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FOR THE PRESERVATION OF THE
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REGULATION AND INVESTIGATION OF THE PACIFIC HALIBUT FISHERY IN 1954

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FOREWORD

The 1953 Convention between the United States and Canada for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea provides that the International Pacific Halibut Commission, formerly designated the International Fisheries Commission, shall report upon its activities and investigations from time to time.

Twenty-one reports have been issued prior to the present one which is the eighth of a series of annual reports that were commenced in 1947 to provide a brief summary of the Commission's activities during the year.

Those desiring more extensive background material than included herein are referred to previous reports.

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By

INTERNATIONAL PACIFIC HALIBUT COMMISSION

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HISTORICAL BACKGROUND

The commercial fishery for halibut started off Cape Flattery, Washington in 1888 but the annual catch did not exceed 10 million pounds until the turn of the century. As catches from the older grounds declined there was a constant expansion northward by a growing fleet of large dory-fishing, company-owned steamers which dominated the fishery at that time.

By 1915 annual landings reached 69 million pounds and the fishery extended from Oregon to the Gulf of Alaska. By 1922 it had reached beyond Kodiak Island and by 1930 into Bering Sea.

The annual catch between 1912 and 1930 averaged 53 million pounds, being maintained at this general level by the expansion to new grounds and by the addition of many independently-owned, diesel vessels which by 1922 had replaced all but one of the company steamers.

The fishery was and is an international one. Over 90 per cent of the present annual catch is taken in extraterritorial waters. United States vessels fish alongside Canadian vessels off the coast of British Columbia and Canadian vessels fish in company with United States vessels in waters off Alaska. Trade treaties permit reciprocal port-use privileges for landing catches and many dealers operate in both countries through subsidiary organizations. The vessels employ identical fishing methods and the terms of engagement between union crews and vessel owners are the same in each fleet.

The industry in both countries soon recognized that ultimately there would be no new grounds to exploit and that the size of the individual catches which had declined from the outset of fishing would no longer be profitable. As early as 1913 remedial action was discussed and the British Columbia Government investigated the fishery in 1914 and 1915. Several abortive conservation plans were included in bills introduced into the Congress of the United States but not passed. A draft conservation treaty in 1919 between Canada and the United States was not ratified due to the inclusion of controversial provisions dealing with customs regulations and port-use privileges.

In consequence of the continued agitation of the industry in both countries, a new convention was drawn up in 1922 omitting the controversial items of the 1919 draft and making conservation the only consideration. This convention was signed on March 2, 1923 and, after further discussion, ratifications were exchanged October 21, 1924.

The 1923 convention established a three-month winter closed season which went into effect in November 1924. It provided for the appointment of the International Fisheries Commission with two members from each country, to investigate the fishery and to recommend measures for its preservation. Each country agreed to pay the expenses of its own members and one-half of the joint expenses of the Commission.

Intensive investigations were undertaken to determine the characteristics of the species; the condition of its stocks; the cause or causes of the decline in the fishery and the measures necessary to stop the decline. It was shown that the stocks of halibut were in an overfished low-yielding state and

that the statutory three-month winter closed season was not effective in stopping the decline.

Broader regulatory measures to stop the decline and to rebuild the fishery were recommended to the two governments in 1928. A new convention was signed May 9, 1930 and ratifications were exchanged May 9, 1931. This second convention provided that the Commission could change or suspend the closed season; divide the convention waters into areas and limit the catch of halibut to be taken from each; regulate the licensing and departure of vessels for purposes designated in the convention; collect statistics; fix the type of gear to be used; and, close grounds found to be populated by small immature halibut. Enforcement was made the responsibility of appropriate established agencies of the individual governments.

Under regulation which began in 1932 the fishery made a spectacular recovery. The stocks on some grounds almost doubled in size. Larger individual fares were made with one-half the fishing effort. The total annual catch allowed was increased from time to time by the Commission as much as the improvement of the stocks justified. The management principle followed to secure these results was to hold the catch from the stocks slightly below the additions being made by growth and new recruits.

The Commission's regulatory authority was extended during this period by a third convention, signed January 29, 1937, and ratified July 28, 1937. The provisions of the 1930 convention were continued but the new convention also provided for the control of the capture of halibut caught incidentally to fishing for other species in areas closed to halibut fishing and for prohibiting the departure of vessels for any area when those which had already departed would suffice to take the area's catch limit.

By 1940 a greatly increased fleet and much larger catches per trip had sharply reduced the length of the fishing season. There was evidence that the stocks of halibut on different grounds were not equally available at all times of year and there were indications that they were not being uniformly fished.

Investigations and field work were greatly curtailed during the war years. Regulatory duties were increasing and requiring a greater proportion of available funds. Appropriations were small and had not been increased to offset higher regulatory costs and the inflation of the war years. The staff was reduced to three or four persons.

Such investigations as could be conducted strengthened the belief that the shortening of the season was making it imposible for the Commission to provide effectively for the preservation of the halibut fishery as required by the 1937 convention.

After the end of World War II, in 1946, the Commission recommended to the governments treaty changes that would enable it to broaden the period over which halibut might be caught. In 1949 it proposed dividing the fishing season into two or more parts but the United States Government was of the opinion that the Commission lacked such authority under the then current 1937 convention.

Regulation of the fishery had reached a more complex stage. At the outset of regulation it was possible to manage the fishery by dividing the

coast into two very large areas that produced 98 per cent of the catch. Each of these areas was known to possess a number of relatively independent stocks which were all in about the same condition and in need of the same general treatment. The stock units were not equally available on all banks at any one time nor equally available on any one bank at all times but were all subjected to some fishing during the long fishing season.

With a shortened fishing season, the above situation was no longer true. Some stock units were being heavily fished and others neglected. The management problem had become one of many stocks each with its own distinctive problems. There was an urgent need for investigations to define the many stock units and to determine their condition and interrelationships. More flexible regulatory authority for dealing with the distribution of fishing was also required.

On the basis of the preliminary results of investigations, made possible by a modest increase in appropriations after 1947, two small underfished sections of Area 2 were established as separate areas in 1951, 1952 and 1953 for a short fishery at a time of year when historically they had yielded their best fishing. In 1952 and 1953 the underfished far-western portion of Area 3 and the Bering Sea were treated in a like manner. Practical considerations prevented application of such measures to other grounds with similar needs. From these experiments over the three years there was a net gain in yield of about 8,750,000 pounds with the Bering Sea contributing nearly one-half million pounds of the increase. This three-year net gain in yield was worth about $1,500,000 to the fishermen and 55 times the average annual increase provided in the appropriations between 1947 and 1953.

The present convention was signed March 2, 1953 and ratifications were exchanged October 28 of the same year. It contained important changes from the biological and regulatory standpoint, including the responsibility of attaining maximum sustained yield and the authority to establish one or more open or closed seasons each year in any area. Other changes were an increase in membership from four to six Commissioners, three from each country, and the renaming of the Commission as International Pacific Halibut Commission.

In 1954, by taking advantage of the terms of the new convention, provision was made for multiple open seasons and the total Pacific coast catch from all areas reached an all-time record of 71,400,000 pounds.

The 1954 catch was 27,000,000 pounds greater than the annual total in 1931, the year preceding regulation. At current dockside prices to the fishermen, the gain for this year alone was worth about $4,250,000. This is over twice the entire amount of money appropriated to the Commission by both countries during the 31 years of its existence.

When regulation began 23 years ago the catch was only 44 million pounds and a nine-month season of fishing was required to make the catch. Under the Commission's management there has been such a progressive improvement of the stocks that the present 71 million pound catch was taken in about two months of fishing.

The accumulated gain in production over the 1931 pre-regulation level

now totals nearly 250 million pounds of halibut, worth about $35,000,000 to the fleets at the average annual prices that prevailed during the period. In addition to this direct gain the reduced time required to take the increased catch has left the fleets and crews free to engage in other fisheries or other productive activities. This saving of effort has been worth at least an additional $25,000,000 to the fishermen.

The combined economic gain of about $60,000,000 has resulted from appropriations usable by the Commission of $1,850,000 by both countries combined during the entire 31 years of its existence. Canada and the United States have indeed enjoyed an extremely high investment return.

With the present all-time record catch the Commission is faced with the necessity of rigorously analyzing the effect of such large removals upon the stocks. Without knowledge of what is occurring within the rebuilt stocks damage could occur and not be detected for many years due to the advanced age at which halibut first appear in the commercial catches and the still more advanced age at which they first spawn.

The new halibut convention places a broader responsibility upon the Commission, namely, the attainment of the maximum sustained yield rather than the protection and conservation of the halibut as required in earlier conventions. Furthermore, under the International North Pacific Fishery Convention, Canada and the United States must demonstrate that the fishery is developed to and maintained at levels of maximum sustained productivity. To provide the Commission with knowledge required to carry out these mandates a minimum program of research and a request for the necessary additional funds were adopted by the Commission in 1954. The main features of the program and the financial status of the Commission are outlined in other sections of this report.

ACTIVITIES OF THE COMMISSION

In 1954 the Commission continued the statistical and biological investigations that have formed the basis for regulation and that serve as a guide for future management of the fishery.

The three members of the Commission from Canada in 1954 were: Mr. George R. Clark, Ottawa, elected Vice-Chairman of the Commission; Mr. Harold S. Helland, Prince Rupert and Mr. Richard Nelson, Vancouver, B.C. The three United States members were: Mr. Edward W. Allen, Seattle, elected Chairman of the Commission; Mr. J. W. Mendenhall of Ketchikan, Alaska and Mr. Seton H. Thompson, Washington, D.C.

The Commission held its regular annual meetings at its office in Seattle, Washington from January 25 through January 29. On January 25, the Commission procedures were reviewed and budget needs and staff problems discussed. On January 26, formal Rules of Procedure were developed and officers elected for the year following the meeting. In the afternoon the Members discussed the research findings with individual staff members.

On the morning of the third day, January 27, a joint meeting was held with representatives of the Pacific Coast halibut industry for a presentation of the results of investigations and a review of the 1953 fishery. In the after-

noon the research program for 1954 and draft of the annual report were approved. On January 28, the Commission separately conferred with halibut dealers and buyers, and with representatives of the vessel owners and fishermen to receive their respective recommendations for the regulation of the fishery in 1954.

On the last day, January 29, the Commission considered the industry's proposals in light of stock conditions and the prevailing fishery and adopted the regulations for 1954. A press release was issued summarizing the regulatory changes that were being recommended to the two governments for 1954.

PROGRAM OF RESEARCH

The Commission has long foreseen that a much broader and more intensive program of research and analysis of past data than heretofore possible would be necessary to meet now current and future regulatory needs under the changed conditions within the halibut stocks and in the fishery. Much more knowledge of the stocks and fishery would be required to develop the stocks to those levels which would permit the maximum sustained yield of halibut. The ratification of the 1953 halibut treaty with its broader objective and more effective powers made the adoption of such a program mandatory.

In 1954 the Commission approved a ten-year program and agreed that the investigations should be embarked upon as soon as the necessary funds could be secured. Canada forthwith implemented its approval by appropriation of the additional funds which would be required to put the program into effect in July 1954. The program could not be undertaken as the necessary matching funds were not provided by the United States.

Obtaining the maximum sustained yield from each halibut population will necessitate the solution of two complex interrelated biological problems: determination of the most profitable age at capture in order to obtain maximum yield from recruits; and, determination of the supply of matures required to provide optimum recruitment. Solution of these biological problems will require expansion of present lines of research and the undertaking of other projects not possible heretofore. Attainment of maximum sustained yield will also involve equally difficult practical problems of obtaining the proper amount and distribution of fishing.

Some of the major projects in the Commission's research program are as follows.

Statistics of Yield and of Stock Size

Several types of statistics are necessary for the current regulation of the fishery, for evaluating of the effects of past regulation and for determining the proper course of future regulation. Accurate and complete statistics of the fishery are required for studying the dynamics of the halibut stocks and for determining and recognizing the level of fishing at which the stocks may produce the maximum sustained yield.

Regulating the amount of fishing by catch limits involves the forecasting of closing dates. This requires day-to-day knowledge of the activity of each individual vessel in the fleet. From this, the rate of catching can be deter-

mined and the date of attainment of each catch limit estimated and announced in advance.

The incidental capture of halibut by associated fisheries during fishing for other species is a growing regulatory problem which necessitates accurate statistics regarding the size and nature of catches made by them on different banks at different seasons.

Evaluation of the effects of regulation requires statistics regarding the changes in the size of the stocks from year to year, in the annual yield taken from each and in the amount of fishing required to obtain the yield.

The changes in the size of the stocks must be determined by analysis of fishing records kept by halibut fishing vessels. These statistics show whether additions to the stocks by recruitment and growth have been greater or less than removals by natural mortality and fishing. They are indispensable because they give quantitative significance to biological data, such as age composition, which would otherwise be qualitative only.

Such measures of stock size must be standardized for the constantly changing efficiency of the unit of gear or when changes occur in the concentration of fishing. Continuous and intensive canvass of the vessels in conjunction with fishing experiments at sea with standard and modified gear are necessary for correction of the first. For the second, special analysis of the catch per unit effort and of the results of tagging experiments are required to correct for competition between units of gear at different concentrations of fish and of fishing.

The annual yield obtained from each stock and each bank must be determined by combining the individual fishing records with the corresponding landing records. The amount of fishing on each stock and each bank must be determined by computation from the fishing and landing records.

Studies of Mortality and Availability and Stock Relationships

A broad and continuous tagging program is essential for estimation of the natural mortality rates which, working against growth rates, determine the age or size at which fish must be removed to obtain maximum yield. It is equally necessary to determine what parts of the stocks are available and the fishing mortality rate during the fishing season or seasons; also to ascertain where and when representative samples of the stocks can be secured, and where and when fishing must be done to remove the fish at the most profitable size or age. Historical considerations suggest that proper utilization would require fishing to some degree at least from late April through August.

The tagging program provides for the conduct of experiments at the seasons of fishing on important spring and summer fishing grounds where both immatures and matures are mixed and indistinguishable, to ascertain the general availability and mortality rates of the different sizes; for tagging on the main spawning grounds during the spawning season, when the maturity of live fish is distinguishable, to determine the same for the matures alone; also, for repetition of experiments whenever any change is made in the season or seasons of fishing, which could alter the concentration of fishing upon the different sizes of fish.

To estimate natural and fishing mortality rates, the numbers tagged in each experiment must be large enough to assure sufficient recoveries for analysis. To obtain a reasonable continuous measure of the changes in mortality, with changes in the intensity and distribution of fishing, tagging must be done on each important bank approximately each fifth year.

Carrying out the above tagging program is an expensive activity as it necessitates the charter and operation of a large deep-sea fishing vessel with a skilled crew at a rate which will provide earnings equal to commercial fishing.

Age Composition and Associated Investigations

Determination of the supply of spawners that will give optimum recruitment and of the most profitable age for removal by the fishery, will necessitate continuous investigations of the changes in age composition, mortality and growth of the stocks.

Investigations of the changes in the composition of each stock and of the mortality rates at different ages in each require determination of the age composition of the stocks on important fishing grounds each year. For practical reasons, such research must be based primarily upon representative samples of length and corresponding samples of otoliths obtained from the commercial landings. However, because the sex and maturity of the fish in the commercial landings are not distinguishable and must be known for estimating the numbers of females in the stocks, market samples must be supplemented as frequently as possible with samples taken at sea, where sex and stage of maturity can be determined.

Growth studies, by the age-length method, must also depend upon representative samples of otoliths collected on important banks at sea where sex can be distinguished. The males and females grow at different rates and the sex ratio varies from bank to bank and also from time to time, which precludes the use of market samples. The prospect of developing an accurate method of determining the sex of eviscerated fish is not good.

In any investigation of a deep sea fishery, particularly that for halibut, that ranges over 2500 miles of the coast, determining the composition and condition of the many stocks is a major undertaking. Also with halibut which are of large size, many over 20 years old, the physical task of adequately sampling the catches and of determining the individual ages of large samples of the catch is time-consuming and costly.

Studies of Spawning and Recruitment

A comprehensive program of investigations into the life and habits of the halibut during the vulnerable years spent on the bottom prior to recruitment into the commercial stocks is necessary to ascertain what factors during this period of life may limit recruitment. It must include studies of distribution and habitat, of food, of competitor and predatory species and of other factors which may affect the survival of young. If practicable, it must also include quantitative studies from time to time of the relative numbers of young produced in different years and comparisons with the abundance of spawners that produced them and with the abundance of recruits resulting from them.

As in the case of tagging operations, the investigation of the sub-

commercial sizes of halibut requires the charter and operation of a large seaworthy vessel.

Cost of Program

The Commission estimated that appropriations of approximately $93,500 would be needed from each country for regulation and research for the first year of the program and that funds of the same general magnitude would be necessary each succeeding year to provide for its regulatory expenses and the research required by the new treaty.

APPROPRIATIONS AND RESEARCH

In view of the all-time record catch made during 1954 it is a fitting time to review what the cost of the work of the Commission has been to Canada and the United States. In Appendix I is given a tabulation of the annual appropriations that have been provided the Commission annually by the two countries combined over the past 31 years. The funds required for regulation and the balances available for research and their equivalent purchasing power are also shown.

The Commission's program of research has been contingent upon funds available and in some periods has been drastically curtailed by the restriction in funds made available by either or both of the countries. It can spend only the lesser of any amounts provided by the two countries as the halibut conventions have provided that the joint expenses shall be paid in equal moities.

Funds totalling $20,000 were available at the commencement of the Commission's work in 1925. During the six-year pre-regulatory period from 1927 to 1932, they averaged nearly $61,000 annually. Having no regulatory responsibility, the Commission was able to conduct a comprehensive program of basic research upon the history of the fishery and upon the past and current condition of the stocks.

In the succeeding eight years, 1933 to 1940, available funds averaged about $50,000 annually. While the amounts were considerably lower than before, their purchasing power was nearly the same. In addition to providing for regulatory expenses, exclusive of enforcement which is the responsibility of the individual government, they permitted current observations of the effects of regulation upon the stocks, the analysis of some basic data and the publication of some results.

During the war years appropriations remained at the previous level but inflation greatly reduced their purchasing power. With an increasing proportion of funds required for regulatory expenses, research was sharply reduced. No basic analyses nor publications were possible.

A modest increase in total available funds to an average of about $62,000 annually during the 1947 to 1950 period was more than offset by continued inflation. Only by eliminating some essential observations on the fishery was it possible to undertake a limited tagging program to provide information urgently required for regulation.

During the period 1951 to 1955, total usable funds have averaged $98,000 annually and, in spite of further inflation, some increased purchasing power

has resulted. This increase provided for the performance of the Commission's regulatory duties and the collection of essential statistical data and biological materials during the longer season of the fishery in these years. The remaining funds permitted carrying out a reasonably adequate tagging program whose first results form the basis for the present regulation of the fishery. They have not permitted the Commission to initiate the broad program of research required for regulation under the terms of the new treaty nor to prepare and publish the results of its scientific investigations.

Regulative duties have required an increasing amount and proportion of the Commission's funds since 1932 when regulation of the fishery began. The Commission's annual expenditures for regulation in the early years averaged about $7,000 and represented about 14 per cent of usable funds.

At the outset the fleet was relatively small, consisting of about 250 regular vessels and a few small boats. Fishing operations were conducted largely out of two ports and extended over a long season. The collection of statistics of the fishery for regulatory purposes and administering the catch limits was relatively inexpensive.

Profound changes have occurred in the fishery during the intervening years. The season has become greatly foreshortened, the number of regular vessels has nearly trebled and the number of small boats participating in the fishery has increased ten-fold. Significant landings are now made at about 20 ports, some with their own local fleets. These developments have greatly increased the cost of securing a minimum of data for administering the catch limits. During the period 1950 to 1953 the Commission's regulative expenses averaged $22,600 annually or 25 per cent of the Commission's usable funds.

The Commission's regulatory duties were further increased in 1954 with the multiple open seasons, made possible by the 1953 convention. It is estimated that in 1955 they will require about $35,200 or 35 per cent of the current level of usable funds. Since the new treaty charges the Commission with the responsibility of developing the stocks to levels of maximum sustained yield and of maintaining them at such levels, it must so regulate the fishery even though such types of regulation do involve added expense for the Commission.

Only the funds remaining after the Commission's regulatory expenses have been provided for can be used for the research specifically required by the new treaty. Regardless of how economically the Commission operates, fulfilling these research duties is completely impractical without adequate financial support. Without additional funds even the present level of research must be curtailed and all field work at sea abandoned in 1955.

To provide for the Commission's greater regulatory expenses and to permit a beginning during 1954 upon the broader program of research required by the new treaty, Canada appropriated $77,900 for the Canadian fiscal year commencing April 1954. About $28,000 will lapse due to lack of matching United States funds.

Budget requests of $93,500 and $93,750 have been submitted to Canada and the United States for their fiscal years commencing April and July respectively in 1955. A supplementary budget request of $13,675 has also

been submitted to the United States for the year ending June 1955, to permit institution of the research work during the first quarter of the Canadian fiscal year, prior to the opening of the 1955 fishing season.

THE 1954 REGULATIONS

The Pacific Halibut Fishery Regulations for 1954 were approved by the Governor General of Canada on March 25 and by the President of the United States on April 9 and became effective on the latter date.

The 1954 regulations differed from those of 1953 mainly in a reduction in the number of regulatory areas and an increase in number of fishing seasons.

The 1953 treaty provides that there may be more than one fishing period in an area each year. This made it possible to discontinue the subdivision of Area 2 into Areas 2A, 2B and 2C and to obtain summer fishing on all grounds by the use of multiple seasons.

The 1954 regulations also combined Areas 3B and 4 into a single area, Area 3B. This was based on evidence that the stocks in Bering Sea, hitherto designated as Area 4, are parts of the larger halibut stocks found south of the Alaska Peninsula.

The boundary line between Areas 1A and 1B was moved north from Cape Blanco to Heceta Head, transferring the intervening waters off the southern Oregon coast from Area 1B to Area 1A, to increase fishing there.

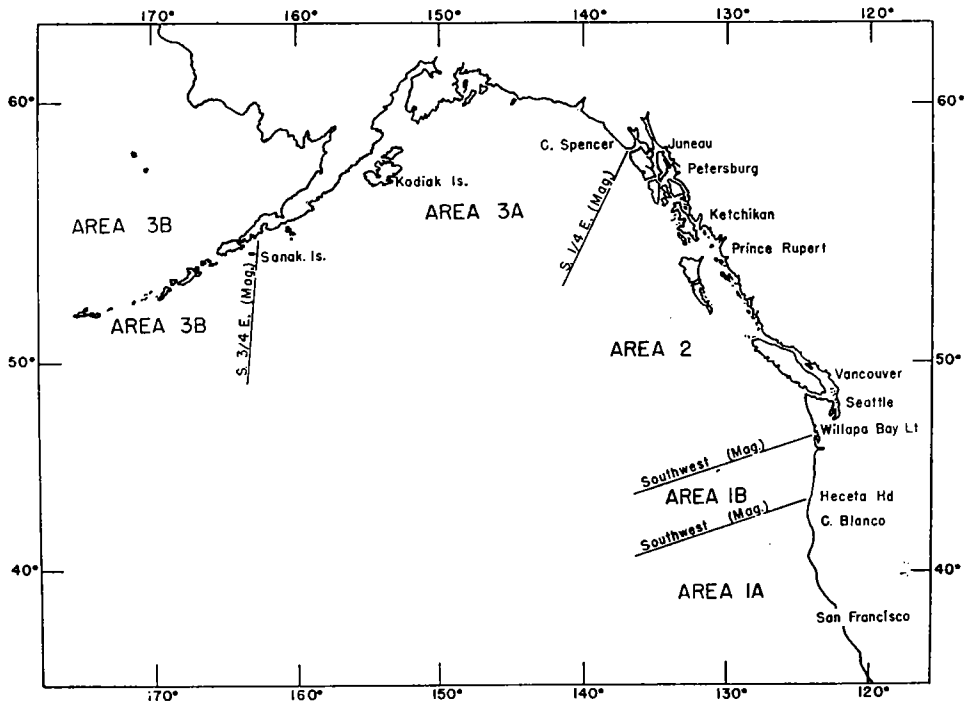

Figure 1. Pacific Coast of North America, showing regulatory areas defined by the International Pacific Halibut Commission in 1954.

The five regulatory areas in 1954, shown in Figure 1, were: Area 1A, the waters off the northern California and southern Oregon coasts, south of Heceta Head, Oregon; Area 1B, the waters off the Oregon and Washington coasts between Heceta Head and Willapa Bay, Washington; Area 2, the waters between Willapa Bay and Cape Spencer, Alaska; Area 3A, from Cape Spencer to a line running south three-quarters east from Bold Cape through Caton Island of the Sanak Islands group; Area 3B, all convention waters west of Area 3A including those of the Bering Sea.

The fishing season in all areas opened on May 16. Area 1A was closed to halibut fishing on September 9. The first season in Areas 1B and 2 closed on June 5 and the first season in Areas 3A and 3B closed on July 12, upon attainment of catch limits set for those seasons in Areas 2 and 3A respectively. A second season in Areas 1B and 2 of 8 days and in Areas 3A and 3B of 10 days commenced on August 1. A third season in Area 3B commenced on August 15 and terminated on September 9.

Catch limits of 26,500,000 pounds during the first season in Area 2 which was 1,000,000 pounds greater than in 1953 and of 28,000,000 pounds in Area 3A were provided. Areas 1A, 1B and 3B, where the total catch of halibut is comparatively small, were allowed to continue without catch limits.

Vessels fishing for crab in Bering Sea, with bottom nets of 12-inch or larger mesh were permitted to retain a limited proportion of halibut caught incidentally to such fishing between May 16 and November 14 inclusive. However, the vessels found it to be impractical to retain the limited amount of halibut caught.

Other regulatory provisions were also continued as follows: a minimum size limit of 26 inches heads-on or five pounds heads-off for halibut; the closure of two nursery areas, one off Massett in northern British Columbia and one off Timbered Islet in southeastern Alaska; the prohibition of the use of dory gear and nets of any kind in fishing for halibut; the termination after November 15 of permits for the retention and possession of halibut caught incidentally during fishing for other species in Areas 1A, 1B, 3A and 3B; and, the beginning of the statutory closed season after November 30 in any area that might still be open by reason of the non-attainment of the catch limit which otherwise determined its closure.

STATISTICS OF THE FISHERY

Landings from Regulatory Areas

Landings during 1954 from groups of regulatory areas that correspond to the original Areas 1, 2 and 3 are shown in the following table and compared with landings for 1952 and 1953 and with landings at five-year intervals back to 1931, the year immediately prior to the commencement of regulation by the Commission.

All poundages given in the tables are in thousands of pounds. They are corrected for amounts declared from the wrong area and include amounts of halibut caught in contravention of the regulations. All 1954 figures in this report are preliminary and subject to minor changes.

UNITED STATES AND CANADIAN CATCHES BY REGULATORY AREAS

Year	Areas 1A, 1B*	Area 2**			Area 3***			All Areas		
	U.S.	U.S.	Can.	Total	U.S.	Can.	Total	U.S.	Can.	Total
1931	923	14609	7018	21627	20907	765	21672	36439	7783	44222
1935	1489	13563	9255	22818	22088	953	23041	37140	10208	47348
1940	779	15362	12254	27616	25266	646	25912	41407	12900	54307
1945	401	12824	11554	24378	25584	3567	29151	38809	15121	53930
1950	392	12862	14184	27046	25396	4815	30211	38650	18999	57649
1952	521	13680	17213	30893	23843	7566	31409	38044	24779	62823
1953	383	14832	18175	33007	19447	7678	27125	34662	25853	60515
1954	773	19122	17590	36712	23842	9936	33778	43737	27526	71263

* South of Willapa Bay.
** Willapa Bay-Cape Spencer.
*** West of Cape Spencer.

The landings from Areas 1A and 1B are combined and correspond to those from original Area 1. These areas are at the southern extremity of the commercial range of the species and, as their halibut stocks are relatively small, no catch limits have been placed upon them. The combined annual catch from Areas 1A and 1B has been about one-half million pounds or less in recent years. The increase in 1954 to three-quarters million pounds was brought about by the 1954 regulations providing for Area 1A to remain open to halibut fishing from May 16 to September 9 instead of closing in early July as in recent years.

The combined catch of 36,712,000 pounds in 1954 from Area 2 was higher than in 1953 due to the large fleet operating and very heavy catches during the second fishing season in the area. The Area 2 catch in the first season of 21 days commencing May 16 amounted to 26,196,000 pounds and the catch during the 8-day second season commencing August 1 amounted to 9,397,000 pounds. Landings by Canadian vessels from Area 2 amounted to 17,590,000 pounds from all sources and were 48 per cent of the combined total compared to 55 per cent in 1953.

Included in the landings from Area 2 are 761,000 pounds of halibut caught incidentally to fishing for other species in the area under permit after the area had been closed to halibut fishing. This total is about 25 per cent larger than in 1953 due to a firm demand for black cod and higher prices paid for the incidentally-caught halibut. Permit landings of 8,000 pounds from Area 3A are similarly included in the Area 3 total.

The 1954 catch from Areas 3A and 3B, combined in the above table under Area 3, was 33,378,000 pounds compared to 27,125,000 pounds in 1953. The total commercial catch in Area 3A during the first season of 58 days commencing May 16 amounted to 29,533,000 pounds. During the second season of 10 days commencing August 1, a catch of 3,431,000 pounds was taken from Area 3A. Landings from the third fishing season in Area 3B amounted to 611,000 pounds, none being taken there during the first and second seasons.

United States and Canadian landings from all areas in 1954 amounted to 71.2 million pounds and were over 27 million pounds above the 1931 level.

Landings by Ports

The distribution of landings from all regulatory areas according to ports is shown for various years in the following table.

LANDINGS BY PORTS FROM ALL AREAS BY UNITED STATES AND CANADIAN VESSELS COMBINED

Year	Calif. and Oregon	Washington		Alaska		British Columbia			Total	
		Seattle	Other Ports	S.E. Alaska	Western Alaska	Van-couver	Prince Rupert	Other Ports	Can. Ports	U.S. Ports
1931	892	15032	202	8240	1482	1066	16792	516	18374	25848
1935	1281	22275	114	6536	13	2242	12964	1923	17129	30219
1940	1014	19203	258	9544	182	1907	18765	3434	24106	30201
1945	756	12140	553	18796	2181	1943	15346	2215	19504	34426
1950	723	7473	1465	21008	4367	1096	17020	4497	22613	35036
1952	693	11425	2001	19309	2708	2400	19686	4601	26687	36136
1953	622	13192	1706	14589	3625	4572	18086	4123	26781	33734
1954	1120	16270	1510	19490	3408	5893	18187	5385	29465	41798

The increase in total landings this year was distributed generally among most of the ports. The decline in Washington ports other than Seattle was due to a lessened activity of a single buyer. While the landings by United States vessels in Prince Rupert increased sharply over 1953, the landings by Canadian vessels were considerably lower due chiefly to localized bad weather interfering with fishing operations during the first fishing season in Area 2. Landings in Central Alaska ports were also lower than in 1953 due to relatively more attractive prices being offered in other ports.

CATCH PER UNIT FISHING EFFORT

All halibut vessels of five net tons or over are required to keep records showing the date, fishing location, amount of gear fished and estimated catch of halibut in pounds for each fishing operation. By dividing the catches by the number of skates of gear fished the average return per unit fishing effort is obtained. Such returns per unit effort can then be compared to provide a measure of the changes in relative abundance which may have occurred.

The data are screened for anomalies caused by the effects of unusual weather, the "shaking" of bait to clean the gear, the unrecorded diversion of attention to other species on certain days, and obvious errors in the log books or in the copying thereof. Further corrections may probably be necessary for variations in the concentration of fishing.

In Area 2 during the first or regular season the sharp increase in pounds of halibut caught per unit effort which occurred in 1952 and continued in 1953 was not evident throughout the area in 1954. Off the British Columbia coast the catch per unit effort declined to below the 1953 level but was still above that for 1952. In southeastern Alaska waters it was materially higher than in 1953.

In Area 2 during the second or August fishery, the catch per unit effort was much higher than during the regular season in all parts of the area. Preliminary studies indicate that the increase between seasons was no greater than used to occur between the same months when there was one

long continuous season, suggesting that the increase could not to any extent be attributed to the reduced amount of fishing in the second season.

In Area 3A during the first season the catch per unit effort was at the same general level as in 1953.

In Area 3A during the 10-day August season, the over-all catch per unit effort was only slightly higher than during the regular season though it was noticeably higher on the grounds off central and southern Kodiak Island where the fleet tended to concentrate during the August season.

In Area 3B, west of Sanak Islands, the catch per unit effort during the August-September fishery in that area was higher than in 1952 and 1953, possibly due to an improved familiarity with the grounds by the fleet.

COMPOSITION OF CATCHES

Sampling of the commercial catches to secure data and materials for the study of changes in the length composition and age composition of the stocks was again conducted at the ports of Seattle, Vancouver and Prince Rupert during the fishing seasons. Over 50,000 length measurements and nearly 15,000 otoliths were collected from 106 trips from Areas 2, 3A and 3B. An additional 5,000 length measurements and the same number of otoliths were secured incidentally during tagging operations. The above represents a considerable increase in sampling over the 71 trips and 40,000 measurements and 10,000 otoliths taken in 1953.

The samples during the regular season from the Goose Island ground, which is an important producing bank north of Vancouver Island, in Area 2, showed about the same age composition as in 1953 except that the good 1944 brood group that as 9-year-olds ranked first in numbers in 1953 hold the same rank in 1954 but as 10-year-olds.

The 10-year-olds were also the most numerous group in the Goose Island samples taken during the August season but a much higher proportion of fish over 12 years of age were present in the August stocks.

In the important Portlock-Albatross sections of Area 3A the 1944 year class, which entered the fishery strongly in 1952 as 8-year-olds, held its strength in 1953 and became the dominant group in numbers of contributors to the catches as 10-year-olds in 1954. The 1941 year class, which maintained itself as a dominant group in number from its strong entry as 9-year-olds in 1950, became the largest contributor to the weight of the catches in 1954 as 13-year-olds. The strength of these year groups indicates successful survival from spawnings in the early 1940's when the stocks had been restored to high levels of density.

In the combined samples taken from fares landed from Portlock and Albatross Banks in the August season an age composition similar to the regular season was apparent. There had been a falling-off in the numbers of fish over sixteen years of age in July, but these age groups reappeared in the August catches to about the same magnitude as in May and June. The 1944 year class was still the dominant age group in numbers of contributors to the late season catches.

Samples have now been available from Bering Sea waters since 1952 and those for 1953 and 1954 verify the indications reported in the former year that the stocks in those waters are composed primarily of young fish.

Samples obtained in 1952 from Bering Sea were composed predominantly of fish 8 to 12 years old with few individuals as old as 16 years as shown in Figure 2. A decided progression of dominant classes has been observed in subsequent sampling in 1953 and 1954. Particularly striking is the 1944 year class which appeared as the strong 8-year-old group in 1952 and which as the 10-year-olds in 1954 was the biggest contributor both in numbers and weight to the catches. The 1942 year class was also above average.

The coincidence of the overwhelming appearance of the 10-year-olds in Bering Sea and the strong showing of the 1944 year class throughout Area 3A tends to verify other evidence that these stocks are inter-dependent.

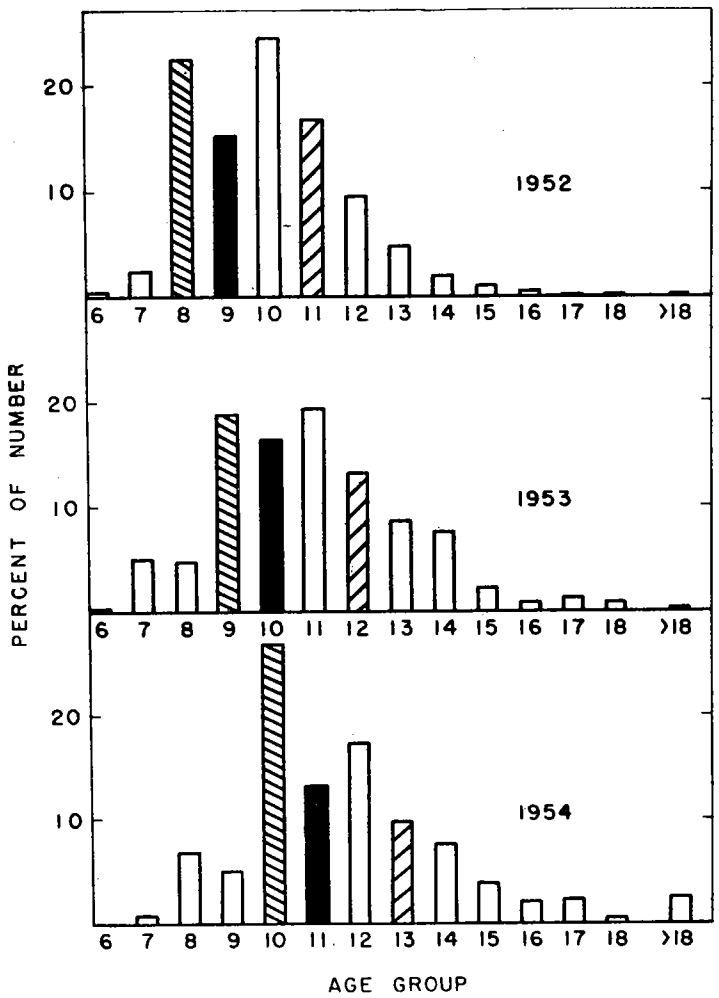

Figure 2. Age composition of halibut stocks in Bering Sea as shown by samples of the commercial catch from 1952 to 1954 inclusive.

TAGGING EXPERIMENTS

The 1954 tagging operations provided a spring and a summer experiment on Portlock, Albatross and Yakutat, three of the major producing banks in Area 3. The halibut vessel ECLIPSE was chartered for a total of 105 days commencing on May 3 and terminating on September 4. There was a 21-day interruption in the charter period commencing July 26 to avoid tagging during the short August season in competition with the fishing fleet and also to free members of the Commission's small staff for the collection of catch and biological statitistics from the August season.

From the total catch of 310,300 pounds taken during the six trips, 4,002 fish weighing 116,600 pounds were in a condition suitable for tagging. The following table gives a summary of the 1954 tagging operation by trips.

Trip	Locality	Month	No. Skates Fished	No. Tagged	Pounds Tagged	Total Catch
1	Portlock	May	497	735	24,800	72,200
2	Albatross	May-June	420	485	15,600	50,600
3	Yakutat	June	462	752	17,200	33,700
4	Portlock	July	608	509	16,100	57,300
5	Albatross	July	469	562	15,800	50,800
6	Yakutat	August	460	959	27,100	45,700
		Total	2,916	4,002	116,600	310,300

The 1954 recaptures were 1,580, a new high for recoveries in a single year, exceeding by 268 the number recovered in 1953. This increase is chiefly due to the multiple fishing seasons and the large number of tags released in 1953 in Hecate Strait where recoveries are high due to the intense fishery in that area.

In the following table the 1954 recoveries from the regular and August season from the 1951 to 1953 tagging experiments are shown. The 1953 recoveries are also shown for purposes of comparison. Recoveries during the year of tagging, the O year, are not listed as they are not representative.

Approximately 77 per cent of the 1954 recoveries came from the regular season and 23 per cent from the short August season but the ratio varies considerably from area to area. The rate of recovery from the August season was highest in middle Hecate Strait, off Prince of Wales Island in southeastern Alaska, and on grounds west of Portlock in Area 3. The general reopening of the grounds in August appears, therefore, to have improved the utilization of stocks in areas somewhat neglected by the fleet during the regular season. However, until recoveries are related to fishing intensities and tested by results from succeeding years, any conclusions must be considered as tentative.

SUMMARY OF 1953, 1954 REGULAR AND 1954 AUGUST SEASON TAG RECOVERIES* FROM 1951 TO 1953 TAGGING EXPERIMENTS

1951 Locations	Month of Tagging	No. Tagged	Number of Recoveries 1953 Reg.	1954 Reg.	1954 Aug.	Un-known	Total 1954
South of Cape Spencer							
Icy Strait	Feb.-Mar.	1688	44	31	4	1	36
Lower Hecate Strait	Sept.	233	12	8	2	—	10
Two Peaks	Aug.-Sept.	1820	248	67	23	8	98
Prince of Wales I.	Aug.	2000	71	13	7	—	20
Goose I.	Sept.-Oct.	2709	257	184	67	5	256
West of Cape Spencer							
Yakutat	Aug.	1502	86	74	2	4	80
Albatross Bank-Trin. Is.	July	1188	13	9	4	1	14
Total Tagged		11140					

1952 Locations	Month of Tagging	No. Tagged	Number of Recoveries 1953 Reg.	1954 Reg.	1954 Aug.	Un-known	Total 1954
South of Cape Spencer							
Cape Scott	Mar.-April	772	30	23	7	2	32
Hecate Strait	June-July	658	48	15	14	—	29
Two Peaks	April	378	71	21	1	1	23
Two Peaks	June-July	707	117	38	22	7	67
Frederick I.	April	70	5	—	—	—	—
Dixon Entrance	April	30	3	—	—	—	—
Prince of Wales I.	June-July	250	11	5	—	1	6
West of Cape Spencer							
Seward Gully	May	822	25	14	4	—	18
Chiniak Gully	May	493	9	3	2	—	5
Albatross Gully	May	75	2	—	—	—	—
Total Tagged		4255					

1953 Locations	Month of Tagging	No. Tagged	Number of Recoveries 1953* Reg.	1954 Reg.	1954 Aug.	Un-known	Total 1954
South of Cape Spencer							
W. Coast Graham I.	April	171		11	4	—	15
Whaleback	April	359		27	3	—	30
Dixon Entrance	April	120		15	1	—	16
Two Peaks	May	692		135	8	9	152
Two Peaks	July	173		30	4	2	36
Bonilla I.	May	944		68	25	4	97
Horseshoe Ground	July	1701		209	76	15	300
Ramsay I.	June-July	641		15	4	—	19
Prince of Wales I.	June	98		1	1	—	2
Cape Ulitka	June	726		10	3	—	13
Goose I.	June	191		30	13	—	43
Coronation I.	June	235		4	6	2	12
Cape Scott	July	139		20	2	—	22
Total Tagged		6190					

* 0 Year recoveries omitted.

THE MULTIPLE OPEN SEASONS

The treaty, which came into effect late in 1953, provided that there may be established one or more open or closed seasons, as to each area. In 1954 the grounds between Heceta Head and Willapa Bay, Area 1B, and those between Willapa Bay and Cape Spencer, Area 2, were reopened on August 1 for a period of 8 days fishing. Those grounds between Cape Spencer and Sanak Islands, Area 3A, and those lying west of Sanak Islands and in Bering Sea, Area 3B, were also reopened on August 1 for a period of 10 days of fishing. The 8-day period in Area 2 and 10-day period in Areas 3A and 3B provided sufficient time to assure a profitable single trip operation. Since it was not expected that there would be any fishing in Area 3B during the regular first or second seasons, that area was reopened for a third season from August 15 to September 9.

Production was materially increased as a result of these reopenings of the areas and a considerable fleet of vessels and boats participated in each reopened fishery. The total catch and number of regular halibut vessels participating are shown in the following table.

CATCH AND NUMBER OF REGULAR HALIBUT VESSELS FISHING IN 1954 IN SECOND SEASON IN AREAS 2 AND 3A AND THIRD SEASON IN AREA 3B*
(Catches in 1000's of pounds)

	Area 2		Area 3A		Area 3B		All Areas	
	Catch	No. of Vessels	Catch	No. of Vessels	Catch	No. of Vessels	Catch	No. of Vessels*
Can.	3995	89	243	3	125	2	4363	92
U.S.	5430	141	3150	76	486	12	9066	227
U.S. and Can.	9425	230	3393	79	611	14	13429	319

* Exclusive of duplication.

In addition to vessels of the regular fleet some small setline boats and a very large number of salmon trollers using troll gear participated in the short August fishery in Area 2. These small boats accounted for over 1.5 million pounds of the August Area 2 catch.

While the distribution of fishing and resultant catches showed a general correspondence to that which prevailed during the first or regular season, there was a proportionately greater catch taken during the August season from the southern Hecate Strait and offshore grounds of Prince of Wales Island, southeastern Alaska, in Area 2 and from the southern Portlock, Kodiak and Trinity grounds in Area 3A. These areas were historically good producing grounds in the summer months.

Preliminary investigation of the recoveries from tagging experiments and the catch statistics indicate that the August season was successful in providing increased exploitation of stocks on some grounds that probably were not being fished to the extent that they should have been in the May-June season. The age and length composition of the catches indicated that the August fishery on some grounds, reasonably exploited during the regular season, may be tapping parts of the stocks not available during the May-June season. These situations require confirmation by a repetition of the multiple season experiment.

APPENDIX I

Commission Appropriations, Expenditures for Regulation, Balances Available for Research, and Their Relative Values

1925 - 1955

Fiscal Year	Appropriations		Usable Funds			Relative Purchasing Power* of Usable Funds		
	Can.	U.S.	Total	Regulation	Research	Total	Regulation	Research
1924-25	$10,000	$10,000	$20,000	——	$20,000	$29,800	——	$29,800
1925-26	15,000	15,000	30,000	——	30,000	46,200	——	46,200
1926-27	28,000	28,500	56,000	——	56,000	90,300	——	90,300
1927-28	28,500	31,000	57,000	——	57,000	90,600	——	90,600
1928-29	31,000	36,500	62,000	——	62,000	100,200	——	100,200
1929-30	31,500	36,500	63,000	——	63,000	112,300	——	112,300
1930-31	31,500	36,500	63,000	——	63,000	132,900	——	132,900
1931-32	31,500	36,500	63,000	6,000	57,000	149,600	14,300	135,300
1932-33	29,500	25,000	50,000	9,000	41,000	116,800	21,000	95,800
1933-34	26,550	26,500	53,000	8,000	45,000	108,800	16,400	92,400
1934-35	25,000	31,500	50,000	6,500	43,500	96,200	12,500	83,700
1935-36	25,000	31,500	50,000	7,500	42,500	95,200	14,300	80,900
1936-37	25,000	31,500	50,000	8,000	42,000	99,800	16,000	83,800
1937-38	25,000	31,500	50,000	5,500	44,500	97,800	10,800	87,000
1938-39	25,000	25,000	50,000	5,500	44,500	99,800	11,000	88,800
1939-40	25,000	25,000	50,000	7,500	42,500	97,800	14,700	83,100
1940-41	25,000	28,000	50,000	9,000	41,000	88,000	15,800	72,200
1941-42	25,000	28,000	50,000	10,000	40,000	77,900	15,600	62,300
1942-43	27,100	27,680	54,200	10,700	43,500	80,900	16,000	64,900
1943-44	27,100	25,000	50,000	9,000	41,000	74,000	13,300	60,700
1944-45	27,100	25,000	50,000	9,000	41,000	72,700	13,100	59,600
1945-46	27,100	25,000	50,000	9,000	41,000	63,700	11,500	52,200
1946-47	30,000	30,000	60,000	12,000	48,000	62,200	12,400	49,800
1947-48	30,000	30,000	60,000	12,500	47,500	57,500	12,000	45,500
1948-49	31,500	31,500	63,000	15,500	47,500	63,500	15,600	47,900
1949-50	35,000	32,871	65,742	15,600	50,142	63,800	15,200	48,600
1950-51	50,000	47,000	94,000	22,400	71,600	81,900	19,500	62,400
1951-52	50,000	50,000	100,000	26,000	74,000	89,600	23,300	66,300
1952-53	52,750	49,900	99,800	26,500	73,300	90,600	24,100	66,500
1953-54	55,900	49,271	98,542	32,500	66,042	89,300	29,500	59,800
1954-55	77,900	49,750§	99,500§	35,200	64,300	90,200§	31,900	58,300

* According to United States Wholesale Price Index, Bureau of Labor Statistics. (1947-49 = 100)

§ Exclusive of United States Commissioners' expenses which were provided for in a general travel allotment.

APPENDIX II

Regulations of The International Pacific Halibut Commission Adopted Pursuant to The Pacific Halibut Fishery Convention Between The United States of America and Canada, Signed March 2, 1953

Section 1. Regulatory Areas

(a) Convention waters which include the territorial waters and the high seas off the western coasts of Canada and the United States of America including the southern as well as the western coasts of Alaska shall be divided into the following areas, all directions given being magnetic unless otherwise stated.

(b) Area 1A (South of Heceta Head) shall include all convention waters southeast of a line running northeast and southwest through Heceta Head Light, as shown on Chart 5802, published in July, 1947, by the United States Coast and Geodetic Survey, which light is approximately latitude 44° 08' 18" N., longitude 124° 07' 36" W.

(c) Area 1B (Heceta Head to Willapa Harbor) shall include all convention waters between Area 1A and a line running northeast and southwest through Willapa Bay Light

on Cape Shoalwater, as shown on Chart 6185, published in July, 1939, by the United States Coast and Geodetic Survey, which light is approximately in latitude 46° 43' 17" N., longitude 124° 04' 15" W.

(d) Area 2 (Willapa Harbor to Cape Spencer) shall include all convention waters off the coasts of the United States of America and of Alaska and of Canada between Area 1B and a line running through the most westerly point of Glacier Bay, Alaska, to Cape Spencer Light as shown on Chart 8304, published in June, 1940, by the United States Coast and Geodetic Survey, which light is approximately latitude 58° 11' 57" N., longitude 136° 38' 18" W., thence south one-quarter east and is exclusive of the nursery areas closed to all halibut fishing in Section 11 of these regulations.

(e) Area 3A (Cape Spencer to Sanak Islands) shall include all the convention waters off the coast of Alaska that are between Area 2 and a straight line running approximately south three-quarters east from the Alaska Peninsula, near Bold Cape approximately latitude 55° 01" 15" N., longitude 162° 15' 45" W., through the highest point on Deer Island approximately latitude 54° 57' 45" N., longitude 162° 16' 45" W., and through the highest point on Caton Island approximately latitude 54° 24' 00" N., longitude 162° 26' 00" W. The points on the Alaska Peninsula, on Deer and Caton Islands shall be determined from Chart 8860 as published December, 1942, by the United States Coast and Geodetic Survey, Washington, D.C.

(f) Area 3B (West of Sanak Islands including Bering Sea) shall include all the convention waters off the coast of Alaska which are not included in Area 3A or in Area 2 or in the nursery area described in paragraph (b) in Section 11 of these regulations.

Section 2. Length of Halibut Fishing Seasons

(a) In Area 1A, the halibut fishing season shall commence at 12:01 a.m. of the 16th day of May and terminate at 11:59 p.m. of the same day that the third halibut fishing season in Area 3B shall terminate.

(b) In Area 1B, the halibut fishing seasons shall commence and terminate at the same times as the halibut fishing seasons in Area 2 shall commence and terminate.

(c) In Area 2, there shall be two halibut fishing seasons: the first season commencing at 12:01 a.m. on the 16th day of May and terminating at 11:59 p.m. on a date to be determined and announced under paragraph (b) of Section 4 of these regulations; the second season, of 8 days, commencing at 12:01 a.m. of the 1st day of August and terminating at 11:59 p.m. of the 8th day of August, or if the termination of the first season in Area 2 or in Area 3A be later than 11:59 p.m. of the 22nd day of July the second season in Area 2 shall commence at 12:01 a.m. of the tenth day after termination of the first season in Area 2 or in Area 3A whichever shall be later and terminate at 11:59 p.m. of the 8th day after commencement of the second fishing season in this area.

(d) In Area 3A, there shall be two halibut fishing seasons: the first commencing at 12:01 a.m. of the 16th day of May and terminating at 11:59 p.m. on a date to be determined and announced under paragraph (b) of Section 4 of these regulations; the second season, of 10 days, commencing at 12:01 a.m. of the 1st day of August and terminating at 11:59 p.m. of the 10th day of August, or if the termination of the first season in Area 2 or in Area 3A be later than 11:59 p.m. of the 22nd day of July the second season in Area 3A shall commence at 12:01 a.m. of the 10th day after termination of the first season in Area 2 or in Area 3A whichever shall be later and terminate at 11:59 p.m. of the 10th day after commencement of the second fishing season in this area.

(e) In Area 3B, there shall be three halibut fishing seasons: the first and the second fishing seasons commencing and terminating at the same times as the first and second fishing seasons respectively in Area 3A; the third season, of 25 days, commencing at 12:01 a.m. of the 5th day after the termination of the second fishing season and terminating at 11:59 p.m. of the 30th day after the termination of the second season provided the latter date is not later than 11:59 p.m. of the 30th day of November when all convention waters shall be closed to halibut fishing as provided in paragraph (b) of Section 3 of these regulations.

Section 3. Closed Seasons

(a) Under paragraph 1 of Article I of the Convention, all convention waters shall be closed to halibut fishing except as provided in Section 2 of these regulations.

(b) All convention waters, if not already closed under other provisions of these regulations, shall be closed to halibut fishing at 11:59 p.m. of the 30th day of November and shall remain closed until re-opened as provided in Section 2 of these regulations, and the retention and landing of any halibut caught during this closed period shall be prohibited.

(c) Nothing contained in these regulations shall prohibit the fishing for species of fish other than halibut or prohibit the International Pacific Halibut Commission, hereafter in these regulations referred to as "the Commission," from conducting or authorizing fishing operations for investigation purposes as provided for in paragraph 3 of Article I of the Convention.

Section 4. Catch Limits in Areas 2 and 3A

(a) The quantity of halibut to be taken during the first halibut fishing season in Area 2 and during the first halibut fishing season in Area 3A in 1954 shall be limited to 26,500,000 pounds and 28,000,000 pounds respectively of salable halibut, the weights in each limit to be computed as with heads off and entrails removed.

(b) The Commission shall as early in the said year as is practicable determine and announce the date on which it deems each limit of catch defined in paragraph (a) of this section will be attained, and the limit of each such catch shall then be that which shall be taken prior to said date, and fishing for halibut in the area or areas to which each limit applies shall at that date be prohibited until each area is re-opened to halibut fishing as provided in Section 2 of these regulations, and provided that if it shall at any time become evident to the Commission that the limit will not be reached by such date, it may substitute another date.

(c) No catch limits shall apply to the second halibut fishing season in Area 2 or to the second halibut fishing season in Area 3A, or to any halibut fishing season in any other area.

Section 5. Size Limits

The catch of halibut to be taken from all areas during the year 1954 shall be limited to halibut which with head on are 26 inches or more in length as measured from the tip of the lower jaw to the extreme end of the middle of the tail or to halibut which with the head off and entrails removed are 5 pounds or more in weight, and the possession of any halibut of less than the above length, or the above weight, according to whether the head is on or off, by any vessel or by any master or operator of any vessel or by any person, firm or corporation, is prohibited.

Section 6. Licensing of Vessels

(a) All vessels of any tonnage which shall fish for halibut in any manner or hold halibut in possession in any area, or which shall transport halibut otherwise than as a common carrier documented by the Government of the United States or of Canada for the carriage of freight, must be licensed by the Commission, provided that vessels of less than five net tons or vessels which do not use set lines need not be licensed unless they shall require a permit as provided in Section 7 of these regulations.

(b) Each vessel licensed by the Commission shall carry on board at all times while at sea the halibut license thus secured whether it is validated for halibut fishing or endorsed with a permit as provided in Section 8 of these regulations and this license shall at all times be subject to inspection by authorized officers of the Governments of Canada or the United States or by representatives of the Commission.

(c) The halibut license shall be issued without fee by the customs officers of the Governments of Canada or the United States or by representatives of the Commission or by fishery officers of the Governments of Canada or the United States at places where there are neither customs officers nor representatives of the Commission. A new license may be issued by the officer accepting statistical return at any time to vessels which have furnished proof of loss of the license form previously issued, or when there shall be no further space for record thereon, providing the receipt of statistical return shall be shown on the new form for any halibut or other species taken during or after the voyage upon which loss occurred.

(d) The halibut license of any vessel shall be validated before departure from port for each halibut fishing operation for which statistical return is required. This validation of a license shall be by customs officers or by fishery officers of the Governments of Canada or the United States when available at places where there are no customs officers and shall not be made unless the area in which the vessel will fish is entered on the license form and unless the provisions of Section 9 of these regulations have been complied with for all landings and all fishing operations since issue of the license, provided that if the master or operator of any vessel shall fail to comply with the provisions of Section 9 of these regulations, the halibut license of such vessel may be validated by customs officers or by fishery officers upon evidence either that there has been a judicial determination of the offense or that the laws prescribing penalties therefor have been

complied with, or that the said master or operator is no longer responsible for, nor sharing in, the operations of said vessel.

(e) The halibut license of any vessel fishing for halibut in Area 1A as defined in Section 1 of these regulations must be validated at a port or place within Area 1A prior to each such fishing operation when Areas 1B and 2 are closed to halibut fishing.

(f) The halibut license of any vessel fishing for halibut in Area 3B during the third halibut fishing season as defined in paragraph (e) of Section 2 of these regulations must be validated at a port or place within Area 3B prior to such fishing and again before said vessel departs from Area 3B subsequent to such fishing if said vessel has any halibut on board.

(g) A halibut license shall not be validated for departure for halibut fishing in Areas 1A or 1B or 2 more than 48 hours prior to the commencement of any halibut fishing season in said areas; nor for departure for halibut fishing in Areas 3A or 3B from any port or place inside said areas more than 48 hours prior to the commencement of any halibut fishing season in said areas; nor for departure for halibut fishing in Areas 3A or 3B from any port or place outside said areas more than 5 days prior to the commencement of any halibut fishing season in said areas.

(h) A halibut license shall not be valid for halibut fishing in more than one of Areas 1A, 1B, 2 or 3A, as defined in Section 1 of these regulations, during any one trip nor shall it be revalidated for halibut fishing in another of said areas while the vessel has any halibut on board.

(i) A halibut license shall not be valid for halibut fishing in any area closed to halibut fishing nor for the possession of halibut in any area closed to halibut fishing except while in actual transit to or within a port of sale and as provided in paragraph (k) of this section.

(j) A halibut license shall not be valid for halibut fishing in any area while a permit endorsed thereon is in effect, nor shall it be validated while halibut taken under such permit is on board.

(k) A halibut license when validated for halibut fishing in Area 3A shall not be valid for the possession of any halibut in Area 2 if said vessel is in possession of baited gear more than 25 miles from Cape Spencer Light, Alaska; and a halibut license when validated for halibut fishing in Area 3B shall not be valid for the possession of any halibut in Area 3A, when Area 3A is closed to halibut fishing, if said vessel is in possession of baited gear more than 20 miles by navigable water route from the eastern boundary of Area 3B.

(l) No person on any vessel which is required to have a halibut license under paragraph (a) of this section shall fish for halibut or have halibut in his possession, unless said vessel has a valid license issued and in force in conformity with the provisions of this section.

Section 7. Retention of Halibut Taken Under Permit

(a) There may be retained for sale on any vessel which shall have a permit as provided in Section 8 of these regulations such halibut as is caught incidentally to fishing by that vessel in any area after it has been closed to halibut fishing under Sections 2 or 4 of these regulations with set lines (of the type commonly used in the Pacific Coast halibut fishery) for other species, not to exceed at any time one pound of halibut for each seven pounds of salable fish, actually utilized, of other species not including salmon or tuna, and such halibut may be sold as the catch of said vessel, the weight of all fish to be computed as with heads off and entrails removed, provided that it shall not be a violation of this regulation for any such vessel to have in possession halibut in addition to the amount herein allowed to be sold if such additional halibut shall not exceed thirty per cent of such amount and shall be forfeited and surrendered at the time of landing as provided in paragraph (e) of this section.

(b) There may be retained for sale on any vessel which shall have a permit as provided in Section 8 of these regulations such halibut as is caught incidentally to fishing for species of crab by that vessel in that part of Area 3B known as Bering Sea after 12:01 a.m. of the 16th day of May of the year 1954 with bottom trawl nets (of the type commonly used in the Bering Sea king crab fishery) whose cod ends or fish bags shall consist of webbing whose dry-stretched mesh shall measure not less than 12 inches between knots or hog rings, not to exceed at any time one pound of halibut for each five pounds drained weight of salable picked crab meat or the equivalent drained weight of crab meat in the shell or in vacuum-packed heat processed containers. The equivalent weight of meat in the shell shall be computed on the basis of 15 pounds of meat in the shell being equal to 6 pounds of drained picked crab meat and the equivalent weight of

processed meat shall be computed on the basis of 6½ ounces of drained weight of processed crab being equal to 8 ounces of picked crab meat.

(c) Halibut retained under such permit shall not be filleted, fletched, steaked or butchered beyond the removal of the head and entrails while on the catching vessel.

(d) Halibut retained under such permit shall not be landed or otherwise removed or be received by any person, firm or corporation from the catching vessel until all halibut on board shall have been reported to a customs, fishery or the other authorized enforcement officer of the Governments of Canada or the United States by the captain or operator of said vessel and also by the person, firm or corporation receiving the halibut, and no halibut or other fish or crabs shall be landed or removed or be received from the catching vessel, except with the permission of said officer and under such supervision as the said officer may deem advisable.

(e) Halibut retained under such permit shall not be purchased or held in possession by any person other than the master, operator or crew of the catching vessel in excess of the proportion allowed in paragraph (a) of this section of these regulations until such excess whatever its origin shall have been forfeited and surrendered to the customs, fishery or other authorized officers of the Governments of Canada or the United States. In forfeiting such excess, the vessel shall be permitted to surrender any part of its catch of halibut, provided that the amount retained shall not exceed the proportion herein allowed.

(f) Permits for the retention and landing of halibut caught in Areas 1A, 1B, 2, 3A or 3B, exclusive of that part known as Bering Sea, in the year 1954 shall become invalid at 11:59 p.m. of the 15th day of November of said year or at such earlier date as the Commission shall determine.

(g) Permits shall become invalid for the retention of halibut caught in that part of Area 3B known as Bering Sea after 11:59 p.m. of the 14th day of November in the year 1954 and shall become invalid for the landing of halibut caught under permit in that part of Area 3B known as Bering Sea after 11:59 p.m. of the 14th day of December of the year 1954 or at such earlier dates as the Commission shall determine.

Section 8. Conditions Limiting Validity of Permits

(a) Any vessel which shall be used in fishing for other species than halibut in any area after it has been closed to halibut fishing under Sections 2 or 4 of these regulations must have a halibut license and a permit if it shall retain, land or sell any halibut caught incidentally to such fishing or possess any halibut of any origin during such fishing, as provided in Section 7 of these regulations.

(b) The permit shall be shown by endorsement of the issuing officer on the face of the halibut license form held by said vessel and shall show the area or areas for which the permit is issued.

(c) The permit shall terminate at the time of the first landing thereafter of fish or crabs of any species and a new permit shall be secured before any subsequent fishing operation for which a permit is required.

(d) A permit shall not be issued to any vessel which shall have halibut on board taken while said vessel was licensed to fish in an open area unless such halibut shall be considered as taken under the issued permit and shall thereby be subject to forfeiture when landed if in excess of the proportion permitted in paragraph (a) or (b) of Section 7 of these regulations.

(e) A permit shall not be issued to, or be valid if held by, any vessel which shall fish with other than set lines of the type commonly used in the Pacific Coast halibut fishery except in that part of Area 3B known as Bering Sea as provided in paragraph (b) of Section 7 of these regulations.

(f) The permit of any vessel shall not be valid unless the permit is granted before departure from port for each fishing operation for which statistical returns are required. This granting of a permit shall be by customs officers or by fishery officers of the Governments of Canada or the United States when available at places where there are no customs officers and shall not be made unless the area or areas in which the vessel will fish is entered on the halibut license form and unless the provisions of Section 9 of these regulations have been complied with for all landings and all fishing operations since issue of the license or permit, provided that if the master or operator of any vessel shall fail to comply with the provisions of Section 9 of these regulations, the permit of such vessel may be granted by customs or fishery officers upon evidence either that there has been a judicial determination of the offense or that the laws prescribing penalties therefor have been complied with, or that the said master or operator is no longer

responsible for, nor sharing in, the operations of said vessel.

(g) A permit shall not be valid for the landing of halibut caught incidentally to fishing for crabs in that part of Area 3B known as Bering Sea unless the vessel shall show documentary evidence of date of departure from some port or place within said area, or from Akutan, Alaska, subsequent to such fishing. Such documentary evidence may consist of a certified written statement of a properly identified and responsible resident within that part of Area 3B known as Bering Sea or at Akutan.

(h) The permit of any vessel shall not be valid if said vessel shall have in its possession at any time halibut in excess of the amount allowed under paragraph (a) or (b) of Section 7.

(i) No person shall retain, land or sell any halibut caught incidentally to fishing for other species in any area closed to halibut fishing under Sections 2 or 4 of these regulations, or shall have halibut of any origin in his possession during such fishing, unless such person is a member of the crew of and is upon a vessel with a halibut license and with a valid permit issued and in force in conformity with the provisions of Sections 7 and 8 of these regulations.

Section 9. Statistical Return by Vessels

(a) Statistical return as to the amount of halibut taken during fishing operations must be made by the master or operator of any vessel licensed under these regulations and as to the amount of halibut and other species by the master or operator of any vessel operating under permit as provided for in Sections 7 and 8 of these regulations, within 96 hours of landing, sale or transfer of halibut or of first entry thereafter into a port where there is an officer authorized to receive such return.

(b) The statistical return must state the port of landing and the amount of each species taken within the area defined in these regulations, for which the vessel's license is validated for halibut fishing or within the area or areas for which the vessel's license is endorsed as a permit.

(c) The statistical return must include all halibut landed or transferred to other vessels and all halibut held in possession on board and must be full, true and correct in all respects herein required.

(d) The master or operator or any person engaged on shares in the operation of any vessel licensed or holding a permit under these regulations may be required by the Commission or by any officer of the Governments of Canada or the United States authorized to receive such return to certify to its correctness to the best of his information and belief and to support the certificate by a sworn statement. Validation of a halibut license or issuance of a permit after such sworn return is made shall be provisional and shall not render the license or permit valid in case the return shall later be shown to be false or fraudulently made.

(e) The master or operator of any vessel holding a license or permit under these regulations shall keep an accurate log of all fishing operations including therein date, locality, amount of gear used, and amount of halibut taken daily in each such locality. This log record shall be open to inspection by representatives of the Commission authorized for this purpose.

(f) The master, operator or any other person engaged on shares in the operation of any vessel licensed under these regulations may be required by the Commission or by any officer of the Governments of Canada or the United States to certify to the correctness of such log record to the best of his information and belief and to support the certificate by a sworn statement.

Section 10. Statistical Return by Dealers

(a) All persons, firms or corporations that shall buy halibut or receive halibut for any purpose from fishing or transporting vessels or other carrier shall keep and on request furnish to customs officers or to any enforcing officer of the Governments of Canada or the United States or to representatives of the Commission, records of each purchase or receipt of halibut, showing date, locality, name of vessel, person, firm or corporation purchased or received from and the amount in pounds according to trade categories of the halibut and other species landed with the halibut.

(b) All persons, firms or corporations receiving fish from a vessel fishing under permit as provided in Section 7 of these regulations shall within 48 hours make to an authorized enforcing officer of the Governments of Canada or the United States a signed statistical return showing the date, locality, name of vessel received from and the amount of halibut and of other species landed with the halibut and certifying that permission to

receive such fish was secured in accordance with paragraph (d) of Section 7 of these regulations. Such persons, firms or corporations may be required by any officer of the Governments of Canada or the United States to support the accuracy of the above signed statistical return with a sworn statement.

(c) All records of all persons, firms or corporations concerning the landing, purchase, receipt and sale of halibut and other species landed therewith shall be open at all times to inspection by any enforcement officer of the Governments of Canada or the United States or of any authorized representative of the Commission. Such persons, firms or corporations may be required to certify to the correctness of such records and to support the certificate by a sworn statement.

(d) The possession by any person, firm or corporation of halibut which such person, firm or corporation knows to have been taken by a vessel without a valid halibut license or a vessel without a permit when such license or permit is required, is prohibited.

(e) No person, firm or corporation shall unload any halibut from any vessel that has fished for halibut in Area 3B during the third halibut fishing season as defined in paragraph (e) of Section 2 of these regulations unless the license of said vessel has been validated at a port or place in Area 3B as required in paragraph (f) of Section 6 or unless permission to unload such halibut has been secured from an enforcement officer of the Governments of Canada or the United States.

Section 11. Closed Nursery Grounds

(a) The following areas have been found to be populated by small, immature halibut and are designated as nursery grounds and closed to halibut fishing, and no person shall fish for halibut in either of such areas, or shall have halibut in his possession while fishing for other species therein, or shall have halibut of any origin in his possession therein excepting in the course of a continuous transit across such area.

(b) First, that area in the waters off the coast of Alaska within the following boundary as stated in terms of the magnetic compass unless otherwise indicated: from the north extremity of Cape Ulitka, Noyes Island, approximately latitude 55° 33' 48" N., longitude 133° 43' 35" W., to the south extremity of Wood Island, approximately latitude 55° 39' 44" N., longitude 133° 42' 29" W.; thence to the east extremity of Timbered Islet, approximately latitude 55° 41' 47" N., longitude 133° 47' 42" W.; thence to the true west extremity of Timbered Islet, approximately latitude 55° 41' 46" N., longitude 133° 48' 01" W.; thence southwest three-quarters south sixteen and five-eighths miles to a point approximately latitude 55° 34' 46" N., longitude 134° 14' 40" W.; thence southeast by south twelve and one-half miles to a point approximately latitude 55° 22' 23" N., longitude 134° 12' 48" W.; thence northeast thirteen and seven-eighth miles to the southern extremity of Cape Addington, Noyes Island, latitude 55° 26' 11" N., longitude 133° 49' 12" W.; and to the point of origin on Cape Ulitka. The boundary lines herein indicated shall be determined from Chart 8157, as published by the United States Coast and Geodetic Survey at Washington, D.C., in June, 1929, and Chart 8152, as published by the United States Coast and Geodetic Survey at Washington, D.C., in March, 1933, and reissued March, 1939, except for the point of Cape Addington which shall be determined from Chart 8158, as published by the United States Coast and Geodetic Survey in December, 1923, provided that the duly authorized officers of the United States of America may at any time place a plainly visible mark or marks at any point or points as nearly as practicable on the boundary line defined herein, and such mark or marks shall thereafter be considered as correctly defining said boundary.

(c) Second, that area lying in the waters off the northern coast of Graham Island, British Columbia, within the following boundary, and including the waters of Sturgess Bay, Masset Sound, Masset Inlet, and bays and inlets thereof: from the northwest extremity of Wiah Point, latitude 54° 06' 50" N., longitude 132° 19' 18" W., true north five and one-half miles to a point approximately latitude 54° 12' 20" N., longitude 132° 19' 18" W.; thence true east approximately sixteen and three-tenths miles to a point which shall lie northwest (according to magnetic compass at any time) of the highest point of Tow Hill, Graham Island, latitude 54° 04' 24" N., longitude 131° 48' 00" W.; thence southeast to the said highest point of Tow Hill. The points on the shoreline of the above mentioned island shall be determined from Chart 3754, published at the Admiralty, London, April 11, 1911, provided that the duly authorized officers of Canada may at any time place a plainly visible mark or marks at any point or points as nearly as practicable on the boundary line defined herein, and such marks shall thereafter be considered as correctly defining said boundary.

Section 12. Dory Gear Prohibited

The use of any hand gurdy or other appliance in hauling halibut gear by hand power in any dory or small boat operated from a vessel licensed under the provisions of these regulations is prohibited in all convention waters.

Section 13. Nets Prohibited

(a) It is prohibited to retain halibut taken in Areas 1A, 1B, 2, 3A and in Area 3B exclusive of that part known as Bering Sea with a net of any kind or to have in possession any halibut in said areas while using any net or nets other than bait nets for the capture of other species of fish, nor shall any license or permit validated for said areas under these regulations be valid during the use or possession on board of any net or nets other than bait nets, provided that the character and the use of said bait nets conform to the laws and regulations of the country where they may be utilized and that said bait nets are utilized for no other purpose than the capture of bait for said vessel.

(b) It is prohibited to retain halibut taken in that part of Area 3B known as Bering Sea with any net which does not have a cod end or fish bag of webbing whose dry stretched mesh measures 12 inches or more between knots or hog rings, nor shall any license or permit held by any vessel fishing for crabs in that part of Area 3B known as Bering Sea be valid for the possession of halibut during the use or possession on board of any net which does not have a cod end or fish bag of webbing whose dry stretched mesh measures 12 inches or more between knots or hog rings.

Section 14. Retention of Tagged Halibut

Nothing contained in these regulations shall prohibit any vessel at any time from retaining and landing any halibut which bears a Commission tag at the time of capture, provided that such halibut with the tag still attached is reported at the time of landing to representatives of the Commission or to enforcement officers of the Governments of Canada or the United States and is made available to them for examination.

Section 15. Responsibility of Master

Wherever in these regulations any duty is laid upon any vessel, it shall be the personal responsibility of the master or operator of said vessel to see that said duty is performed and he shall personally be responsible for the performance of said duty. This provision shall not be construed to relieve any member of the crew of any responsibility with which he would otherwise be chargeable.

Section 16. Supervision of Unloading and Weighing

The unloading and weighing of the halibut of any vessel licensed under these regulations and the unloading and weighing of halibut and other species of any vessel holding a permit under these regulations shall be under such supervision as the customs or other authorized officer may deem advisable in order to assure the fulfillment of the provisions of these regulations.

Section 17. Previous Regulations Superseded

These regulations shall supersede all previous regulations adopted pursuant to the Convention between Canada and the United States of America for the preservation of the halibut fishery of the Northern Pacific Ocean and Bering Sea, signed January 29, 1937, except as to offenses occurring prior to the approval of these regulations. These regulations shall be effective as to each succeeding year, with the dates herein specified changed accordingly, until superseded by subsequently approved regulations. Any determination made by the Commission pursuant to these regulations shall become effective immediately.

EDWARD W. ALLEN, Chairman
GEORGE R. CLARK, Vice-Chairman
HAROLD S. HELLAND
J. W. MENDENHALL
RICHARD NELSON
SETON H. THOMPSON

Approved by THE GOVERNOR GENERAL OF CANADA, by Order-in-Council P.C. 1954-433 of March 25, 1954.

Approved by THE PRESIDENT OF THE UNITED STATES OF AMERICA, April 9, 1954.