacerbates an already volatile gear relationship and directs attention away from the real problem. Chinook and coho stocks are in trouble because of overfishing by all segments of our commercial fleets, by the sports fishery, by the interceptions of U.S. fishing fleets, and by the degradation of spawning grounds and natural habitat. Only a concerted effort to rehabilitate these two species by a massive program of small projects and community development projects will save them.

Lake Fertilization and Natural Enhancement

The lake fertilization program is a priority if the present benefit- cost ratio can be maintained, to produce a favourable evaluation of results for the total Phase II program. The production of sockeye with this technique offers a potential for

natural enhancement of other sockeye runs, or all species, by directing fishing effort to these stocks that have been enhanced. The Barkley Sound sockeye fishery directs effort away from Rivers Inlet sockeye, allowing natural enhancement for those stocks. The fertilization of Kennedy Lake could provide another sockeye fishery on the west coast of Vancouver Island, in Clayoquot Sound. This could remove some of the pressure in Johnstone Straits, for example, benefitting early runs to the Fraser River.

To assess the benefits of S.E.P. all factors must be considered. Enhanced stocks offer an alternative fishery that permits natural rehabilitation without dislocative closures: this is difficult to assess numerically on the balance sheet of benefit-cost analyses!

Enhancement Costs

Treasury Board's position that 85 percent of direct project costs are to be recoverable in cash does not accurately reflect the objectives of the five-account planning framework. The government expectation for contributions to national income, regional development, employment, Indian health and wealth, or environmental preservation must be very conservative if these goals can be attained with only 15 percent of the planned expenditures, or possibly they reflect a remarkable benefit-cost ratio. This Committee views the Program's social goals with the contribution to the sports fishery and tourism, as closer to one-half of the direct costs, with the commercial industry benefitting from the remaining one-half. This is a subject for scrutiny by the Minister's Advisory Council and the Pacific Fisheries Council that has been proposed in "Turning the Tide".

The Fleet Rationalization Committee considers the Salmonid salmon fishery. We recommend that the budget provided for Phase II reflect an increase in annual expenditures over the budget that was provided for Phase I. In our economic model, to determine the feasibility of fleet rationalization, we have provided for a \$210 million capital budget for Phase II, for expenditure over a seven year plan. This budget should be indexed to provide for the effect of inflation, and the seven year term of Phase II should be adhered to, once a cost recovery mechanism is adopted and our recommendations for the restraint of fishing capacity are in place.

This budget should be exclusive of the costs of operating S.E.P. facilities, to provide for a direct comparison of the performance of each phase.

2. Salmon Fleet Reduction

a) The Buy-Back Program

In Chapter I the general terms of a buy-back program were defined and earlier in this chapter a method of applying buy-back to the roe-herring fleet was recommended. Now we must address the problems of determining a projected salmon fleet size and mix as requested in the Terms of Reference. First, if there is to be a buy-back program, what types of vessels should be bought back? Second, what should the fleet size and mix be after rationalization? The issues are complex and possible solutions have perplexed this Committee, because no single recommendation can accomplish the desired effect without creating new

problems. Like squeezing an inflated balloon, applying pressure in one location produces a bulge in another.

What types of vessels should be bought back? Should the target objectives of the buy-back program be divided evenly between the three gear types, seine, troll and gillnet; or should it key in on certain sectors? The general consensus within the industry, particularly among seine fishermen, is that the present salmon seine fleet is unmanageable. Fishing opportunities are lost because this fleet is too large, too mobile and too efficient to permit a fishery when conservation requirements can be jeopardized. On the other hand, the present salmon troll fleet cannot be viable unless there is a greater enhancement effort directed towards chinook and coho, and unless an interceptory agreement is reached with the U.S. The demands of the net fleets are already causing curtailment of the troll catch of sockeye and pinks through imposition of retention limits and closed seasons, and as a result, many trollers presently are suffering economic hardships. The gillnet fleet is probably closer to a reasonable size than either of the other two fleets, but even here there is need for a directed reduction to coincide with current management philosophies. The problems of catch allocation and single gear licensing that we discussed in Chapter I also bear heavily on the determination of buy-back targets by gear type.

Should the vessels for buy-back be selected from the modern fleet, so that optimum rationalization can be seen immediately, or from the fleet of cheaper, less productive, older boats? The removal of high priced modern vessels offers an advantage in the share of the cost recovery from the sale of these boats, but creates other inequities. Is it the responsibility of the fishermen remaining in the industry to provide a

financial escape for those entrepreneurs who over-expanded and cannot service their debts; or to provide relief to lending institutions whose attitude towards fishermen's loans renders those fishermen vulnerable to significant losses? Maybe its time that we recognized that each of us has a right to bankruptcy if we mismanage our finances.

The removal of the oldest boats represents a potentially more significant reduction in capacity. These vessels are subject to replacement by new boats incorporating the best of all existing features and technological advances that are not yet employed. These oldest boats should be cheaper to buy, thereby extending the effectiveness of the investment in buy-back. On the other hand, the older boats would be more difficult to dispose of and lower the recoverable funds to the buy-back program. Of greater concern are the fishermen dislocated through targeting on older boats. These are the fishermen who have resisted the temptation to expand, who have controlled their capitalization, but who may now offer their boat to the buy-back to escape an industry plagued by over-capitalization not of their making. These are the professional fishermen; we should be encouraging their continuation in the industry. This disadvantage could be partially offset if those prudent fishermen then improved their position by buying a newer boat in the buy-back at a price that reflects the current depressed market. This iwll be discussed further in Chapter IV.

A comprehensive analysis of the present salmon seine fleet revealed the following age composition statistics:

Vessels built prior to 1922	-	9
1923 - 1932	-	101
1933 - 1942	-	56
1943 - 1952	-	88
1953 - 1957	-	23
1958 - 1962	-	21
1963 - 1972	-	39
1973 - 1977	-	94
1978 - 1982	-	<u>101</u>

532

More than one-third of the fleet has been built in the past 10 years, but more than half is over 25 years old. A few boats predate World War I, the oldest dating to 1912, while 1925, 1926 and 1927 were evidently vintage years for the building of seine boats, contributing 73 vessels to the present fleet. There is ample opportunity to target on the older salmon seine boats.

Part of the responsibility of this Committee, however, is to rationalize the roe-herring fleet. An analysis of the seine fleet that participated in the 1982 roe-herring season revealed that 204 of these vessels were also licensed salmon seiners, with the following age composition:

Vessels built prior to 1932	-	8
1933 - 1942	-	32
1943 - 1952	-	32
1953 - 1957	-	12
1958 - 1962	-	10
1963 - 1972	-	11
1973 - 1977	-	45
1978 - 1982	-	<u>54</u>
		204

This is a modern fleet; almost half is less than 10 years old, an expensive fleet to reduce.

We conclude that it is not advisable to set guidelines for buy-back strictly by the age of the vessel, or by the present production capabilities of the vessel, but on all aspects of rationalization. Earlier in this chapter, in recommending fleet reduction for the roe-herring fishery, we identified gear specific buy-back targets of 60 seine and 315 gillnet vessels defined by the herring vessel licence. As each of these vessels will have both "H" and "A" privileges the salmon fleet will effectively be reduced by the same number. The 315 "A" plus "H" licensed troll and gillnet vessels must be chosen from the vessels offered to the buy-back program. This is sufficiently restrictive, coupled with the need to work within budget limitations, and no attempt is made to further define this reduction in the small boat fleet by specific salmon gear types.

In addition to the purchase of 375 "A" plus "H" licensed vessels a further reduction of "A" licensed salmon vessels through the purchase of 632 seiners, trollers, and gillnetters will effect a total fleet

reduction with projected composition and mix as indicated:

Salmon Seines:

Present fleet	532
Buy-Back of "A" & "H" vessels	60
Buy-Back of "A" vessels	<u>72</u>
<u>Projected Fleet Size</u>	<u>400 vessels</u>

Salmon Trollers:

Present fleet	1,667
Buy-Back of "A" & "H" vessels	120
Buy-Back of "A" vessels	<u>80</u>
<u>Projected Fleet Size</u>	<u>1,467 vessels</u>

Salmon Gillnet Plus Gillnet/Troll Combination

Present fleet	2,508
Buy-Back of "A" & "H" vessels	195
Buy-Back of "A" vessels	<u>105</u>
<u>Projected Fleet Size</u>	<u>2,208 vessels</u>

These projections represent a 25 percent decrease in the salmon seine fleet and a 12 percent decrease in the small boat fleet. We estimate that this reduction can be accomplished at a net cost of \$80 million to \$90 million, after the resale of vessels, through the buy-back program. This estimate of \$80 million to \$90 million dollars includes the \$75 million dollar cost of purchasing herring vessels with "A" and "H" licenses.

The net cost will be recoverable, as shown in the economic model in Chapter II. The revenue to be generated by the resale of vessels is estimated at 30 percent of the purchase price, comparable to the return on the 1981 buy-back. Vessels disposed of from the buy-back of 1971 to 1973 returned almost 50 percent of the purchase price; but it is our opinion that this would not be a realistic objective considering present economic conditions. Concentrating purchase on large boats that are not necessarily the most resalable could inflate purchase prices; also vessels removed from the B.C. fishery cannot now enter the commercial fisheries in the U.S. by law. Both factors affecting the higher return from the previous resale of vessels. An effective program to sell boats to developing nations would be an alternative that would have beneficial impact on these returns.

b) "B" Licensed Vessels

At the inception of the limited entry program in 1969 those vessels that had landings of less than the qualifying amount were relegated to the status of "B" licensed vessels. This category was intended to be a temporary licence, offered at reduced licence fees, with restrictions on transferability after 1978, a requirement for annual landings and an owner/operator provision. Additional "B" licences have been created by the voluntary downgrading of "A" licences and on compassionate grounds by Ministerial edict.

It is the recommendation of this Committee that all temporary licences be allowed to expire on their normal due date, with no further extensions granted by the Minister. The existing temporary licences that have been granted an indefinite term should be subject to an expiry date and treated in the same manner as all other temporary licences.

CHAPTER IV

VESSEL REPLACEMENT RULES

A. HISTORY

Before the introduction of a limited entry scheme in 1969, participation of new vessels in the salmon fishery was virtually unlimited. The requirements for participation of a vessel in the salmon fishery were:

- a) registration with the Department as a commercial fishing vessel
- b) annual fee of \$10.00
- c) fees and applications made prior to May 31 of the year for which the licence would be valid.¹

Though the Department could and did keep records of the vessels so registered, there was no control of the number of vessels fishing. A core of fishing vessels fished each year but there were other vessels that entered and left the fishery from year to year.

Upon recommendation of a special advisor and in response to fisherman complaints of too many boats on the grounds, the then Minister, Jack Davis, announced a limited entry licensing scheme that was enacted into law on May 28, 1969.² The scheme was simple and intended to merely place a limit on the number of vessels in the fishery so that the number of salmon vessels would never exceed that number of vessels registered when the system was adopted. The first

replacement rule required only that an existing vessel be retired upon the introduction of a new vessel into the salmon fleet.

It soon became apparent that new vessels were many times the size of those vessels that were being retired. The replacement rules were modified so that account could be taken of vessel size as well as number. On November 9, 1971, new rules were enacted that provided:

- a) Category "A" vessels registered under Canada Shipping Act were assigned their registered net tonnage.
- b) Category "A" vessels licensed under the Canada Shipping Act were assigned a tonnage based on overall length.
- c) A replacement vessel must retire an equal amount of existing tonnage.
- d) Existing tonnage was additive so that one vessel could replace two or more vessels being retired.³

These restrictions allowed the adding of tonnages or "pyramiding." Even though this reduced the total number of licensed salmon vessels, the capacity of the fleet grew, since the replacement vessel invariably exceeded the combined volume of the vessels being replaced. Further, the single criterion of net tonnage failed to limit an increase in vessel size even when a new vessel was replacing a single existing vessel. When the licensing regulations were consolidated under the Pacific Fishery Registration and Licensing Regulations in 1978, the practice of adding tonnage was stopped.⁴ Also, a further restriction was applied on replacement so that a replacement vessel could not exceed the length or tonnage of an existing vessel. This was the final step in the evolution of replacement rules that resulted in the present "foot-for-foot" and "ton-for-ton" regulation.

B. EXISTING RULES

The present "foot-for-foot", "ton-for-ton" replacement rule effectively provides only for a limitation on length, as will be described later. As "tonnage" is freely traded in the open market among fisherman, the overall length of the vessel is an extremely important measurement since it determines the value of that commodity. Almost all vessels have been measured by a fisheries officer, with those measurements recorded in Departmental files. Since the measure is taken between perpendiculars erected at extreme ends of the hull it is usually very accurate and consistent.

In the event that a vessel owner wishes to build a new vessel, he must first retire a vessel of equal length. Before a fishing license is issued to the new vessel, it is measured for length again by a fisheries officer. The Departmental files containing the measured lengths of vessels are important since each year 20 or 30 vessels sink or are otherwise accidentally lost. In some cases where a vessel is lost so it cannot be measured and there is no measurement of the vessel in departmental files, existing evidence must be used to determine a limiting length for the replacement vessel. However, that type of situation is exceptional.

The length limitation is not absolute since exceptions may be granted by the Minister upon the recommendation of the Vessel License Appeal Board. A vessel owner who wishes to obtain a relaxation of the strict interpretation of the length restriction may apply to the Board. The Board effectively has the power to relax the length restriction.

Departmental attempts to limit vessel length have been successful. The length restriction is simple, easy to understand, unambiguous and difficult to manipulate.

The Net tonnage restriction has not been successful as a limiting factor. There are two different types of "registered net tonnage" as defined by the regulations:

- a) in the case of a vessel officially registered under the Canada Shipping Act, the registered tonnage shown on that vessel's certificate of registry.
- b) in the case of a vessel merely licensed under the Canada Shipping Act, the allowable net tonnage set out in Column II of Schedule II opposite the overall length set out in Column I of that Schedule.⁵

Since the definition of the "registered net tonnage" of a Department of Transport licensed vessel is based on length, it is effectively a redundant length restriction. Therefore, by definition, the "ton-for-ton" restriction does not apply to licensed vessels. Of the 4,739 salmon vessels licensed in the 1981 season, 1,544 of them were licensed under the Canada Shipping Act.

For the remaining vessels net tonnage, as will be demonstrated later, is an elusive measurement to capture. Though the tonnage as reported in the Registry of Shipping has remained stable for all registered fishing vessels, it has been so thoroughly manipulated through perfectly legal means as to have no meaning.

C. INADEQUACIES OF EXISTING REPLACEMENT RULES

There are two dimensions being controlled under the present rules: registered net tonnage and length. The effectiveness of each will be analyzed.

a) Registered Net Tonnage

As pointed out previously, by the definition of this dimension, 1,544 of 4,739 salmon vessels escape this limitation entirely. By definition, the tonnage restriction is a redundant length restriction. Under the Canada Shipping Act only vessels that are in excess of 15 Net Registered Tons are required to be registered.⁷ Registration is optional for vessels under 15 Tons. A majority of vessels under 15 Tons are registered. However, there is provision for deregistration of those vessels. A vessel owner merely must submit a letter to the Registrar of Shipping indicating his wish to be deregistered. As a matter of course, the vessel will become a licensed vessel and thereby escape the tonnage restriction.

Only those vessels that are greater than 15 Registered Net Tons are affected by the tonnage restriction. This includes the majority of seine vessels, and a few large trollers. The large majority of trollers and all gillnet vessels are excluded.

The registered net tonnage of a vessel is included in a Certificate of Registry for the vessel that is carried at all times on the vessel. A permanent record of this Certificate of Registry is maintained in the Registry of Shipping. Before the vessel is so registered it is surveyed by a government-licensed surveyor who applies an exceedingly complex and rigorous set of rules under the Canada Shipping Act.⁸ A simplistic explanation is that all volume below the main decks is measured, with numerous deductions then being made for engine room, crews quarters, navigating space, shaft log, space for stores and anchor gear. The volume below the main deck is the gross tonnage while the volume after all the aforementioned deductions is the net tonnage.

Obviously the net tonnage is subject to considerable manipulation by vessel design since all sorts of deductions may be made from even a large gross

tonnage. Even the gross tonnage is subject to manipulation since the calculation of it considers such variables as round of beam and a double bottom. By placement of floors and by varying beam width the gross tonnage can be manipulated, though not so much as net tonnage.

Table 1 lists a random selection of 28 of the 40 new seine vessels that were replaed under the registered net tonnage restrictions up to February 1, 1979.⁹ Though the length restriction went into place in 1978, it has been departmental policy to waive restrictions that are enacted when vessels are under construction. As can be seen from Table 1, in every case the registered length and gross tonnage increased, in most cases dramatically. The net tonnage stayed constant.

TABLE 1

REPLACEMENT OF SALMON SEINERS UNDER
REGISTERED NET TONNAGE RULE
Approximately 1977 to February 1, 1979

Replaced Vessel				Replacing Vessel			
M	Reg. Length	Gross Tonnage	Net Tonnage	M	Reg. Length	Gross Tonnage	Net Tonnage
W	45	25	17	St1	61	62	17
W	55	41	28	A1	60	70	28
W	39	20	16	A1	50	39	16
W	70	61	41	Fg	73	127	41
W	60	51	35	W	62	85	34
W	43	35	24	St1	65	97	28
W	39	30	25	W	43	35	24
St1	43	32	22	St1	63	76	21
St1	64	87	33	St1	72	115	32
W	61	59	46	St1	70	95	46
W	59	83	65	St1	72	115	64
W	58	44	30	A1	64	88	30
St1	61	71	38	Fg	73	125	37
W	43	27	18	A1	53	45	18
A1	63	78	67	W	67	97	66
W	59	33	25	A1	63	76	25
W	46	29	20	St1	50	37	19
W	57	47	32	St1	72	112	32
W	56	48	32	St1	70	91	32
W	61	51	35	St1	70	95	35
?	42*	22	15	A1	50	42	14
?	48*	29	20	A1	54	58	20
?	53*	43	29	W	52	49	33
?	60*	65	50	Fg	73	128	50
W	69	85	50	St1	72	115	49
W	60	53	33	W	51	40	27
W	57	46	31	St1	69	90	30
A1	51	48	33		79*	35	33

M - material

* - overall length

TABLE 2

REPLACEMENT OF SALMON SEINERS UNDER
OVERALL LENGTH & REGISTERED NET TONNAGE RULE
February 1, 1972 to Present

Replaced Vessel				Replacing Vessel			
M	Reg. Length	Gross Tonnage	Net Tonnage	M	Reg. Length	Gross Tonnage	Net Tonnage
W	46	19	13	St1	49	52	15
W	37	15	10	A1	38	15	10
W	38	16	11	Fg	44	40	11
W	39	23	16	Fg	51	44	15
W	61	55	38	St1	72	85	26
W	54	37	18	A1	53	45	18
W	56	45	31	W	62	85	25
W	59	48	39	W	60	59	35
W	63	89	46	?	67*	149	44
?	51	42	28	A1	63	78	28
W	54	41	26	?	68*	94	26
?	75*	76	49	?	79*	119	46
W	49	29	19	?	58*	45	18
W	52	31	17	?	59*	55	17
W	44	20	14	?	50*	32	14
W	50	38	26	?	69*	80	26
W	49	25	20	?	58*	44	18
W	43	29	20	?	58*	45	18
W	49	24	17	?	47*	21	20
?	57	40	27	?	66*	80	26
W	45	25	17	?	55*	42	14
W	39	22	15	?	50*	40	15
W	50	29	24	?	65*	56	25
W	47	28	19	?	58*	50	19
W	60	59	35	A1	54	63	30
W	38	15	10	W	38	20	14
W	53	38	22	St1	52	64	22
W	57	46	31	?	66*	32	30
W	69	104	72	W	70	100	58
W	67	89	61	?	75*	89	61
Ag	50	39	16	St1	47	28	20

Table 2 lists a random selection of 31 of the 55 new seine vessels that were replaced under the restriction of both registered net tonnage and length, from February 1, 1979 to the present.¹⁰ The overall length in these vessels did not change since it was limited by regulation. The registered length is the length recorded in the Certificate of Registry. It is a few feet shorter than overall length since it measures only to the rudder stock. The registered net tonnage is constant. But in every instance the gross tonnage increased, in some cases dramatically.

In these examples there is an obvious incentive to limit registered net tonnage since that is the limited dimension. As was pointed out earlier, there are certainly many ways to manipulate registered net tonnage, and gross tonnage as well. Because there is no incentive to limit gross tonnage, it increases as indicated by the tables. If there were a limitation placed on gross tonnage, such a table would, in our opinion, show constant gross tonnage yet the vessels would be larger in actual volume.

In summary, it has been demonstrated that registered net tonnage has been ineffective in limiting vessel size on replacement. Since gross tonnage can also be manipulated, it also would be ineffective.

b) Length

The length restriction was put into force in 1978 but did not take full effect until 1979, due to construction periods mentioned previously. The length restriction has the obvious inadequacy of failing to control breadth and depth. As vessels are replaced, they tend to get wider and deeper. Table 2 demonstrates this. In that table the gross tonnage gives a good

index of true vessel size. Even though the length was restricted, the vessel often doubled in size on replacement.

The length restriction gave rise to a serious design problem. Since it was the only controlled dimension, vessels tended to become short, wide and deep. As a result they became less fuel efficient. It also caused problems indirectly with safety and stability.¹¹ The vessel owner wished to take full advantage of the replacement rules, yet this resulted in a vessel design he did not particularly favour.

In summary, the length restriction was not only unsuccessful in limiting vessel size it also had an adverse effect on vessel design.

D. PROPOSED SCHEME

The objective of a replacement rules system is simply stated. It should restrict replacement vessel size to that of the existing vessel, while at the same time placing no constraints on vessel design. If that objective is met, the regulators will be satisfied, as they will have limited investment, as well as fulfilled their responsibility to other licence holders in limiting fleet size. The vessel owner's primary concern is to have a minimum of constraints on vessel design. That will save him money. He is less interested in getting a larger vessel since by the nature of the common property resource, having the ability to obtain a larger vessel will be defeated in the long run: other vessel owners will soon take advantage of the same regulatory weakness. Also, a larger vessel will cost him more money. A simple scheme that would meet the above objective would be one based on the product of length, breadth and depth.

To aid fisherman's understanding of the system, we suggest that the vessel

be measured in feet and fractions of feet, NOT metric, and the product be divided by 100, which is consistent with gross tonnage. The final figure would be identified as CANADIAN FISHING VESSEL TONS, or C.F.V.T., as the fleet is accustomed to designation of a vessel license in tons.

For example: A seine boat 55 feet long, 16 feet wide and 8 feet in depth would be $55 \times 16 \times 8 = 7,040$ cubic feet, divided by 100 = 70.40 C.F.V.T.

A gillnet boat 35 feet long, 10 feet wide and 5 feet in depth would be $35 \times 10 \times 5 = 1,750$ cubic feet, divided by 100 = 17.50 C.F.V.T.

A troller 41 feet long, 10 feet wide and six feet in depth would be $41 \times 10 \times 6 = 2,460$ cubic feet, divided by 100 = 24.60 C.F.V.T.

Just as the length measurement now is not subject to manipulation, corresponding breadth and depth measurements could not be manipulated. As a result, the volumetric product of the three measurements could not be manipulated. It is a dimension in the nature of gross and net tonnage since it is a three dimensional measurement. Its advantage over gross and net tonnage lies in the fact it takes outside measurements of the hull, so there are no variables that can be adjusted by the designer in net and gross tonnage, as pointed out previously.

The designer would be entirely free of constraints. He would not be instructed by the vessel owner to increase one dimension or another since it is total volume he is working from. If the owner wishes a fuel-efficient vessel, the design will tend to be long and narrow. A vessel maximizing cargo-carrying capacity will be wide and deep.

The new scheme would give some advantage to the vessel owners who have replaced vessels in the past few years. For example, in Table 2, those vessels were limited by overall length and net tonnage for replacement. From considering the gross tonnage it is obvious that those vessels grew much bigger by increasing breadth and depth. Probably the actual design of those vessels was not the most desirable one. With the new scheme, it is likely that the vessel owner seeking a more favourable design would make the replacing vessel longer, while decreasing breadth and depth to remain within the volumetric product limitation. These vessels would have escaped the length limitation rule that has been in effect for four years.

This criticism may be diffused somewhat by considering that the length restriction was not successful in limiting vessel size. By accepting the volumetric product scheme now, it would only acknowledge that past inadequacies existed and will not attempt to correct them. An alternative would be to retain the length restriction as well as volumetric product. This alternative unfortunately would impose a design constraint, especially in replacement of vessels that were constructed in the past few years. In summary, if the volumetric product scheme were substituted completely for the existing system, it would be successful in limiting vessel size, while giving the designer a free hand.

E. METHOD OF IMPLEMENTATION

When considering improvements on the existing replacement rule scheme, much attention was given to the information already contained in the Certificate of Registry. Attempts were made to incorporate the measures of length, breadth, and depth that appear in the Certificate into the proposed volumetric product. After a great number of searches through the Ships Registry and consultation with the vessel designers, marine surveyors and Steamship Inspection personnel of

Transport Canada the following problems were encountered.

- a) Licensed vessels, which comprise about one third of the fleet, are not measured in any manner under the Canada Shipping Act. It is an exceedingly time-consuming process to have a vessel registered, because it requires six separate steps, including legal forms and the tracing of ownership to the original builder. This is probably not feasible for such a great number of vessels.¹²
- b) Length is not an overall length but a measurement from bowstem to the fore part of the rudder stock. This may allow for some alteration of design in placement of the rudder stock and hence manipulation of the restriction.
- c) In 1930 the method of measurement of length changed to the fore part of the rudder stock from the old method of measurement to the aft side of the head of the stern post. There are enough vessels constructed before 1930 to make this anomaly in measurement insurmountable, especially since the oldest vessels are most affected by replacement rules and are most likely to be replaced.
- d) There are two depth measurements in the Certificate of Registry. One measurement is to the bottom of the keel while the other is to the tonnage deck. Marine surveyors whom we consulted wrote in reply that neither of these two measurements is the true indication of vessel depth,¹³ and suggested a depth measurement from the top of the keelson or interior bottom of the hull mold. This measurement to molded hull is confirmed by vessel designers and other marine surveyors to be the best indication of true hull size.

The considerable amount of measurement information available in the Certificate of Registry cannot be applied to the fleet consistently to form the

basis of a set of effective replacement rules.

It has been suggested that the Department adopt a measuring system proposed by the International Maritime Convention Organization of the United Nations. That body has been suggesting a uniform method of measurement for many years. Canada has not yet accepted such a system. In any event, in B.C. all licensed fishing vessels will have to be measured. Under the I.M.C.O. system, it is unlikely that older vessels would be surveyed even if the system were adopted. This I.M.C.O. system, therefore, is not recommended for the B.C. fishing fleet.

The set of replacement rules, if adopted, must be consistent. All vessels must be measured for length, breadth and depth. Such a task would overwhelm Fishery Officers. Measurement of depth requires some expertise as well as consistency, and many vessels would have to be taken out of the water to determine molded depth.

For the reliability necessary to inspire industry and management confidence in a new replacement rule scheme, measurement of vessels should be contracted out to a single marine survey firm. Firms have been approached and the indications are that such a vessel measurement scheme is feasible. The cost to the department of such an undertaking, provided that vessel measurement was made mandatory for the owner, would be in the order of \$35,000, for the seine fleet only, and about \$250,000 for the whole fleet, which is less than the cost of removing a single seine vessel from the fleet.

In contracting out such a project, a single firm should measure all boats to ensure consistency. A method of measurement would be carefully drawn up that could be applied consistently in future.

All vessels would be measured, and all the measurements would be contained in department files. Any applicant for replacement of a vessel that was lost or

retired would only have to restrict himself so that the volumetric product of the new vessel is no greater than the existing vessel.

A second important benefit of such a measurement is the true and reliable inventory of all vessels that would be obtained. At the time of measurement a photograph of the vessel should be taken. All relevant information on each vessel would be compiled into a catalogue that would include:

- a) a photograph,
- b) vessel volume,
- c) vessel license history,
- d) all appeal rulings.

Such a catalogue should be open to the public.

Only now is such a project feasible. Pyramiding of licenses is no longer permitted; each existing vessel and license should therefore be easy to identify and to trace. There has been little building in the last two years, so there are no vessels in construction that traditionally are exempt from rulings imposed. Most important, there is the expectation of change, and this is one area where change would vastly improve the confidence of fishermen in the Department's administrative abilities.

Despite the cost of vessel measurement, as well as an administrative reorganization, this appears to be the only workable method. Suggestions have been received from industry and the department; each suggestion has been thoroughly investigated through examination of shipping records, shipping legislation and regulations, and through discussions with knowledgeable persons. Because it is so simple, easy to enforce and consistent, the proposed scheme seems far superior to the existing system. It is also economically justifiable,

as will be demonstrated.

F. ECONOMIC NECESSITY OF REPLACEMENT RULES

In the section tracing the history and evolution of replacement rules, it was clear that each new restriction was necessitated by the failure to contain an expanding fleet. Clearly, replacement rules will never totally limit investment through new construction. Nor will they limit increase in catching power through technological change, gear efficiency improvements and use of electronic devices. The limited purpose of replacement rules is simply to ensure that a vessel on replacement will grow no larger in volume than its predecessor.

At present many vessels are very old and ready for replacement. Under the present rules, experience has taught us that those vessels will increase greatly in size when replaced (see Table 2). Under the proposed rules a vessel is likely to shrink very much in length in replacement. Recent amendments to Inspection Regulations under the Canada Shipping Act require a new vessel to pass a stability test. Most older vessels do not meet this stability standard. As a result, replacement vessels will be required to increase depth and breadth so must be significantly decreased in length. Under current rules, vessel breadth and depth would be increased without any decrease in length. The vessel owner is actually encouraged, under the present regime, to increase vessel size on replacement, so that he can comply with safety regulations.

The final report of the Commission of Pacific Fisheries Policy emphasizes the over-capacity in the fishing fleet, and the excess number of fishing licenses that have been issued, recommending compensation for those willing to relinquish their license privileges. No great economic insight is needed to perceive that compensation demanded by vessel owners will be directly related to the value of

the vessel. As long as vessel replacement rules remain as they are, larger vessels will replace existing vessels. This will raise the cost of the compensation scheme in direct relation to that increase in vessel size. This increase in costs of the compensation scheme will ultimately be paid by the remaining license holders through royalties, which is a further reason for effective replacement rules for the fishing fleet. As the compensation, or buy-back takes vessels out of the fleet, there will be more incentive to replace with larger and more efficient vessels. It would be counter-productive of such a compensation scheme to have reduced catching power and capitalization affected by the scheme nullified by increased catching power and investment, as a result of vessels becoming larger on replacement. Clearly, large scale removal of vessels by the compensation or buy-back scheme, as proposed in the Pearse final report, must be augmented by effective controls on vessel replacement, if any benefit is to be realized.

G. BUILDING MORATORIUM

A simple solution to the problems of vessel replacement would be to eliminate new construction entirely. In fact the final report of the Pearse Commission recommends just that for a period of 10 years.

Obviously, the fleet will get older and less efficient, and whether that is good or bad may be debatable. There is, however, a persuasive argument for effective replacement rules rather than a building moratorium.

Tables 1 and 2 show that in most cases a wooden boat is replaced by one of fibreglass or metal. One of many reasons for the trend away from wooden construction is higher maintenance costs of wooden vessels, particularly older ones. With effective replacement rules, those older wooden vessels could be

replaced by fibreglass or metal vessels and thereby pay the capital cost of new construction through saved maintenance costs. No data is available and a study of this would be appropriate before an outright moratorium of vessel construction for 10 years is seriously considered.

A second argument against a new vessel moratorium is that old wooden vessels might then be rebuilt piecemeal, uneconomically, possibly at greater cost than a new vessel. A new keel one year, old planking replaced the next, then decks, bulwarks, wheelhouse, etc.; then new engine and electronic equipment, with the danger of eventually upsetting stability, and the disadvantages of adapting an old boat design to modern fishing technology.

Even with the moratorium on construction which we do not recommend, there would be use for more stringent replacement rules. The final report of the Pearse Commission recommends free movement of existing vessels in and out of the fleet, subject to replacement rules. This movement may become frequent as a large number of vessels are retired by the compensation scheme. Since most vessels will have limited use except as fishing vessels, there would be considerable incentive to reintroduce retired vessels into the fleet. The compensation scheme cannot perform efficiently without effective replacement rules. For example, a squat vessel may have its license purchased by the compensation scheme. Presumably the scheme administrators would pay as much for the license as it is worth to them to retire that vessel. At a later time, that squat vessel could replace a narrow vessel of equal length, again increasing the size of an existing boat, an avoidable hazard with the proposed replacement rules.

II. APPLICATION TO ROE-HERRING SEINE VESSELS

The legality and timing of application of salmon vessel regulations to the roe-herring seine fleet has been studied by this committee,¹⁶ and discussed in full in Chapter III. It has been noted that the Department usually gives advance notice to the industry before passing regulations that will greatly affect license privileges, and there is no need to break with this tradition. Therefore, the imposition of vessel replacement rules on the herring fleet would be accomplished as follows:

- a) announcement to the industry of application of salmon vessel rules to roe-herring seine vessels;
- b) removal of restriction on transfer of licences;
- c) conversion of roe-herring seine licence to a vessel license so that the licence must be affixed to a vessel;
- d) simultaneous with conversion to a vessel licence, replacement rules and the splitting prohibition will apply.

There must be a time lag between (b) and (c) above, to allow licences to pass into the hands of their true owners; otherwise short and long-term leasing arrangements may be frustrated.

I. FUTURE CREDITS

The present salmon vessel replacement rules provide that the length of the existing vessel determines the maximum length of a proposed replacement vessel. This creates an incentive to build the largest vessel allowed since any length not taken advantage of will be lost forever to the owner. If the catalogue of vessels as discussed earlier is compiled, a vessel owner's volume restriction

could be determined at the time of measurement. That would be the limit of his volume, regardless of the size of the replacement vessel. If the vessel owner did not build to maximum size, he would not lose the privilege to do so on a subsequent replacement, and one incentive to build the largest replacement vessel possible would be removed. Such a credit would apply both to salmon and roe-herring vessels.

J. TIMING OF IMPLEMENTATION

Draft regulations have been circulated to the Department, and opinions have been sought from experts in the industry; reaction has been favourable. The Department considers the system administratively feasible while the industry sees it as less restrictive on design.

Orderly implementation of the proposed scheme should be as follows:

- a) announcement of application of salmon vessel rules to herring vessels and removal of transfer restrictions on those licences;
- b) mandatory requirement that vessels be measured before the 1983 salmon licence is issued;
- c) announcement of new vessel replacement rules, together with suspension of present replacement rules for any application that was received before September 1, 1982;
- d) the drawing up of precise criteria for vessel measurement and placing measurement contract out to tender;
- e) during the months measurements are taking place, regulations be drafted that

take into account special problems raised by surveyors;

- f) regulations be passed into law in respect of replacement rules and changes to roe herring vessels;
- g) catalogue of vessels compiled.

K. CONCLUSIONS

The fishing industry has been under careful study for two years. Major conclusions of that study affect licensing. This chapter has examined current arrangements and proposed rather drastic changes.

Current economic conditions and general expectation of change provide a splendid opportunity to implement the new system. Dislocation would be minimal since there is virtually no construction in progress. The new regulations will create new public confidence by making license and appeal records public.

The roe-herring fishery has escaped controls on vessel replacement. That fishery has the most threatening fishing power. Application of replacement rules is an essential prerequisite to rationalization of that fleet.

Every increase in volume on replacement is a wasted capital cost to the resource. The actual and administrative cost of the proposed replacement rules would be far less than the potential loss through this waste.

The replacement rules will not limit absolutely growth in investment or fishing power. They will, however, limit total vessel size and be less restrictive on design. They are an effective management tool when implementing other recommendations for change.

FOOTNOTES

1. SOR/66-116, B.C. Fishery Regulations, amended s. 31A and s. 31B, March 23, 1966.
2. SOR/69-266, B.C. Fishery Regulations, amended S. 31A, S.31B, Schedule B, Schedule G, May 28, 1969.
3. SOR/71-590, B.C. Fishery Regulations, amended S. 31B, November 9, 1979.
4. Pacific Fishery Registration and Licensing Regulations, Consolidated Regulations of Canada, 1978, C. 824.
5. Consolidated Regulations of Canada, 1978, VII, C. 824, as amended to October 1, 1982.
6. Department of Fisheries and Oceans data at December 18, 1981.
7. Small Vessel Regulations, Consolidated Regulations of Canada, 1978, C. 1487.
8. Canada Shipping Act, Rule I, Schedule I.
9. Department of Fisheries and Oceans licensing records.
10. Department of Fisheries and Oceans licensing records.
11. Brief to Commission of Pacific Fisheries Policy by Institute of Naval Architects of British Columbia.
12. Discussions with Registrar of Shipping, Vancouver.
13. Letter from Meadows Marine Surveyors Ltd., September 14, 1982.
14. Discussions and correspondence with Meadows Marine Surveyors Ltd. and Barry D. Smith & Co. Ltd., September 1 to September 14, 1982.
15. Discussions with Norman Hellier, Transport Canada, Steamship Inspection Division.
16. Legal opinion re: can roe herring fishing licenses be affixed to vessels? Gordon Bisaro, July 1982.

CHAPTER V

ENFORCEMENT

In considering fleet rationalization, this Committee has favoured methods of increasing available stock, over fleet reduction. An improved enforcement effort would reduce the number of illegally caught fish. A large portion of these illegal fish would become available to validly licensed vessels who now bear the brunt of restrictions on fishing effort. Effective enforcement, therefore, is very much in the interest of bona fide fishermen.

A fishing license is as essential to a fisherman as his vessel. A fisherman depends on a licensing regime that is properly administered and in which provisions are rigidly enforced. In particular, a seine license is a privilege that provides an opportunity for a greater share of the resource. Movement into the seine sector has been restricted since 1977; tight enforcement of that moratorium is essential to provide for a proper distribution of opportunity to license holders. A commitment to effective enforcement of the seine moratorium is also a prerequisite to the implementation of the recommendations by this Committee on fleet reduction.

This Committee recognizes enforcement as an unavoidable basic aspect of fleet rationalization. It is therefore bound by its terms of reference to consider the subject and make recommendations.

A. FISH ILLEGALLY CAUGHT

There is considerable incentive for a licensed vessel owner to under-report catch. This incentive will be increased upon implementation of a royalty. This under-reporting causes difficulty in the fair, ad hoc allocation of fish to the

gear types as well as in setting and reaching escapement targets.

Because of increasing restrictions in all sectors, there are economic incentives to fish during closed times or in closed areas. Though this activity may be easy to identify it is not easy to enforce it effectively. It is very expensive to maintain patrol vessels in closed areas and times. The element of surprise is often missing because of large areas and limits on speed of patrol vessels. Finally, it is difficult to successfully conclude a prosecution of illegal fishing because of the necessity of identification of the fisherman rather than the vessel involved in the illegal activity.

There are regulations governing the sports fishery on time, area, bag limits and size limits. The sheer number of licenses creates an enforcement problem.

An insidious enforcement problem is the level of illegal activity after the fish enter non-tidal waters, particularly the Fraser River. The International Pacific Salmon Fisheries Commission regularly reports the discrepancies of counts between Mission and the spawning grounds. Although it is impossible to accurately estimate the number of fish that were taken illegally, enough case studies are reported to conclude that the activity is persistent and often organized. Maintaining surveillance on the Fraser River alone poses a formidable task. Not only is it a large area, with operations carried on by night, but also the violators may be armed and dangerous.

All illegal activity affects the stock available to the commercial fishing fleet. Reductions in this illegal activity will result in an increase in the available reported annual catch to licensed fishermen. It is this Committee's conviction that the vast majority of fishermen report all their catch and are involved in no illegal activity. It is that majority who will benefit from improved enforcement.

B. LICENSING VIOLATIONS

Since 1969, the salmon fishery has been governed by limited entry. This limited entry provision was extended to a moratorium over seine vessels. The moratorium over entry of any more seine vessels into the fleet was announced by Ministerial press release in 1977, but did not find its way into regulation until March 1980. Not only is the moratorium weak because it did not become law for 3 years after its announcement, but originally it was loosely worded, so that it was not clear whether the moratorium was on the boat or the licence. This vagueness allowed the law to be avoided entirely.

The resulting weakness of the seine moratorium has made enforcement difficult, and the Department is reluctant to attempt enforcement. The resultant growth of the seine fleet has caused a reallocation of fish among the existing licensed vessel owners. Because of the capability of a seine license to catch a greater number of fish than an equivalent troll license, each troll license that slipped into the seine category reduced the fish available to all others. We recommend that licensing policy be clearly articulated and circulated to licensees. Policy should be immediately supported by requisite regulatory amendments and enforced vigorously.

There is suspicion often expressed by fishermen that the Department has issued licenses where none have existed before. Specific examples are never cited. Suspicious attitudes are understandable since an unauthorized license results in a loss of fish to the existing licensees. Because of rules in the past that allowed for vessel pyramiding, it has been ascertained by the Department that all licenses cannot be traced to their origin in 1969. Even though the suspicions of fishermen may have no merit, it is unfortunate that they cannot be refuted by the Departmental records. If the catalogue of licenses is

made public then all suspicions of created licenses may be laid to rest.

We recommend that records of vessel ownership and transfer be made public so that they may be searched by anyone who wishes to trace the history of any licence.

C. PROSECUTIONS

It is easier to detect illegal activity than it is to prosecute it. A vessel may be seen to be fishing in a closed area and time but the Fisheries Act and regulations require that the individual operators of the vessel be charged. This imposes the additional difficulty of boarding the vessel and identifying the operator. This not only causes additional difficulty for enforcement officers but also creates an identity defense where really none should exist.

The requirement of the Fisheries Act to identify the actual offender arose, no doubt, at a time before the keeping of accurate fishing vessel ownership records. Personal identification is a legal anachronism when the licensed fleet is so clearly identified as to vessel and vessel ownership. Once a vessel is identified then the ownership can always be determined accurately.

Even though offenses under the Fisheries Act and regulations are criminal in nature it is apparent that the courts deal with those offenses rather leniently. A fine in excess of \$500 is unusual and a jail sentence is rare. This view of the courts is understandable since a fisheries offense is mild compared to the public consequence of criminal activity that is regularly processed by those courts. It is unlikely that the judicial attitude will change regardless of changes in the penalty structure.

In lesser criminal offenses such as some motor vehicle offenses, parking

violations and municipal zoning regulations, identity of the violator is not required. Mere ownership of the offending vehicle or property constitutes the offense. Since most fisheries offenses are penalized on the same level as these offenses, the offense could be the same: against the registered owner of the vessel. This would make prosecution easier, since the fishery officer would only have to identify the vessel by name or fishing licence number. It is the records of the Department that would prove the offense. It is the responsibility of the lessor to ensure appropriate changes in Department of Fisheries and Ocean records at the time when that vessel moves out of his control: for example, by way of lease. If the Departmental records contained an error, ownership of the vessel at the critical time could be denied with proof from the imputed owner.

Such a change would streamline the prosecution system. It would remove the requirement of boarding of vessels, which is particularly difficult with the troll fleet. It would re-introduce the element of surprise since aircraft could be used to patrol closed areas. Finally, it would raise the risk of prosecution and conviction, and fishermen would be aware of the increased risk. This is the most important aspect of this change, since the purpose of this enforcement is less to convict offenders than to ensure compliance with the law. If a potential offender thought the risk of conviction were high then he would not commit the offense.

We recommend that the Fisheries Act and regulations be amended so that the vessel owner rather than the operator be made liable to prosecution. Department of Fisheries records shall be determinative of ownership. They should allow the registration of the lease of the vessel.

This Committee has had discussions with senior personnel at the Canadian Armed Forces bases at Chilliwack, Comox and Esquimalt. There was a clear willingness and desire to co-operate with the Department of Fisheries and Oceans. Under present arrangements between the Department of Fisheries and Oceans and the

Department of National Defense, commissioned officers of the Canadian forces are authorized to enforce the coastal Fisheries Protection Act, the North Pacific Fisheries Convention Act and the Northern Pacific Halibut Fisheries Convention Act.

Presently there are 27 ship-days for Navy destroyers allocated to the Department of Fisheries and Oceans by the Department of National Defense. These days must be scheduled at least one year in advance. To get the best use out of this fleet, the scheduling should coincide with peak fishing time or with the roe-herring fishery, so as to free the three vessels of the Fisheries Department headquarters fleet ("Tanu", "Laurier", and "James Sinclair") for supervision of active fisheries during those critical times. It has been suggested by Defense personnel at Esquimalt that a Fisheries Liaison officer be made available to assist in co-ordination and communication between the two departments, Fisheries and Defense.

There are 540 flying hours allocated to the Department by the Armed Forces base in Comox. There is an indication that more time would be available on request. These planes are doing little more than boring holes in the sky, since there are no clear objectives. The use of these tracker aircraft could be brought into line with Department objectives. It was suggested that a Fishery Officer fly in these aircraft.

The severe problems of loss of fish on the Fraser River through poaching have been alluded to. The personnel at the Armed Forces base at Chilliwack have expressed an interest in conducting training exercises during peak spawning periods. Although not directly involved in enforcement, their mere presence may provide both confidence for Fishery Officers on duty and discouragement to offenders.

Clearly the use of the Armed Forces is restricted. They must not be directed to the policing, but to the protection of Canadians.

We recommend that the use of Armed Forces personnel and equipment for Department of Fisheries and Oceans objectives be fully explored.

CHAPTER VI

ADMINISTRATIVE ARRANGEMENTS

A number of administrative arrangements should be introduced to implement the recommendations of the report of The Fleet Rationalization Committee.

A. COLLECTION OF ROYALTIES

The recovery of direct costs of fleet rationalization is at the heart of this Report. We have recommended that in addition to basic license fees, a resource rent or royalty be extracted from the increased benefits that will accrue.

How do you collect this royalty? A simple, inexpensive and secure procedure is to deduct directly at the source, from the value of each delivery, by the first buyer of that fish. The same procedure is already being followed by two government agencies: by Employment and Immigration Canada, for the deduction of Unemployment Insurance premiums from fishermen; and, in essence, by the Worker's Compensation Board of B.C., for the deduction of premiums from the designated employers of fishermen. Both figures are ultimately based on the fish purchase slips.

It will be necessary for the Department of Fisheries and Oceans to provide personnel, facilities and procedures for an annual audit of royalty deductions, as is done by both of the other government entities using this source for the collection of deductions. A similar procedure is being considered by Revenue Canada for application when, or if, source deductions for fishermen's income tax is introduced.

Before another bureaucracy is created (there are already two separate audits of fish purchase slips) and before the various government auditors outnumber the office staff of the fish buyers, a cooperative effort with U.I.C. and W.C.B. should be initiated by the Department of Fisheries and Oceans. Each of these audit functions involves the same pieces of paper, fish purchase slips. Each of the deductions is either subtracted from the gross value of the fish delivery or, as in the case of W.C.B. premiums, is the product of a formula applied to the gross value of fish deliveries. A single audit should be sufficient to satisfy the requirements of three (or more) receivers of these remittances.

This Committee recommends for the collection of royalties that one audit team, logically using existing personnel from U.I.C. and W.C.B., be coordinated under the direction and supervision of one audit agency. All federal and provincial departments involved would be represented in this agency and the operating costs of audit procedures would be shared by the members.

The format of fish purchase slips, presently distributed through the Department of Fisheries and Oceans on a shared cost basis with the fish buyers, should be redesigned to provide for the needs and convenience of the audit procedures. The design of fish purchase slips is now under review to determine the form most functional for the collection and computerization of catch statistics. Considerations to meet the requirements of source deductions should be incorporated into the redesign.

This procedure minimizes the administrative expense of cost recovery, easily incorporated into the jurisdictions of existing management personnel.

B. CONSULTATION

The Commission on Pacific Fisheries Policy recommended the appointment of a consultative body, the "Pacific Fisheries Council", to advise the Minister on industrial policy and international arrangements, and to present a central forum for consultation between the public, advisory committees within the Pacific Region, and the Minister. We are in agreement with this general concept of the need for a Pacific Fisheries Council, but differ with the Commissioner, who wants to abolish the present Minister's Advisory Council, which should be more concerned with day to day management of the resource.

There is justification however for a new Pacific Fisheries Council: to advise the Minister on policy issues; to ensure that Pacific Region management strategies stay within limits and objectives of a stated policy; and to review the recommendations of the various advisory committees. We also agree that the members of this new council should be appointed in a personal capacity based on potential contribution from their past experience or special expertise. The members of this new council should not be appointed simply because they are affiliated to any other organization.

It is desirable, in the opinion of this Committee, to preserve the right of all special interest groups to appoint delegates to a common forum. Therefore, there is still need for the present industry sounding board, the Minister's Advisory Council, as a vehicle for airing proposed policy changes or discussing management problems.

We recommend, therefore, that the existing Minister's Advisory Council be retained, in addition to the appointment of a Pacific Fisheries Council.

C. LICENSE TRANSFERABILITY

There has been much confusion about the relative advantages of personal or vessel licenses and the transferrability of the fishing privilege. There is a critical demand for some uniformity in licensing policy and The Commission on Pacific Fisheries Policy has offered a solution. Dr. Pearse says the licence should be issued to a person or company and that the vessel to be used must be designated by the licensee. Since neither the Department or industry can agree on one or the other, he recommends making the licence applicable to both. In essence, this is the same procedure that is now followed for salmon licences. The list of licences records the name of the owner or purchaser, the name and official identification of the vessel and the C.F.V. number. The industry has referred to this system as a vessel licence. In our Report any reference to a vessel licence implies that the licence is issued to the licensee and the vessel, or conversely, to the vessel and the licensee. Either way a vessel must be identified for surveillance and enforcement purposes and the person or company must be identified for the purpose of mailing lists, the collection of fees or the responsibility for conforming to regulations.

Care should be exercised that the semantics employed are not so narrow as to inadvertently restrict fishermen from fishing a leased vessel. The owner of a licensed vessel is not always the operator of that vessel.

The Fleet Rationalization Committee recommends that both salmon and roe-herring licences be transferrable from one fisherman to another if attached to a licensed vessel; the same procedure as is now followed with a salmon licence.

D. "BONA FIDE" FISHERMEN

We have used the phrases "bona fide fishermen" or "experienced

fishermen" in this Report, but clearly there is need to define the term "fisherman" before all licensing alternatives can be considered.

The Committee is deeply concerned as to the far reaching implications of the licence system, with the future possibility of bidding for new licences by all and sundry, as proposed by Dr. Pearse. In line with our basic premise that experienced commercial fishermen should be the holders of commercial fishing licences and operators of their own boats, we fear his proposal will eventually lead to the exact opposite. Vertical integration and tax sheltering schemes can rapidly thrive and multiply in such a climate.

We recognize the basic tenet that fishing licences are the property of the Crown. Dr. Pearse's proposal is to give all present licence holders a ten year lease, instead of the present one year tenure. It is our contention that eventually all fishermen licence holders (either individuals or fishermen-controlled incorporated bodies) should have the right of yearly renewal of their licences, providing the fishermen are operating the vessel to which the licence is designated. Should the licence holder elect to leave the industry, approved arrangements would then be made for the transfer of the licence and disposal of the vessel, to an "experienced" commercial fisherman, or a fishermen-controlled incorporated body.

This proposal, for future consideration, requires specific manifestations of an individual's right to be a fisherman. It requires a definition.

Towards this end, we recommend that the Department of Fisheries and Oceans, in conjunction with other government departments and the commercial

fishing industry, initiate a program designed to establish fishermen qualifications. Commercial fishing licences could then be graded and be contingent on a demonstrated knowledge of the skills required of a professional fisherman. Subjects included in this education process could be navigation, maritime safety, emergency procedures, basic engineering, fishing regulations, and training in quality control through product handling procedures.

E. PERSONAL FISHING LICENSES

In support of our view that the designation of a fisherman be based on experience and training as a fisherman, we believe that there must be a mechanism to identify the individual. We recommend, therefore, that the Personal Commercial Fishing Licence be retained, as this mechanism.

F. LICENCE ADMINISTRATION

There is an obvious need to elevate the status of the Licence Section to a rank above its present relationship to the Field Services Branch. Commissioner Pearce recommends a "Pacific Fisheries Licensing Board", to be created as a Crown corporation, in recognition of the present inadequacies. A separate corporation, requiring legislation for its formation, might be a bigger step than the Department is prepared to take at this time, but there should be no delay in separating the licensing agency from the day-to-day management of the resource.

The members of this Committee express confidence in the present licensing personnel and the changes that are evident in the Licence Section. The computerization of data and statistics was a progressive step. Licensing policy, or lack of policy, is the area that requires change.

Many of the changes that this Committee has proposed should be co-ordinated under the auspices of the government official responsible for licensing. The buy-back program, roe-herring vessel licences, additional roe on kelp licences, and the issuance of roe-herring impoundment licences will all add to the work load of the Licence Section. Changes in basic fee structures and the administration of a royalty system should be handled by the same people.

This will require an increase in staff and budget, naturally, but an even more fundamental change is warranted. A level of autonomy is required, to a standard that might be patterned after the Salmonid Enhancement Program. Licensing policy has been the source of much of the Department's failure.

This Committee recommends the appointment of a Director of Licensing, responsible directly to the office of the Regional Director-General. The licensing should follow a clearly stated set of policies approved by the Minister and the Pacific Fisheries Council.

G. LICENSE APPEALS

The retention of a Vessel License Appeal Committee and the Pacific Region License Appeal Board, or alternatives such as were proposed by Commissioner Pearse, is a necessity. The consideration of appeals is an on-going process. As changes are implemented, the number of appeals could vary until we have a stable fleet based on permanent entry rules.

It is the recommendation of the Fleet Rationalization Committee that the final appeal must always rest with the Minister. A fundamental maxim of our society is the accountability of elected officials; this responsibility cannot be assigned to a faceless bureaucracy.

The gravest concern of this Committee is not that our recommendations can not be implemented, but that they will not be implemented. We fear that they may be read and discussed, then shelved to collect dust while the Department's historic inertia reasserts itself.

It is not our intention to offer this Report as an alternative to the recommendations contained in the Report of The Commission On Pacific Fisheries Policy. A choice would then be required, and no decisions would be made.

Dr. Pearse has done an excellent job of identifying the problems in this industry and indicating potential solutions. The objectives of his Report must be regarded as cornerstones of future fisheries policy.

Where we differ is in the means used to attain these objectives. The members of this Committee are reluctant to expose the B.C. fishing industry to untried, theoretical solutions because of their potential impact on individual fisherman and ultimately on every fishing community on this coast. We are not prepared to gamble with this resource or with the lives of individuals or communities, so we have opted for alternatives that can attain the objective: stability in the fishing industry. We advocate the use of methods that already have had a background of success.

Each of our recommendations is based on the retention of the healthy parts of this industry, yet offer control and constraint, allowing the opportunity to develop the resource to its potential.

The recommendations in this Report minimize human dislocation and

industrial disruption while effecting desirable change. Our suggestions are flexible, permitting the implementation of more stringent controls or future changes in revenue generating procedures, if this need is still indicated later. Implementation of theoretical suppositions by academics would be irreversible, a permanent fixture whether they work or not; but would in fact eliminate the small fisherman in very much the same way as the small hand logger has been eliminated from the logging industry.

We recommend that you implement the findings of this Committee: after these are in operation would be the time to study economic theories that could be employed as future alternatives, if there was still a need to do so, keeping in mind always the requirement: to protect those two endangered species, the fish and the independent fisherman, whom we consider vital to the health of our coastal life in Canada.

CONCLUSION

In the Fleet Rationalization Committee's Terms of Reference, it was asked to advise the Minister of Fisheries on five questions which collectively reflect the difficulty in which the Pacific Coast fishing fleet is enmeshed. These questions have been considered in detail in the body of this report, and the answers were couched in fairly technical language.

At no time, however, was it possible for this Committee to forget that behind the statistics and official concepts were the shadows of boats and the people for whom decisions will be made that mean either the continued life or the death of an industry in a form that we know. Fishermen are primary protein producers, but the fish could be harvested with far less effort and manpower, if mere production was the only value. The men, and even a few women, who go to sea have chosen a sometimes lonely, more physically demanding life than most of us who sit in offices. It would be a sadder and poorer world without them, and the view of the sea without fishing vessels is beyond our comprehension. Yet this is what is actually at stake: we could save the fish and abandon the fishermen; or can implement measures that will save them both.

The questions and our answers are as follows:

1. How should fleet capacity be reduced? How should further growth of fleet capacity be prevented?

Fleet capacity will be reduced through a voluntary buy-back program designed to remove licensed vessels from each of the gear types in the salmon fleet and the roe-herring fleet, as specified on pages 53 to 57, and 67 to 73

Further growth of the fleet will be prevented through the curtailment of capitalization by means of a royalty on landings. The assignment of this royalty will follow increased earnings resulting from fleet reduction and resource enhancement, and the royalty will be used to recover the costs of these programs, as shown on pages 30 to 39.

2. If there is to be a buy-back program, what types of vessels should be bought back?

The types of vessels to be bought back will be mainly those that fish for roe-herring, both seine and gillnet; plus a specific number of straight salmon vessels in all gear categories, see pages 53 to 57, and 67 to 73.

3. What should the fleet size and mix be after rationalization?

The fleet size and mix after rationalization will reflect a 24% reduction in the roe-herring seine and gillnet fleets, a 24% reduction in the number of salmon seines and a 12% reduction in the small boat salmon fleet. These numbers are detailed on pages 56, 57 and to 72.

4. How should the current vessel replacement rules be strengthened?

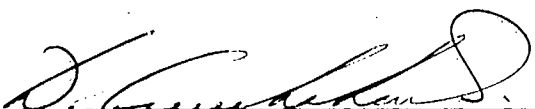
Replacement vessel size will be restricted to that of the existing vessel by means of a new, more precise, measurement system based on the product of length, breadth and width, to be identified as Canadian Fishing Vessel Tons or C.F.V.T. See pages 74 to 95.

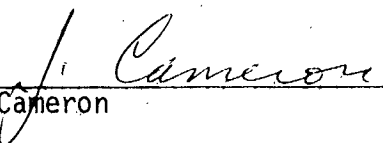
5. What administration arrangement should be put in place in order to implement recommendations?

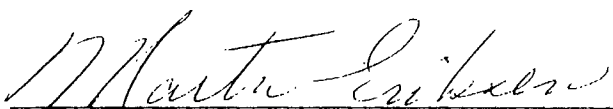
For every recommendation made, the administrative arrangements were incorporated into the recommendation, as for example:

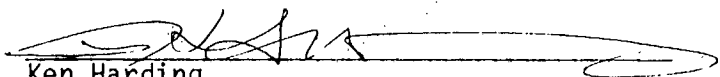
- for the collection of royalties, a coordinated audit procedure uniting U.I.C. and W.C.B. with the Department of Fisheries and Oceans
- for the reduction of the roe-herring fleet, a transfer of the roe-herring personal license to a vessel license.
- for the determination of royalty fees, an economic model is used to relate production forecasts and fleet size to fishermen's earnings.

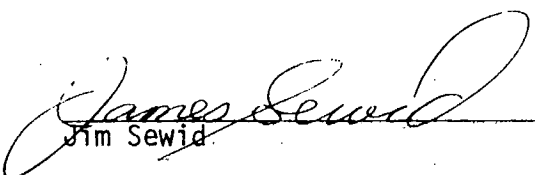
All of which is respectfully submitted.



D. Cruickshank,
Chairman

Jim Cameron

Martin Eriksen

Ken Harding

Jim Sewid

REPORT TO FLEET RATIONALIZATION COMMITTEE

In June, 1982 we were retained by the Fleet Rationalization Committee to conduct a survey of West Coast fishermen's incomes and expenses, including income taxes, resulting from their participation in the 1981 fisheries. This information was to be provided by selected public accountants on the understanding that the identity of the practitioner and his fishermen-clients would be kept strictly confidential and would be used solely to provide the Committee with representative data (heretofore unavailable) with which to assess the impact of program alternatives. Such confidentiality has been adhered to throughout the course of our assignment.

The survey included fishermen's financial and tax data for all gear types and, although not a statistically supportable sample, the results are believed to be reasonably representative of industry-wide results for 1981. The sample represents approximately 10% and is summarized as follows:

<u>Gear Type</u>	<u>No. Vessels</u>	<u>Gross Income (000's)</u>
Troll	124	\$ 3,956
Gillnet	47	1,055
Combination vessels	135	6,731
Seine - salmon only	17	2,385
- salmon and herring	<u>65</u>	<u>10,370</u>
	388	\$24,497
	<u>=====</u>	<u>=====</u>

On receipt, we entered this data to a microcomputer, enabling us to categorize this information by gear type and to further stratify the data based on gross fishing income to show the total and average results for the top 25%, medium 50% and low 25% of producers by gear types. The summarized results of this compilation are shown in Table 1.

We were also requested to estimate the increase in total income taxes payable by fishermen resulting from projected future increases in net fishing income accruing to a reduced fleet. Our calculations are set forth in Table 2 and are based on income projections provided in the E.S.S.A. economic model. In determining the 1981 base year net incomes, reference has been made to the survey results set forth in Table 1, but inasmuch as data from other sources and different assumptions are used, the 1981 net income data in Tables 1 and 2 are not strictly comparable.

In undertaking this survey, we have merely compiled data supplied by other public accountants pursuant to our instructions. We accept no responsibility for the accuracy or reliability of the data included in the survey, nor for any conclusions which may be drawn therefrom. In reviewing Tables 1 and 2, the Committee and other readers must recognize the limitation of this information as being representative of the actual 1981 results and indicative of the future, particularly in such a vagarious industry.

Respectively submitted,

Thorne Riddell

November 15, 1982

TABLE 1

SURVEY OF 1981 FISHING INCOME, EXPENSES AND INCOME TAXES PAYABLE

	High 25%		Medium 50%		Low 25%			Total
	Total	Per vessel	Total	Per vessel	Total	Per vessel	Total	per vessel
<u>TROLL</u>	(31 vessels)		(62 vessels)		(31 vessels)		(124 vessels)	
Gross fishing income	\$1,762,253	\$56,847	\$1,775,009	\$28,629	\$419,620	\$13,536	\$3,956,882	\$31,910
Expenses								
Boat operating	687,754	22,186	936,026	15,097	251,355	8,108	1,875,135	15,122
Crews' shares/wages	174,140	5,617	142,005	2,290	17,108	552	333,253	2,688
Interest	280,126	9,036	264,675	4,269	54,551	1,760	599,352	4,833
	<u>1,142,020</u>	<u>36,839</u>	<u>1,342,706</u>	<u>21,656</u>	<u>323,014</u>	<u>10,420</u>	<u>2,807,740</u>	<u>22,643</u>
Net fishing income (excluding depreciation)	620,233	20,008	432,303	6,973	96,606	3,116	1,149,142	9,267
Other non-fish related income/ deductions for tax purposes (net)	(372,364)	(12,012)	(74,309)	(1,198)	51,378	1,657	(395,295)	(3,188)
Taxable income	<u>\$ 247,869</u>	<u>\$ 7,996</u>	<u>\$ 357,994</u>	<u>\$ 5,775</u>	<u>\$147,984</u>	<u>\$ 4,773</u>	<u>\$ 753,847</u>	<u>\$ 6,079</u>
Income taxes payable	<u>\$ 82,657</u>	<u>\$ 2,666</u>	<u>\$ 74,338</u>	<u>\$ 1,199</u>	<u>\$ 35,549</u>	<u>\$ 1,147</u>	<u>\$ 192,544</u>	<u>\$ 1,553</u>
<u>GILLNET</u>	(12 vessels)		(23 vessels)		(12 vessels)		(47 vessels)	
Gross fishing income	\$ 497,431	\$41,453	\$ 467,585	\$20,330	\$ 89,510	\$ 7,459	\$1,054,526	\$22,437
Expenses								
Boat operating	193,334	16,111	260,613	11,331	66,967	5,581	520,914	11,083
Crews' shares/wages	47,410	3,951	11,071	481	3,148	262	61,629	1,311
Interest	47,017	3,918	22,972	999	9,092	758	79,081	1,683
	<u>287,761</u>	<u>23,980</u>	<u>294,656</u>	<u>12,811</u>	<u>79,207</u>	<u>6,601</u>	<u>661,624</u>	<u>14,077</u>
Net fishing income (excluding depreciation)	209,670	17,473	172,929	7,519	10,303	858	392,902	8,360
Other non-fish related income/ deductions for tax purposes (net)	30,226	2,518	28,348	1,232	55,964	4,664	114,538	2,437
Taxable income	<u>\$ 239,896</u>	<u>\$19,991</u>	<u>\$ 201,277</u>	<u>\$ 8,751</u>	<u>\$ 66,267</u>	<u>\$ 5,522</u>	<u>\$ 507,440</u>	<u>\$10,797</u>
Income taxes payable	<u>\$ 72,124</u>	<u>\$ 6,010</u>	<u>\$ 44,861</u>	<u>\$ 1,950</u>	<u>\$ 13,388</u>	<u>\$ 1,116</u>	<u>\$ 130,373</u>	<u>\$ 2,774</u>

	High 25%		Medium 50%		Low 25%			Total
	Total	Per vessel	Total	Per vessel	Total	Per vessel	Total	per vessel
COMBINATION VESSELS	(35 vessels)		(65 vessels)		(35 vessels)		(135 vessels)	
Gross fishing income	\$2,967,283	\$84,780	\$3,029,820	\$46,613	\$734,047	\$20,973	\$6,731,150	\$49,860
Expenses								
Boat operating	1,046,258	29,893	1,197,390	18,421	427,732	12,221	2,671,380	19,788
Crews' shares/wages	486,477	13,899	314,176	4,833	44,744	1,278	845,397	6,262
Interest	615,216	17,578	325,280	5,004	197,934	5,655	1,138,430	8,433
	<u>2,147,951</u>	<u>61,370</u>	<u>1,836,846</u>	<u>28,258</u>	<u>670,410</u>	<u>19,154</u>	<u>4,655,207</u>	<u>34,483</u>
Net fishing income (excluding depreciation)	819,332	23,410	1,192,974	18,355	63,637	1,819	2,075,943	15,377
Other non-fish related income/ deductions for tax purposes (net)	(336,467)	(9,614)	(339,940)	(5,230)	33,925	969	(642,482)	(4,760)
Taxable income	<u>\$ 482,865</u>	<u>\$13,796</u>	<u>\$ 853,034</u>	<u>\$13,125</u>	<u>\$ 97,562</u>	<u>\$ 2,788</u>	<u>\$1,433,461</u>	<u>\$10,617</u>
Income taxes payable	<u>\$ 104,786</u>	<u>\$ 2,994</u>	<u>\$ 181,349</u>	<u>\$ 2,790</u>	<u>\$ 36,703</u>	<u>\$ 1,049</u>	<u>\$ 322,838</u>	<u>\$ 2,391</u>
SALMON SEINE - with herring	(15 vessels)		(35 vessels)		(15 vessels)		(65 vessels)	
Income								
Boat and net share	\$3,269,021	\$217,935	\$3,857,514	\$110,215	\$ 740,283	\$ 49,352	\$7,866,818	\$121,028
Other fishing - related income	7,474	498	10,762	307	42,671	2,845	60,907	937
	<u>3,276,495</u>	<u>218,433</u>	<u>3,868,276</u>	<u>110,522</u>	<u>782,954</u>	<u>52,197</u>	<u>7,927,725</u>	<u>121,965</u>
Expenses								
Boat operating	947,037	63,136	1,358,438	38,813	448,552	29,903	2,754,027	42,370
Administration	191,925	12,795	332,489	9,500	48,075	3,205	572,489	8,808
Interest	656,864	43,791	868,154	24,804	351,444	23,430	1,876,462	28,869
Salaries (other than crew share)	101,003	6,734	80,479	2,299	-	-	181,482	2,792
	<u>1,896,829</u>	<u>126,456</u>	<u>2,639,560</u>	<u>75,416</u>	<u>848,071</u>	<u>56,538</u>	<u>5,384,460</u>	<u>82,839</u>
Net fishing income (excluding depreciation)	1,379,666	91,977	1,228,716	35,106	(65,117)	(4,341)	2,543,265	39,126
Other non-fish related income/ deduction for tax purposes (net)	(655,197)	(43,679)	(711,702)	(20,334)	(93,589)	(6,239)	(1,460,488)	(22,469)
Taxable income (loss)	<u>\$ 724,469</u>	<u>\$ 48,298</u>	<u>\$ 517,014</u>	<u>\$ 14,772</u>	<u>\$(158,706)</u>	<u>\$(10,580)</u>	<u>\$1,082,777</u>	<u>\$16,657</u>
Income taxes payable (recoverable)	<u>\$ 166,628</u>	<u>\$ 11,109</u>	<u>\$ 118,913</u>	<u>\$ 3,398</u>	<u>\$ (36,502)</u>	<u>\$ (2,433)</u>	<u>\$ 249,039</u>	<u>\$ 3,831</u>

Table 1
(continued)

	High 25%		Medium 50%		Low 25%			Total
	Total	Per vessel	Total	Per vessel	Total	Per vessel	Total	per vessel
<u>SALMON SEINE - no herring</u>	(4 vessels)		(9 vessels)		(4 vessels)		(17 vessels)	
Income								
Boat and net share	\$ 547,772	\$136,943	\$ 708,970	\$ 78,774	\$ 209,359	\$ 52,340	\$1,466,101	\$86,241
Other fishing - related income	62,612	15,653	6,997	777	19,638	4,910	89,247	5,250
	<u>610,384</u>	<u>152,596</u>	<u>715,967</u>	<u>79,551</u>	<u>228,997</u>	<u>57,250</u>	<u>1,555,348</u>	<u>91,491</u>
Expenses								
Boat operating	144,689	36,173	226,132	25,126	90,905	22,726	461,726	27,160
Administration	67,725	16,931	34,424	3,825	15,588	3,897	117,737	6,926
Interest	86,997	21,749	145,674	16,186	109,673	27,418	342,344	20,138
Salaries (other than crew share)	279,047	69,762	-	-	76,075	19,019	355,122	20,890
	<u>578,458</u>	<u>144,615</u>	<u>406,230</u>	<u>45,137</u>	<u>292,241</u>	<u>73,060</u>	<u>1,276,929</u>	<u>75,114</u>
Net fishing income (excluding depreciation)	31,926	7,981	309,737	34,414	(63,244)	(15,810)	278,419	16,377
Other non-fish related income/ deduction for tax purposes (net)	(65,885)	(16,471)	(139,135)	(15,459)	(180,221)	(45,055)	(385,241)	(22,661)
Taxable income (loss)	<u>\$ (33,959)</u>	<u>\$ (8,490)</u>	<u>\$ 170,602</u>	<u>\$ 18,955</u>	<u>\$(243,465)</u>	<u>\$(60,865)</u>	<u>\$ (106,822)</u>	<u>\$(6,284)</u>
Income taxes payable (recoverable)	<u>\$ (7,811)</u>	<u>\$ (1,953)</u>	<u>\$ 39,238</u>	<u>\$ 4,360</u>	<u>\$ (55,997)</u>	<u>\$ (13,999)</u>	<u>\$ (24,570)</u>	<u>\$(1,445)</u>

Note

The survey data is subject to the following limitations:

1. The troll/gillnet fleet generally comprises individuals, whereas the corporate form of organization is predominant for seiners. Some distortion of the troll/gillnet results may result from:
 - (a) In reporting results and computing income taxes, the cash basis of accounting is permitted; and
 - (b) Income taxes payable are those actually paid and may bear little relationship to taxable income by reason of the use of fishermen's block averaging or general averaging, the application of prior years' losses to reduce 1981 income otherwise subject to tax, and significant deductions available to some fishermen through accelerated capital cost allowances, investment tax credits, etc.
2. For seine vessels, the information from fishing settlements was not always available and accordingly, only the boat and net share of income (excluding crew shares) are reported. Furthermore, in determining income taxes for the seiners, all of which were incorporated, we have applied the "small business" corporate rate of 23% for 1981 to the reported taxable income to avoid some of the distortion described in 1(b) above.
3. Depreciation of vessels and equipment has not been reflected as an expense in order to provide net cash income which is presumed to be more meaningful.
4. Interest expense generally reflects the amount paid to the fisherman's banker. Recent experience has resulted in extensive deferral or capitalization of fishermen's loan interest and accordingly the reported interest expense may be significantly understated.

TABLE 2

IMPACT ON INCOME TAXES FROM PROJECTED INCREASES IN INCOMES

	<u>Average per Vessel</u>				<u>Total</u>
	<u>Salmon Seine With Herring</u>	<u>Salmon Seine No Herring</u>	<u>Salmon - Other With Herring</u>	<u>Salmon - Other No Herring</u>	
<u>1981</u>					
Average net income (loss)	\$(36,671)	\$(21,229)	\$ 5,582	\$ 2,029	\$(50,289)
Income taxes payable	\$ (8,709)	\$ (5,042)	\$ 134	-	\$(13,617)
<u>1994</u>					
Projected average net income	\$ 94,790	\$ 71,112	\$ 19,799	\$17,249	\$202,950
Projected income taxes payable	\$ 21,802	\$ 16,356	\$ 3,971	\$ 3,201	\$ 45,330
<u>Increase in Annual Income Taxes of Total Fleet - 1981 to 1994</u>	<u>\$4,916,000</u>	<u>\$5,841,000</u>	<u>\$3,772,000</u>	<u>\$8,582,000</u>	<u>\$23,111,000</u>

Assumptions

1. 1981 and projected 1994 net incomes by category are those determined in the E.S.S.A. model.

2. Income tax rates:

For salmon seine categories, corporate rates (active business, small business deduction) of 23.75% for 1981 and 23% (1982 rate) for 1994 are applied to net incomes as use of corporations is predominant.

For troll and gillnet vessels included in "Salmon - Other", individual rates for 1981 and 1982 are applied to 1981 and projected 1994 net incomes, after deduction of personal exemptions (single status plus \$100 standard deduction).

3. Number of vessels in the fleet:

	<u>1981</u>	<u>1994</u>
Salmon Seine with herring	204	144
Salmon Seine, no herring	328	256
Salmon - other, with herring	1,309	994
Salmon - other, no herring	<u>2,866</u>	<u>2,681</u>
	<u>4,707</u>	<u>4,075</u>

APPENDIX B



**ENVIRONMENTAL AND SOCIAL
SYSTEMS ANALYSTS LTD.**

678 West Broadway, Vancouver, B.C. Canada V5Z 1G6
(604) 872-0691

November 15, 1982

Don Cruickshank
Department of Fisheries & Oceans
11th Floor - 1090 West Pender Street
Vancouver, B.C.

Dear Don:

I am pleased to submit to the Fleet Rationalization Committee our report titled "Fleet Rationalization Economic Model". The report describes the model's conceptual structure as developed at the workshops, and presents some example model outputs.

If you have any questions, please do not hesitate to contact me. Thank you.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'N. C. Sonntag'. The signature is fluid and cursive, with the last name 'Sonntag' being more prominent.

Nicholas C. Sonntag,
Senior Partner

NCS/jz
encl.

FLEET RATIONALIZATION ECONOMIC MODEL

Design of appropriate strategies for resource management is a trial and error process. Through experimentation, the design process usually converges to an acceptable range of options that can be further evaluated for eventual implementation. Computer simulation modelling is often used to aid in the design process. A model can account for the complexity of interactions between components of a system and help to quickly delineate between acceptable and unacceptable options, thereby providing direction to policy development.

Recognizing the utility of simulation modelling, the Canada Department of Fisheries and Oceans (DFO) contracted ESSA Environmental and Social Systems Analysts Ltd. to develop an economic simulation model of fleet rationalization. The main objectives of this modelling effort are reviewed in Chapter II.

The model was developed and evaluated at two workshops; the first held October 28 - 29, 1982, and the second on November 9, 1982 (attendees at the workshops are listed in Table 1). The model runs on an Apple II microcomputer and is designed to facilitate interactive gaming.

The model is described in enough detail in the following pages to give the reader a clear understanding of the model's conceptual structure. However, the description does not include all the numerical and algebraic detail required to operate the model.

1. Overview

The simulation model predicts the consequences of changes in:

Table 1: Workshop Attendees. The starred attendees were present at both workshops.

<u>NAME</u>	<u>AFFILIATION</u>
Alan Archibald	DPA Ltd.
Gordon Bisaro*	Fleet Rationalization Committee
Tony Charles	DFO - Salmon Assessment
Don Cruickshank*	Fleet Rationalization Committee
Heather Fletcher	DFO - Salmon Enhancement Program
Bud Graham	DFO - Pearse Response Team
Richard Jacobson	DFO - Economic Research
Paul MacGillivray	DFO - Statistics and Economics
David Marmorek*	ESSA Ltd.
Peter McNamee*	ESSA Ltd.
David Reid	DFO - Statistics and Economics
Nicholas Sonntag*	ESSA Ltd.
Al Wood	DFO - Planning
Steven Wright	DFO - Salmon Enhancement Program
Fred Yeung	DFO - Pearse Response Team

- the number of licensed vessels;
- fish production; and
- royalties on landings

on:

- vessel net income;
- costs to government; and
- revenues to government.

The model contains three major parts:

- fish production;
- vessels; and
- economics.

The model is designed to make predictions of various economic indicators annually over a 30 year period, starting in 1981.

2. Fish Production

All salmon stocks are aggregated into a single unit of production, measured as dollar value. Variability in production as a function of habitat changes, ocean survival, etc. was not considered. Four components contribute to the overall production: natural, SEP I, SEP II, and increased catch as a consequence of a treaty with the United States.

Natural production is calculated iteratively each year starting from:

1. an estimate of the current (1981) standing stock ($\$260 \times 10^6$);
2. an average natural productivity (50% per year); and
3. an average harvest rate (33% per year).

The harvest rate is dropped to 28% for years 1983 to 1986 inclusive to reflect proposed rehabilitation of the natural stocks. These productivity and harvest rates will maintain the natural stocks in equilibrium, except in years 1983 to 1986 when they will increase by 8% each year.

Production from SEP I, SEP II and the Canada/U.S. treaty is represented as total dollar value of salmon available. All production from these sources is caught. The assumed starting dates for available production from each component and the timing and magnitude of maximum production are summarized in Table 2.

Roe herring is represented as the total dollar value caught by the herring fleets. This is set at $\$30 \times 10^6$ in 1981 and increases at $\$0.60 \times 10^6$ per year for five years starting the year after the buy-back (described later). The increase is intended to account for access to a currently unexploited herring stock after the buy-back has been implemented.

3. Vessels

Two gear classes are represented in the model - seine (SS) and non-seine (SO) (i.e. trollers, gillnetters, etc.). Each of these gear classes are further divided into those that fish for salmon and herring, (SSWH, SOWH), and those that only fish for salmon, (SSNH, SONH). The numbers of vessels in each of these four gear classes (referred to as fleets for the remainder of this model description) are reduced in 1983 according to the buy-back scheme described in this document and summarized in Table 3.

Table 2: Timing and production levels for each of SEP I, SEP II, and Canada/U.S. agreement as structured in model. The level of production increases gradually between the initial and final years.

	INITIAL YEAR PRODUCTION AVAILABLE	MAXIMUM PRODUCTION YEAR	MAXIMUM PRODUCTION
SEP I	1981	1991	$\$45 \times 10^6$
SEP II	1989	1999	$\$45 \times 10^6$
Canada/U.S.	1990	2000	$\$20 \times 10^6$

Table 3: Number of vessels in each fleet and their percent catch of total production. The change in boat numbers is the total change as a result of the proposed buy-back scheme in 1984 and an additional 40 vessels which shift from SSWH to SSNH between 1985 and 1989.

	# OF VESSELS 1981	% OF SALMON PRODUCTION	% OF HERRING PRODUCTION	# OF VESSELS AFTER 1989	% OF SALMON PRODUCTION	% OF HERRING PRODUCTION
SSWH	204	15	55	104	12.9	55
SSNH	328	25	--	296	23.6	--
SOWH	1309	20	45	994	18.0	45
SONH	2704	40	--	2514	45.5	--

The allocation of total salmon production to each fleet (Table 3) is structured to ensure that vessels within each fleet after buy-back receive an equitable increase in catch. Production freed up by fleet reduction and from the enhancement projects is reallocated to ensure that each vessel is given an equitable increased share of the total available production. Allocation of herring production remains at the initial proportions throughout the simulation.

4. Economics

The economics component of the model consists of two major parts - the income and costs for the average vessel in each of the four fleets, and government costs and revenues.

a. Vessel Economics

The net income to a vessel is calculated as follows:

Net income = gross income - royalties - crew share - interest payments - fixed costs
- other operating costs.

Each of these cost components is described below.

Gross Income

The gross income to each vessel is the dollar catch value allocated to each fleet divided by the number of vessels in that fleet in any given year.

Royalties

Royalties are paid annually to the government according to a fixed schedule

expressed as a percent of the gross income (i.e. landed value) (Table in Chapter II).

Crew Share

Crew share is structured as a percent of the remaining income after the royalty deduction (Table 4).

Interest Payments

The interest payments are calculated as 15% of 50% of the total boat plus license value for each vessel type (Table 5). This assumes a debt/equity ratio of 50% within all four fleets.

Fixed Costs

Fixed costs are calculated as 4% of the boat value per year (Table 5), assuming a vessel replacement frequency of 25 years for all four fleets.

Operating Costs

Operating costs (i.e. fuel, food, maintenance, gear and license fee) are assumed constant (Table 5). (The proposed reduction in fleet size would probably not result in an appreciable increase in operating costs.)

A certain proportion of any positive net income is assumed reinvested as increased vessel capitalization. This rate of increased capitalization is inversely proportional to the ratio:

Table 4: Percent of gross income minus royalties that is destined for crew share.

	SALMON	HERRING
SSWH	58	58
SSNH	58	--
SOWH	5	30
SONH	5	--

Table 5: Initial (1981) boat values, license values, interest payments, fixed costs and operating costs per vessel per year.

	BOAT VALUE	LICENSE VALUE	INTEREST COSTS	FIXED COSTS	OPERATING COSTS
SSWH	\$550,000	\$200,000	\$57,000	\$30,000	\$52,000
SSNH	\$250,000	\$100,000	\$27,000	\$14,000	\$32,000
SOWH	\$ 60,000	\$ 25,000	\$ 6,900	\$ 3,600	\$15,000
SONH	\$ 60,000	\$ 15,000	\$ 5,800	\$ 3,000	\$11,500

$$\frac{\text{total royalties paid in any given year}}{\text{net income that year plus the total royalties}}$$

The reinvestment rate is 30% per year for a ratio of zero (i.e. no royalties), decreasing linearly to 0% per year for a ratio approaching 1 (net income just above zero). Increased capitalization is accumulated in the boat value which, in turn, modifies interest payments and fixed costs.

Note. The assumption that a positive net income would result in increased boat capitalization was a consequence of documented behavior of salmon fishermen during the 1970s. Given some of the proposed restrictions on vessel capitalization, this income, in the future, may more likely go towards repaying the boat's current debt, or increasing the crew share. This is, of course, up the individual boat owner. From the perspective of the model, though, the destination of positive net income makes little difference to the overall rationalization of the fleet structure. Consequently, no effort was made to model how this income might alternatively be used.

b. Government Economics

Government costs and revenues are calculated annually.

Costs

The simulated costs to government accrue from:

- the costs of the vessel buy-back in 1984; and
- the capital and/or operating costs of SEP I and SEP II.

The cost to buy a vessel in any given fleet is the boat plus license value (see Table 5). The total cost of the 1984 buy-back is the per vessel cost times the number of vessels purchased from each fleet, totalled across the four fleets.

Capital costs are associated with SEP II only. Between the years 1985 and 1992, the capital costs are set at $\$30 \times 10^6$ per year for a total of $\$210 \times 10^6$. Operating costs are set at $\$20 \times 10^6$ per year for SEP I and are at that level starting in 1981. The operating costs for SEP II are assumed to increase linearly from 0 to $\$20 \times 10^6$ during the seven year construction period.

The model accumulates all the costs at a preset discount rate (10%).

Revenues

The primary source of government revenues are the royalties taken as a percent of the landed value of salmon and roe herring across all fleets (described earlier). Additional sources of government revenue are:

- contributions from the sports fishery (0 in 1981, $\$1.7 \times 10^6$ in 1982, $\$4 \times 10^6$ per year after 1982);
- commercial license fees ($\$.5 \times 10^6$ per year);
- a non-recoverable portion of the SEP I and SEP II capital and/or operating costs (50% of annual costs each year);

- a government grant in 1984 to help finance the proposed buy-back (\$66.5 x 10⁶ in 1984 dollars).

The model accumulates the revenues at a preset discount rate (10%).

5. Results

At the workshops, the functional rules that mathematically describe the ideas discussed in the previous sections were programmed, and structured as part of the complete model. To evaluate any particular fleet size/royalty scenario, the appropriate actions were implemented in the model and thirty year projections made of various economic indicators. These indicators provided the information required to evaluate the scenario and thereby suggest possible alternate scenarios. In this way, the workshop participants converged to a common understanding of the implications of various strategies.

It is not feasible to summarize all the scenarios tried at the workshops in this document. Our intent is to demonstrate the model rather than report a complete analysis. We have therefore selected a few key indicators from three scenarios.

- Scenario 1 (standard run). This scenario captures most of the recommendations described in this document and follows from the previous model description.
- Scenario 2. Same as Scenario 1 except the non-recoverable costs of SEP I and SEP II are set at 33%.

- Scenario 3. A "no change" scenario; one that simulates present (1981) conditions for 30 years.

- no drop in harvest rate 1982 - 1986
- no SEP II
- no Canada/U.S. agreement
- herring catch is constant at 30×10^6
- no buy-back (and therefore no grant)
- license fees at 1.5×10^6
- no royalties
- none of the SEP I costs are recoverable

a. Scenario 1

The recommendations proposed in this document provide for balanced government revenues and costs (Figure 1), both discounted at 10%. The initial higher cost comes from the buy-back costs in 1984, while royalty revenues and the non-recoverable portion of the SEP costs enable the revenues to "catch up" to costs by about year 2000.

Salmon production (Figure 2) is enhanced considerably by the initial rehabilitation of natural production and the added production from SEP I, SEP II and the Canada/U.S. agreement.

Fleet structure changes (Figures 3, 4) occur primarily as a result of the buy-back in 1984. The seine fleet undergoes a further shift in structure from 1985 to 1989, as 40 seiners with herring (SSWH) convert to seiners without herring (SSNH) over this period.

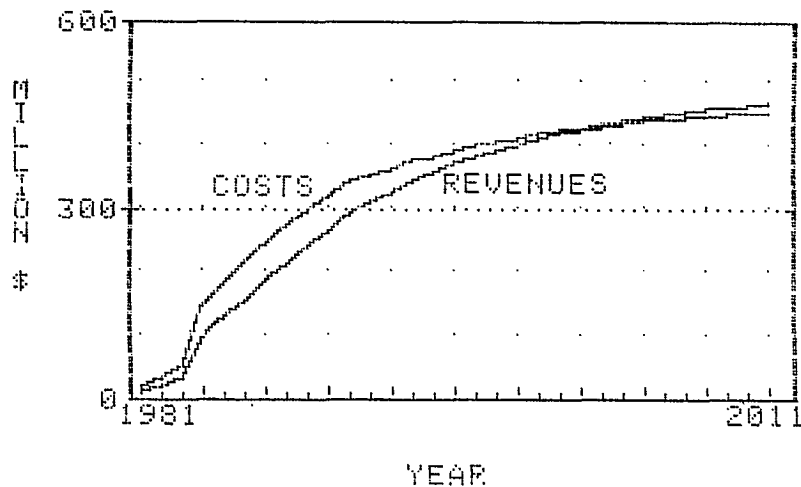


Figure 1: Scenario 1: Cumulative government revenues and costs, discounted at 10% per year.

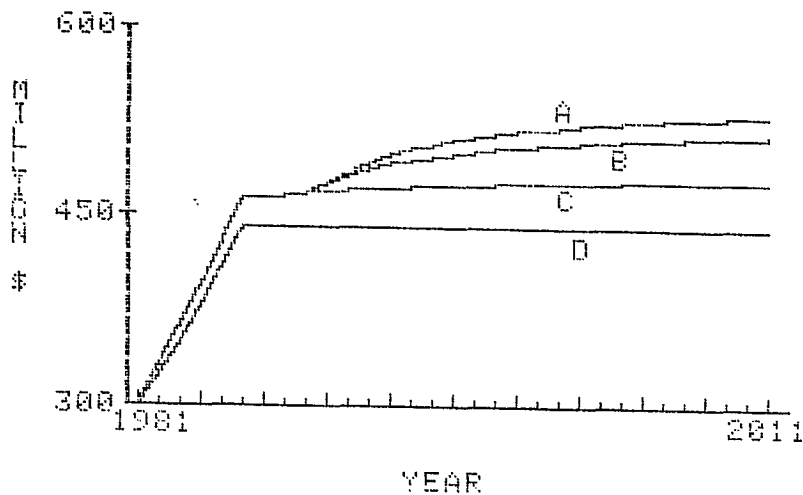


Figure 2: Scenario 1: Salmon production. A. Total production; B. Total less production from Canada/U.S. agreement; C. B less SEP II production; D. C less SEP I production; this is natural production, $\frac{1}{2}$ of this is harvested annually. The initial increase in natural production is from rehabilitation via lowered harvest rates.

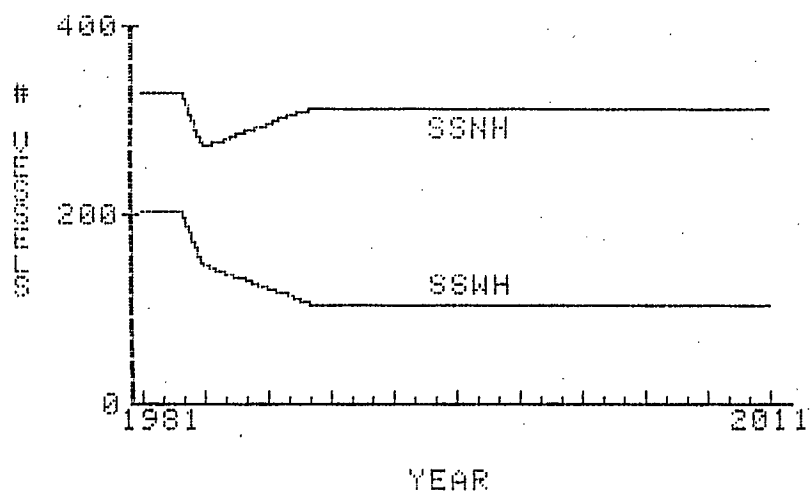


Figure 3: Scenario 1: Fleet sizes for salmon seine with herring (SSWH) and salmon seine without herring (SSNH).

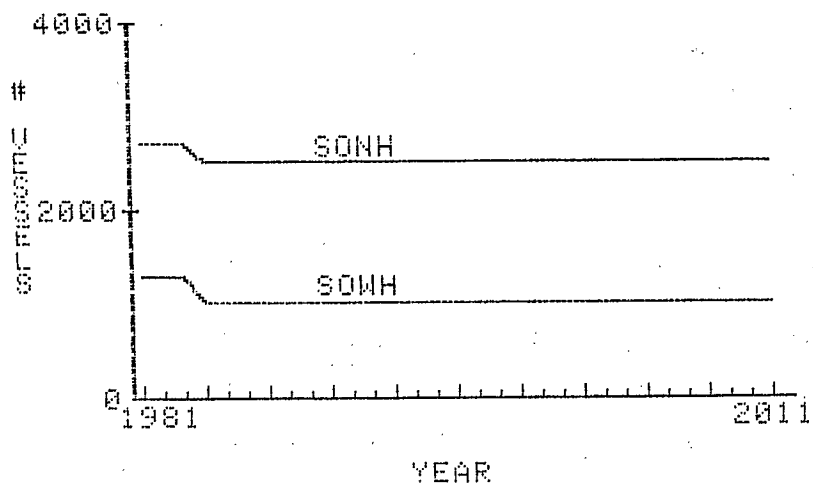


Figure 4: Scenario 1: Fleet sizes for other salmon vessels with herring (SOWH) and other salmon vessels without herring (SONH).

The net income picture for all four vessel types is similar (Figures 5, 6) with an initial depressed income, followed by a steep rise to a highly positive net income position, with a gradual decrease in net income over the latter 15 years. The initial depression is caused by the lowered harvest rate on the natural stocks between 1982 and 1986 and the large initial fleet sizes. The rapid rise in net income from 1983 to 1987 reflects the fleet reduction from the buy-back (Figures 3, 4), higher harvest rates on rehabilitated natural stocks (Figure 2), and increased roe herring catches for those vessels which make up the herring fleet. The decline in net income, in the face of increased salmon production (Figure 2), occurs because of recapitalization by the fishermen (Section 4). This is shown in the income breakdown for a single SSWH vessel in Figure 7 with increasing interest payments and fixed costs with increasing gross income.

Figure 8 shows the undiscounted government revenues and costs. The two are similar in pattern because of the \$66.5 million grant for the buy-back and the 50% non-recoverable costs for SEP I and SEP II. The bulk of the difference in the curves in the later years represents a positive net revenue situation.

b. Scenario 2

The major difference between Scenarios 1 and 2 appears in the discounted government revenues and costs (Figure 9). There is a final shortfall of approximately \$60 million with 33% of SEP costs non-recoverable. Fishermen incomes remain the same.

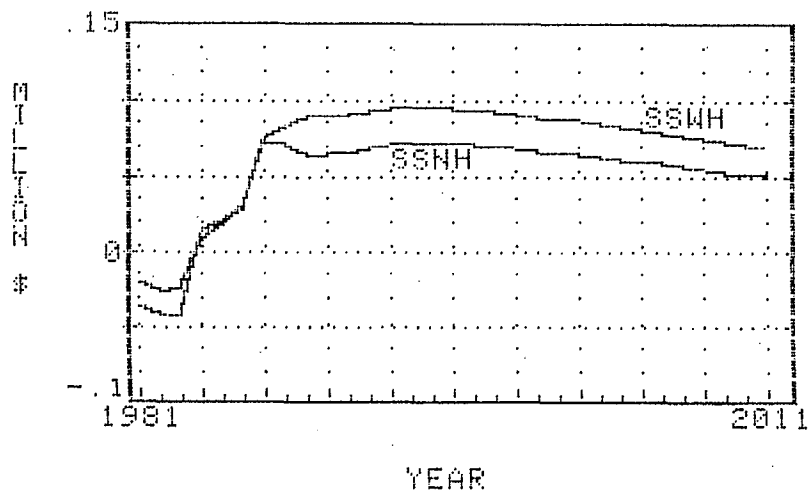


Figure 5: Scenario 1: Net incomes for SSWH and SSNH. 0 is the break even line.

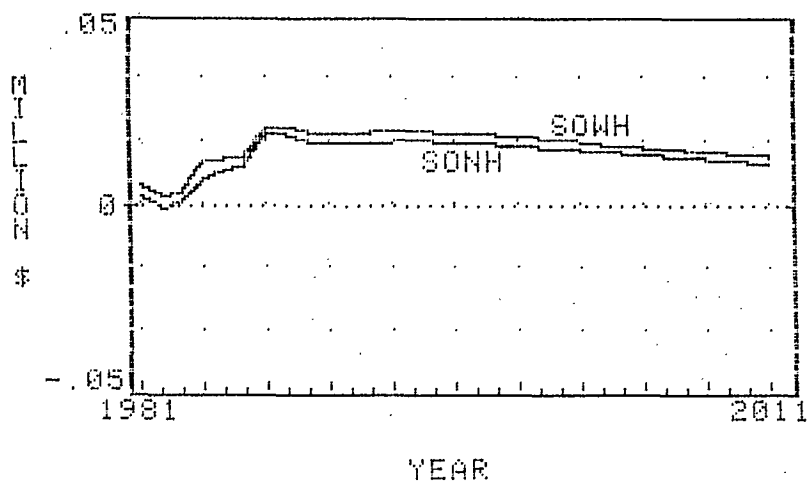


Figure 6: Scenario 1: Net incomes for SOWH and SONH. 0 is the break even line.

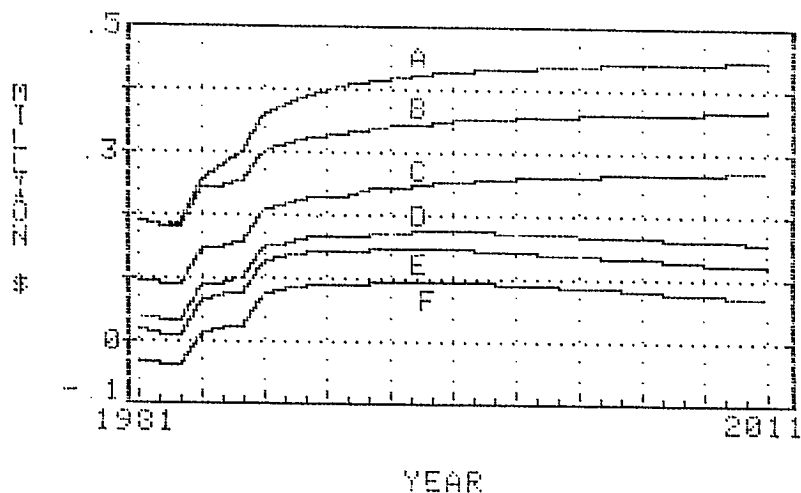


Figure 7: Scenario 1: Income picture for a single SSWH vessel. Each curve represents the curve immediately above it less a particular cost. A. Gross income, or landed value of salmon and herring catch; B. Effects of royalties; C. Effects of crew payments; D. Effects of interest payments on debt; E. Effects of fixed costs; F. Effects of other costs; this curve is the net income.

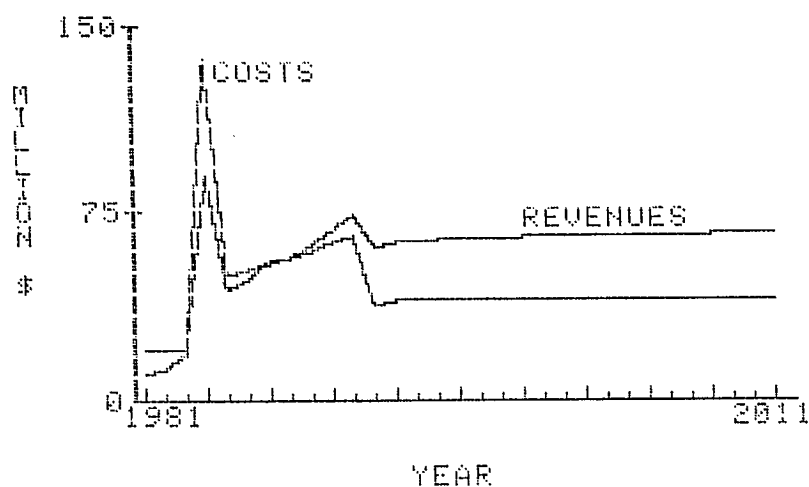


Figure 8: Scenario 1: Undiscounted government revenues and costs.

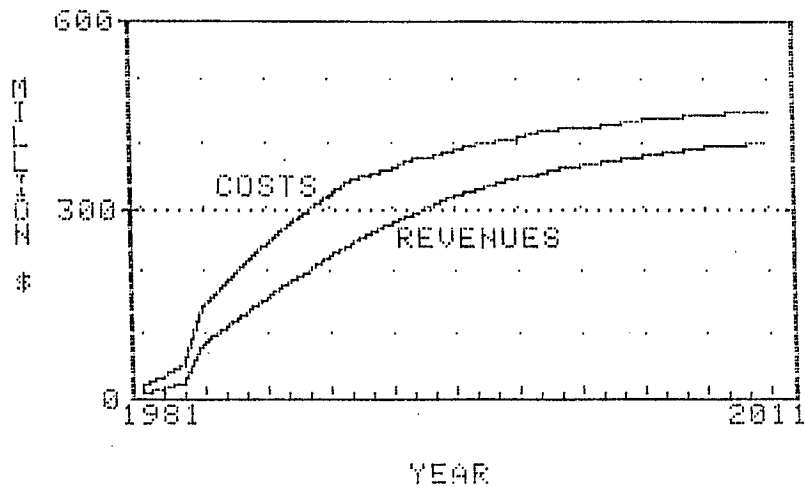


Figure 9: Scenario 2: Cumulative government revenues and costs, discounted at 10% per year.

c. Scenario 3 .

This scenario reflects a continuation of present (1981) conditions. Figure 10 shows discounted government revenues and costs. Both are lower than in the previous scenarios, but there is a final shortfall of about \$150 million. Costs are lower because buy-back and SEP II do not occur; revenues are lower because none of the SEP I costs are recoverable and there are no royalties paid by fishermen.

Total salmon production is much lower (Figure 11) because natural production is not allowed to rehabilitate and because SEP II and the Canada/U.S. treaty are not implemented.

The lower salmon production and maintenance of present fleet structure creates a poor income picture for all vessel types (Figures 12, 13). Seiners never gain a positive net income, while the other vessel types recapitalize their minimal positive net income.

The income picture for a single SSWH vessel (Figure 14) shows a minimal increase in gross income from the effects of SEP I. The high costs, however, of owning a SSWH vessel negate this increase.

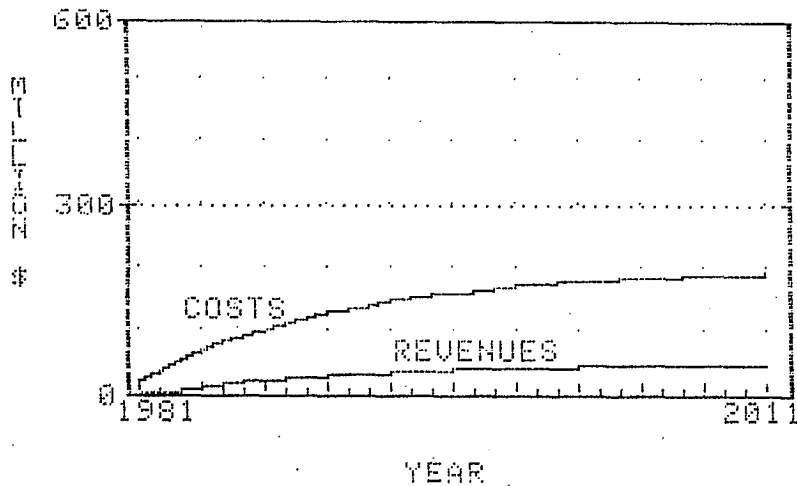


Figure 10: Scenario 3: Cumulative government revenues and costs, discounted at 10% per year.

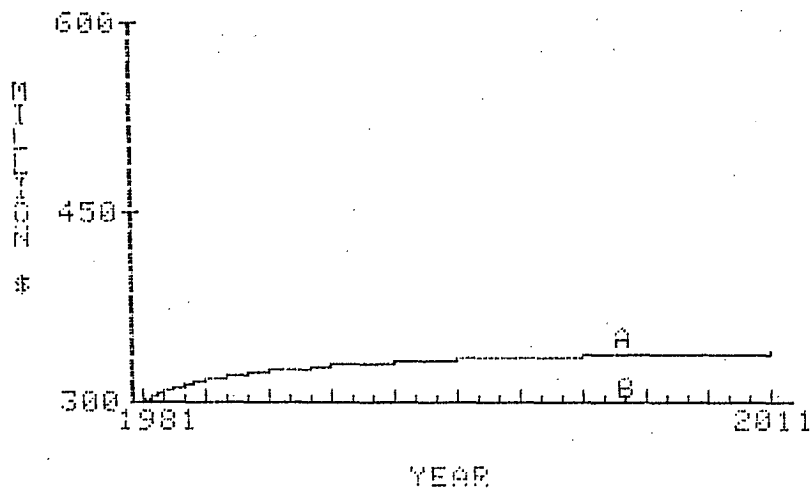


Figure 11: Scenario 3: Salmon production; A. Total production; B. Natural production (the curve follows the x-axis at \$300 million). SEP I contributes the difference between curves A and B.

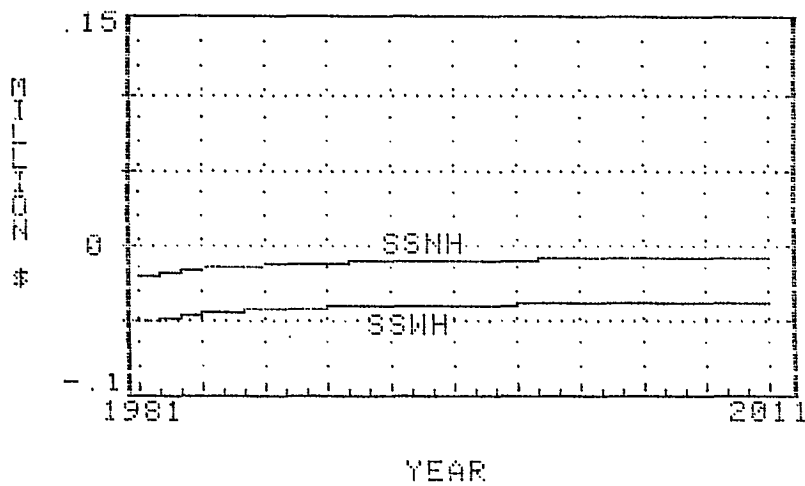


Figure 12: Scenario 3: Net incomes for SSWH and SSNH. 0 is the break even line.

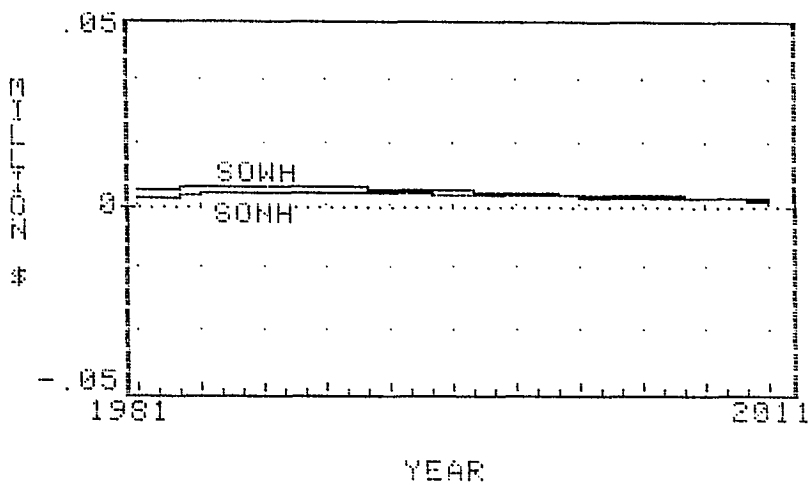


Figure 13: Scenario 3: Net incomes for SOWH and SONH. 0 is the break even line.

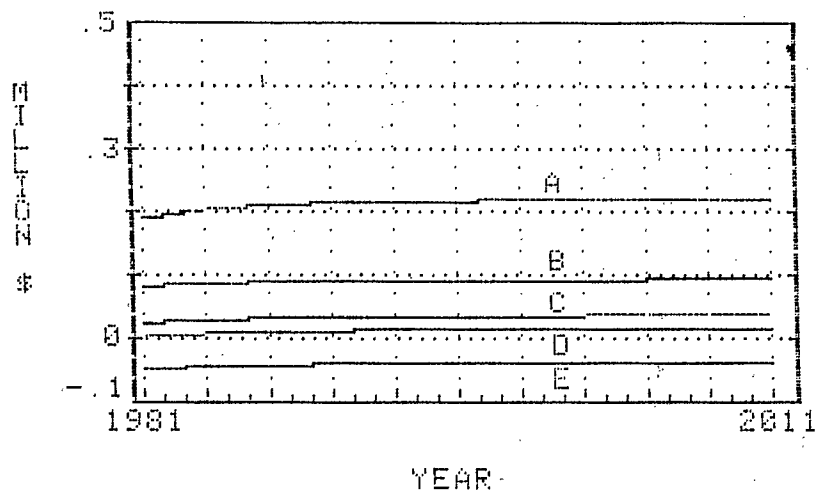


Figure 14: Scenario 3: Income picture for a single SSWH vessel. Each curve represents the curve immediately above it less a particular cost. A. Gross income, or landed value of salmon and herring; B. Effects of crew share; C. Effects of interest payments on debt; D. Effects of fixed costs; E. Effects of other costs; this curve is the net income.

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