

**REPORT OF THE INTERNATIONAL FISHERIES  
COMMISSION**

**APPOINTED UNDER THE TREATY BETWEEN THE UNITED STATES  
AND CANADA FOR THE PRESERVATION OF THE  
NORTHERN PACIFIC HALIBUT FISHERY**

**NUMBER 20**

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**REGULATION AND INVESTIGATION  
OF THE PACIFIC HALIBUT  
FISHERY IN 1952**

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## **FOREWORD**

The treaty 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 Fisheries Commission shall report upon its activities from time to time.

Nineteen reports have been issued prior to the present one which is the sixth 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 annual reports of previous years.



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## HISTORICAL BACKGROUND

The United States and Canada signed the first treaty for the preservation and development of the Pacific halibut fishery in 1923 and ratified it in 1924. This convention provided for a three-month winter closed season and for the appointment of the International Fisheries Commission to investigate the fishery and to recommend to the governments measures for its preservation.

The closed season alone failed to halt the decline in the fishery. After extensive scientific investigations, broader regulatory measures to rebuild the fishery were recommended to the two governments in 1928. A new convention, signed in 1930 and ratified in 1931, provided the necessary authority. Under this treaty 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; 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 established agencies of the individual governments.

The Commission's regulatory authority was extended by a new treaty, signed and ratified in 1937. It continued the provisions of the 1930 treaty but also provided for the control of the capture of halibut caught incidentally to fishing for other species in closed halibut fishing areas 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.

The fishery has been controlled since 1932 by regulations adopted annually by the Commission and approved by the President of the United States and the Governor General of Canada.

The stocks of halibut available to the fishery have increased greatly in magnitude under regulation and the annual catch during the past 4 years has averaged over 58 million pounds, about 14 million pounds greater annually than in 1931. The increased abundance has brought about a sharp reduction in the amount of fishing effort required to secure the larger annual catch and, together with a more than twofold increase in the size of the fleets, has sharply reduced the length of the fishing season.

The shortening of the fishing season has altered the distribution of fishing because the stocks of halibut on different grounds are not equally available at all times of year. Statistical and biological investigations indicate that some grounds whose stocks are most available at the time of the shortened fishing season are being overfished and that other grounds whose stocks are most available at other times of year are being underfished.

In 1946 the Commission recommended to the two governments treaty changes that would permit the application of measures to spread fishing over a longer season and obtain better utilization of all the stocks.

The terms of the current treaty allow only one fishing period in each regulatory area each year. This has made only two types of measures available for broadening the distribution of fishing, namely, a variation in the season of fishing from year to year and a subdivision of the present large areas into smaller ones each of which may be opened at an appropriate but different time of year.

Pending suitable treaty authority being provided, a test of the practicality of improving the utilization of the available supply of halibut under present treaty powers was undertaken in 1951.

Two small underfished sections of a hitherto large regulatory area were established as independent areas and opened for a short fixed period at a time of year when, historically, they yielded their best fishing. They produced about 3.5 million pounds, a net gain of 2.5 million pounds over the catches from the same areas during the regular fishing season in recent years.

### ACTIVITIES OF THE COMMISSION

In 1952 the Commission completed the twenty-first year of regulation of the halibut fishery. The statistical and biological investigations that have formed the basis for regulation and that serve as a guide to future control of the fishery were continued.

Mr. Milton C. James, having retired from the U.S. Fish and Wildlife Service, resigned from membership on the Commission after six years of service. Mr. Seton H. Thompson, Chief of the Branch of Alaska Fisheries, U.S. Fish and Wildlife Service, was appointed by the President of the United States to fill the vacancy. The duties of the office were assumed by him on August 21, 1952.

The Commission held its regular annual meeting at Seattle, Washington, on January 23, 24 and 25. Conferences were held with representative Canadian and United States wholesale halibut dealers, with the Conference Board composed of representatives from the fishermen's and vessel owners' organizations in the major halibut ports, and with representatives of the otter trawl fishery in Washington State and of the Bering Sea king crab trawl fishery.

The statistics of the fishery and the results of scientific investigations in 1951 were reviewed at a joint meeting with the dealers and fleets. The latter were advised that the Commission was considering a program of gradually varying the fishing season to utilize more sections of the stocks. At a separate meeting the dealers stated that an advance notice of one year was desirable in any change in opening date of the season and that any changes should be made by gradual steps. Some felt that an opening date as late as June 10 would conflict with the salmon fishery.

At another meeting the Conference Board representing the fleets presented several unanimous recommendations regarding the regulations, but were divided on the question of opening dates in 1952 and 1953.



Following review of the 1951 fishery and the proposals of the industry, regulations for 1952 were adopted for submission to the two governments. The Commission decided to recommend that the season be opened in 1952 on May 14, and tentatively for 1953 on some date to be decided on the basis of tides between June 1 and June 10, and so advised the industry.

### THE 1952 REGULATIONS

The Pacific Halibut Fishery Regulations for 1952 were approved by the President of the United States on April 18 and by the Governor General of Canada on April 22 and then became effective.

The convention waters were divided into eight regulatory areas, one more than in 1951, by subdividing former Area 3 into 3A and 3B. The eight areas, shown in Figure 1, were: Area 1A, the waters off the southern Oregon and northern California coasts south of Cape Blanco, Oregon; Area 1B, the waters off the Oregon and Washington coasts between Cape Blanco and Willapa Bay, Washington; Area 2A, the waters between Willapa Bay and Cape Spencer, Alaska, exclusive of Areas 2B and 2C; Area 2B, off the east coast of Moresby Island in lower Hecate Strait; Area 2C, off the west coast of Dall Island in the Forrester Island region of southeastern Alaska; Area 3A, extending from Cape Spencer to a line running south three-quarters east from Bold Cape through Caton Island of the Sanak Islands group; Area 3B, extending between the Bold Cape - Caton Island line and a line running true west from Cape Sarichef on Unimak Island and Area 4, including those waters of the Bering Sea lying north of the Cape Sarichef line.

The regular fishing season opened on May 14, thirteen days later than in 1951. Other changes included the establishment of a recently underfished far western section of previous Area 3 as a separate area, Area 3B, and the opening of this in late summer from August 2 to 18 inclusive, at the season when it used to yield its greatest catches. This was an extension of the procedure commenced in Area 2 in 1951. Area 4, in Bering Sea, was opened at the same time as Area 3B. The two small areas, Area 2B off British Columbia and Area 2C off southeastern Alaska, first established in 1951, were again opened as separate areas for 10 days commencing July 26 as in 1951.

Vessels fishing for crab in Area 4, in Bering Sea, with bottom nets of 12-inch or larger mesh were permitted to retain halibut caught incidentally to such fishing between August 19 and November 13 inclusive.

Catch limits of 25,500,000 pounds and 28,000,000 pounds were provided for Areas 2A and 3A respectively, Area 3A being given the catch limit of former Area 3. Areas 1A and 1B, where the catch of halibut is comparatively small, were allowed to continue without catch limits. Areas 2B, 2C, 3B and 4 also had no catch limits assigned to them. The previous catch limit of 500,000 pounds for Area 4 was removed in view of the specified period of fishing provided in the regulations.

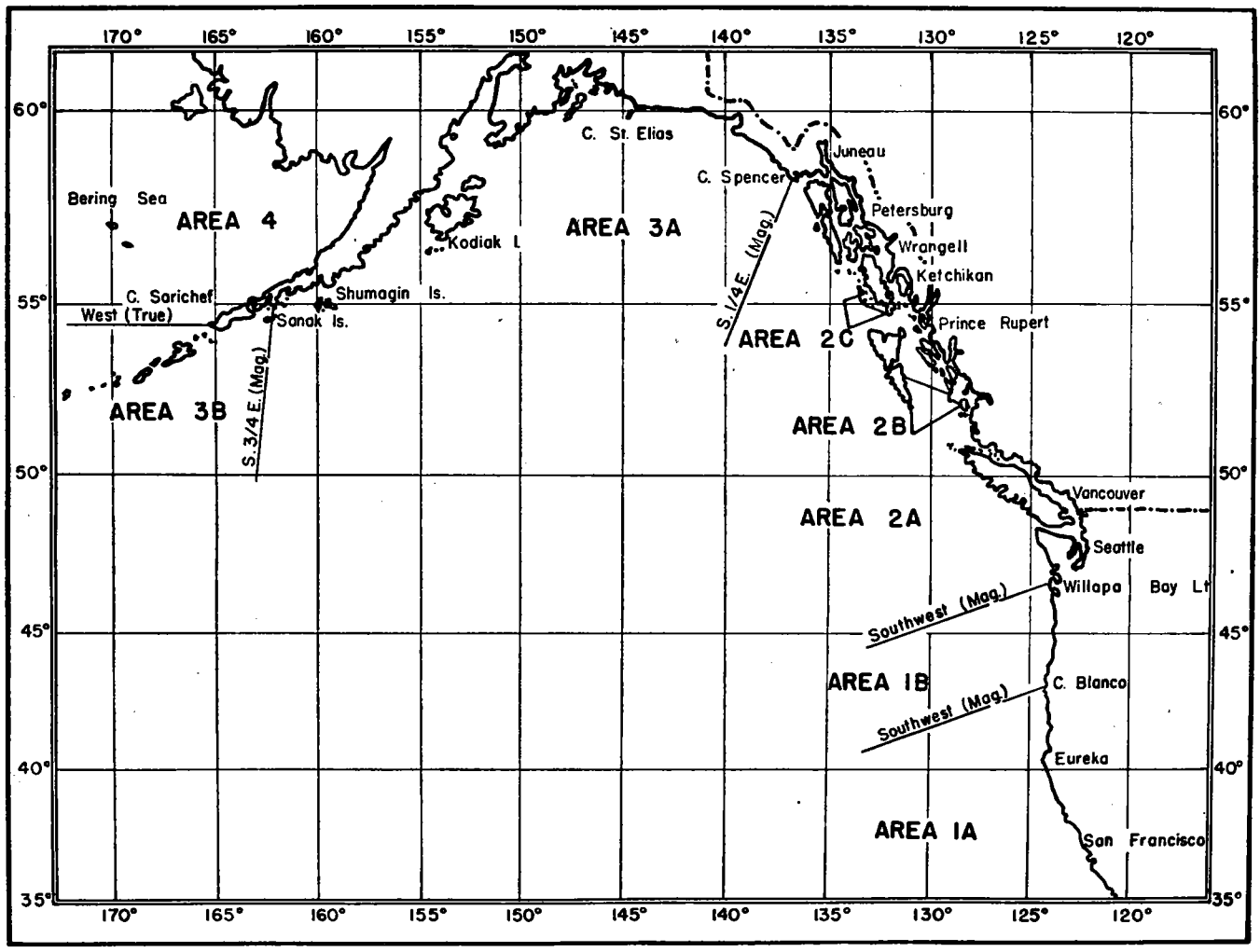


FIGURE 1. Pacific Coast of North America, showing the regulatory areas defined by the International Fisheries Commission in 1952.

The closure dates of Areas 2A and 3A were again made contingent upon the attainment of their respective catch limits. The closure date of Area 2A was applied to Area 1B and that of Area 2A or Area 3A, whichever was later, was applied to Area 1A.

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 Masset 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 of halibut caught incidentally during fishing for other species in Areas 1A, 1B, 2C, 3A and 3B, and the beginning of the winter 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.

Areas 2A and 1B were closed to halibut fishing at midnight of June 8 and Areas 3A and 1A were closed at midnight of July 12. Areas 2B and 2C were closed at midnight of August 4 and Areas 3B and 4 at midnight of August 18, as specified in the regulations.

The closure dates of Areas 2A and 3A were announced in advance on May 28 and June 23 respectively, on the basis of the estimated dates of attainment of their respective catch limits.

### STATISTICS OF THE FISHERY

Landings during 1952 from groups of regulatory areas that correspond to the original Areas 1, 2 and 3 are given and compared in the following table with landings for 1950 and 1951 and with landings at five-year intervals back to 1931, the year immediately prior to the commencement of regulation.

All figures are in thousands of pounds, and are corrected for amounts of halibut caught in contravention of the regulations, amounts declared from the wrong area and amounts estimated to have been landed but not reported. All 1952 figures in this report are preliminary and subject to minor changes.

Year	Area 1*	Area 2†			Area 3‡			All Areas		
	U.S.	U.S.	Canada	Total	U.S.	Canada	Total	U.S.	Canada	Total
1931	923	14,609	7,018	21,627	20,907	765	21,672	36,439	7,783	44,222
1935	1,489	13,563	9,255	22,818	22,088	953	23,041	37,140	10,208	47,348
1940	779	15,362	12,254	27,616	25,266	646	25,912	41,407	12,900	54,307
1945	401	12,824	11,554	24,378	25,584	3,567	29,151	38,809	15,121	53,930
1950	392	12,862	14,184	27,046	25,396	4,815	30,211	38,650	18,999	57,649
1951	319	14,411	16,229	30,640	20,599	4,816	25,415	35,329	21,045	56,374
1952	238	13,709	16,950	30,659	23,861	7,464	31,325	37,808	24,414	62,222

\*Includes Areas 1A and 1B after 1945.

†Includes Areas 2A, 2B and 2C in 1951 and 1952.

‡Includes Areas 3A, 3B and 4 in 1952.

The landings from Areas 1A and 1B are combined under Area 1, the corresponding original area. These areas are at the southern extremity of the commercial range of the species and, as their 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 combined catch of 30,659,000 pounds in 1952 from Areas 2A, 2B and 2C, which correspond to the original Area 2, was approximately the same as in 1951. Landings by Canadian vessels of 16,950,000 pounds were 55 per cent of the total compared to 52 per cent in 1951.

Included in the landings from Area 2A are 458,000 pounds caught incidentally to fishing under permit in the area for other species after Area 2A had been closed to halibut fishing. Permit landings of 9,600 pounds from Area 3A are included in the Area 3 total.

The 1952 catch from Areas 3A and 3B, which were previously included in Area 3, was 31,192,000 pounds. This was the largest catch ever taken from the grounds west of Cape Spencer.

Production from Areas 2 and 3 has increased markedly under regulation. The average annual catch for 1951 and 1952 from grounds included in the original Area 2 was 30,649,000 pounds which is 9.3 million pounds greater than in 1931, the year immediately preceding regulation. The average annual yield from the original Area 3 in 1951 and 1952 was 28,243,000 pounds which is 6.4 million pounds greater than in 1931.

United States and Canadian landings from all areas in 1952 amounted to 62.3 million pounds and were 18.1 million pounds above the 1931 level. The 1952 total was the largest annual catch in 37 years.

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

YEAR	CALIF. and OREGON	WASHINGTON		ALASKA		BRITISH COLUMBIA			TOTAL	TOTAL
		Seattle	Other Ports	S.E. Alaska	Central Alaska	Van- couver	Prince Rupert	Other Ports	Canadian Ports	U.S. Ports
1931	892	15,032	202	8,240	1,482	1,066	16,792	516	18,374	25,848
1935	1,281	22,275	114	6,536	13	2,242	12,964	1,923	17,129	30,219
1940	1,014	19,203	258	9,544	182	1,907	18,765	3,434	24,106	30,201
1945	756	12,140	553	18,796	2,181	1,943	15,346	2,215	19,504	34,426
1950	723	7,473	1,465	21,008	4,367	1,096	17,020	4,497	22,613	35,036
1951	540	9,648	1,563	15,892	3,859	2,512	17,739	4,622	24,873	31,502
1952	411	11,425	2,001	19,259	2,704	2,400	19,686	4,337	26,423	35,800

The larger coastwise landings in 1952 are reflected in increased landings in the major ports, Seattle, Prince Rupert, Ketchikan and in a small Puget Sound port near Seattle. Landings in central Alaska ports again declined sharply as the lowered prices of 1951 and 1952 tended to direct landings to ports closer to rail heads with their higher prices.

**ABUNDANCE OF HALIBUT IN AREAS 2A AND 3A**

All halibut vessels of five net tons or more are required to keep a record of each fishing operation, showing date, location, amount of fishing and estimated catch. These records are collected and analyzed annually to ascertain the trend of abundance in the important areas and subsections of the coast.

The abundance of halibut in Area 2A has maintained an upward trend for the past 22 years since 1930. From time to time there have been temporary cessations in the increase such as in 1951 when the over-all average catch per skate of gear for Area 2A was the same as the previous year. In that year some sections of the area showed an increase and others a small decline. In 1952 a pronounced increase in the catch per unit of effort occurred in all portions of the area.

In Area 3A the abundance of halibut followed a rising trend from 1931 to 1944. During the next five years a recession occurred. In 1950 there was some recovery which was continued in 1951. During the 1952 season, a sharp increase in the preliminary catch per skate was observed over all sections of the area. The abundance was as high as it had been in the previous 30 years with the exception of 1944.

The later opening of the season in Areas 2A and 3A in 1952 may have played some part in the sharpness of the increases in the catch per unit of effort. However, until it is determined that the increases are maintained in subsequent years, much of the 1952 rise must be tentatively attributed to changes in availability.

### THE FISHERY IN THE SPECIAL SMALL AREAS

In 1951 two small sections of what was previously known as Area 2, one in southern Hecate Strait, Area 2B, and the other in the Forrester Island region of southeastern Alaska, Area 2C, were opened in late summer for a set period of 10 days. The boundaries of these areas are shown in Figure 2. In 1952 the Commission applied the same treatment to the western section of Area 3.

The following table summarizes the preliminary statistics of the fishery in these special areas and gives comparative data for the 1951 fishery in Areas 2B and 2C. Catches are shown in 1000's of pounds.

	Area 2B (Lower Hecate Strait)				Area 2C (Forrester I.)				Area 3B (W. of Sanak Is.)		Area 4 (Bering Sea)	
	Catch		No. of Vessels		Catch		No. of Vessels		Catch	No. of Vessels	Catch	No. of Vessels
	1951	1952	1951	1952	1951	1952	1951	1952				
CAN.	1,451	1,457	56	56	265	248	8	13	69	1	—	—
U. S.	918	634	46	32	950	1,047	35	78	810	38	133	6
U. S. and CAN.	2,369	2,091	102	88	1,215	1,295	43	91	879*	39**	133*	6**

\*About 120,000 pounds of the Area 3B catch was taken in the portion of that area lying north of the Aleutian Islands. This amount combined with the 133,000 catch in Area 4 gives a total catch of 253,000 pounds from Bering Sea waters.

\*\*Includes 4 vessels that fished both Areas 3B and 4.

In Area 2B, in southern Hecate Strait, the total catch was less than in 1951 although almost the same size of fleet operated. In Area 2C, the fleet was over twice as large as in 1951 but produced only a slight increase in total yield.

The average catch per unit of effort over 1951 declined sharply in Area 2C and to a lesser extent in Area 2B. The declines were in accord with expectations and were the inevitable consequences of congestion on the grounds and of the heavy withdrawals from the stocks in the two years. Both areas also showed a reduction in the proportion of larger sized fish in the catch.

These results indicate that the frequently repeated opening of such small areas to an intense fishery could become biologically undesirable as well as unprofitable to the participants in the fishery.

In 1952, in addition to the continued special treatment of Areas 2B and 2C, the portion of Area 3 that extends west from the Sanak Islands was established as Area 3B, whose boundaries are shown in Figure 3, and was opened from August 2 to 18 inclusive. The remainder of Area 3 became Area 3A.

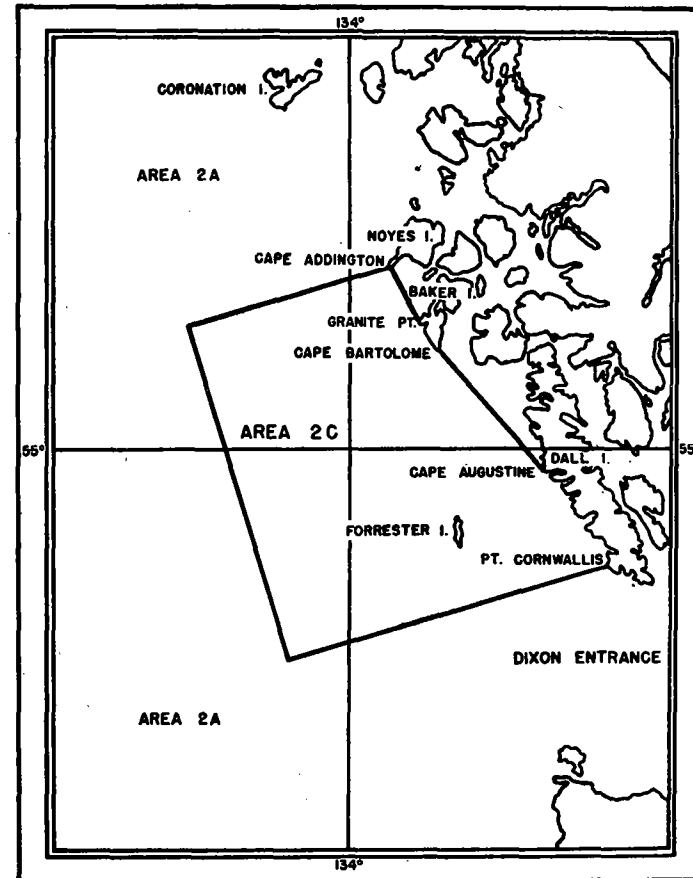
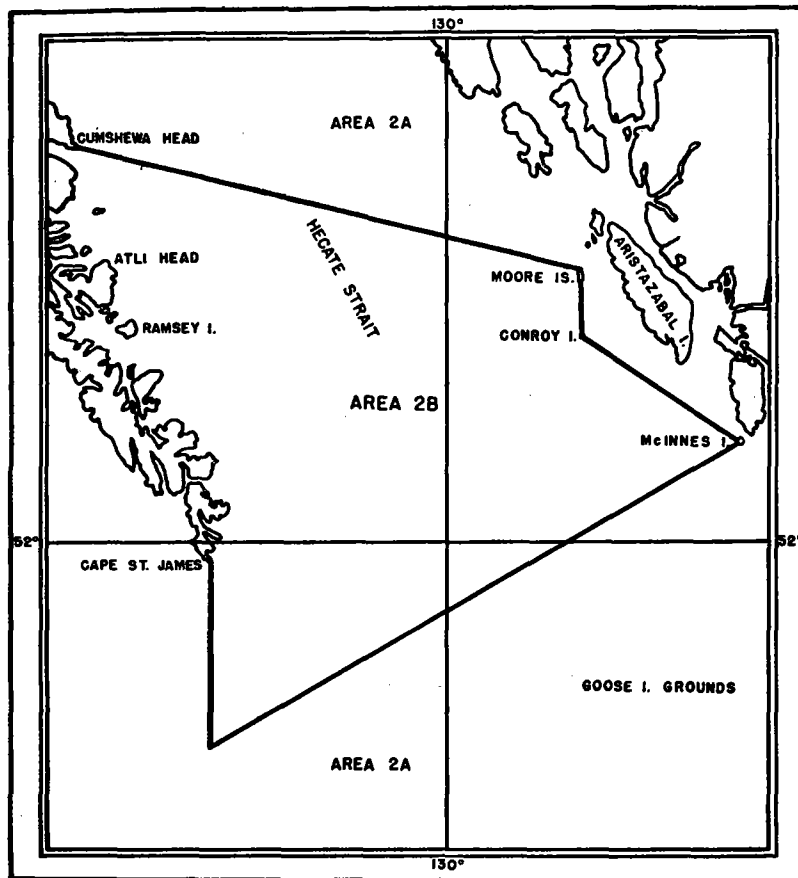


FIGURE 2. Area 2B and Area 2C, as defined by the International Fisheries Commission in 1951 and 1952.

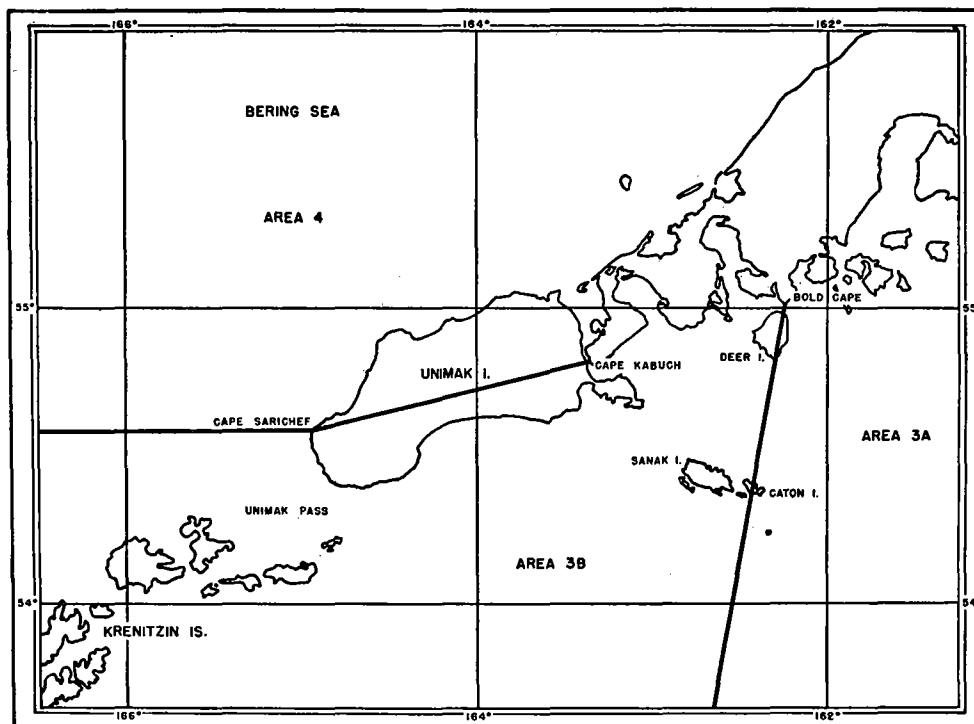


FIGURE 3. Area 3B, as defined by the International Fisheries Commission in 1952.

The far western grounds beyond Sanak Islands and along the Aleutian Islands, corresponding to Area 3B, were first exploited on a major scale in 1930. The annual catches from these grounds from 1929 to 1952 have been as follows:

Year	Pounds	Year	Pounds
1929.....	114,000	1946.....	747,000
1930.....	1,569,000	1947.....	447,000
1931.....	1,793,000	1948.....	865,000
1932.....	393,000	1949.....	362,000
1933.....	112,000	1950.....	188,000
1934-1943.....	none	1951.....	73,000
1944.....	95,000	1952.....	879,000
1945.....	228,000		

A number of vessels made successful trips to banks in the vicinity of Unimak Pass in 1930 and 1931. After 1931 the improvement in the catch per skate on grounds to the eastward made a continuation of the longer runs to such distant grounds unnecessary.

After World War II, fishing was again undertaken on Sanak and Davidson banks and the establishment of a cold storage plant in the



Shumagin Islands in 1948 also tended to attract vessels to these more westerly grounds. As the length of the fishing season continued to shorten, the extra running time required to fish these grounds became a critical factor in the season's operations and the fleet gradually abandoned the area after 1948. Furthermore, the May, June and early July fishing seasons of recent years did not coincide with the period of the year when these far western areas had been in best production. The season for best fishing can be judged from the following table which shows the percentage of the monthly catches from west of Kodiak Island in 1930 and 1931 that were taken west of the Sanak Islands.

Month	Percentage of Monthly Catches	
	1930	1931
May.....	—	7
June.....	3	31
July.....	18	51
August.....	50	57
September.....	46	24
October.....	17	—

The above table indicates that from July to September the grounds west of Sanak Islands accounted for a large share of the production from the banks lying west of Kodiak Island.

Newly established Area 3B was opened later in the summer for 17 days fishing, from August 2 to August 18 inclusive. Area 4, which includes most of Bering Sea, was opened simultaneously with Area 3B. The objectives to be served by thus subdividing the original Area 3 and by opening Area 4 with Area 3B, were twofold—to increase the fishing in the more westerly portion of Area 3, and to encourage vessels to fish in the Bering Sea.

The separate regulation of the far western part of Area 3 in 1952 resulted in a catch that was over 700,000 pounds in excess of what had been secured from that region during the regular season of recent years. The total caught was only slightly below what had been anticipated for the experiment, but the number of boats that fished were in excess of what had been estimated early in the year.

To enforce the closure of the adjacent Area 3A, vessels fishing Area 3B and 4 were required to report inwards and outwards at False Pass, a point located within Area 3B. The 17-day open period provided some time for prospecting and for any delays from bad weather that might interfere with securing a profitable catch.

The simultaneous opening of Area 4, in Bering Sea, with Area 3B and the opportunity to fish in both on the same trip was designed to attract some vessels to the Bering Sea and establish a halibut fishery there. The 1952 regulations also provided that vessels fishing in Area 4 for crab with

bottom nets of 12-inch or larger mesh were permitted to retain a set proportion of halibut caught incidentally to such crab fishing between August 19 and November 13 inclusive.

The Bering Sea has been known to possess some stock of halibut. Its magnitude and possible relationship to the stocks to the eastward has been for many years a matter of limited study and conjecture. Since halibut is a temperate water species, the sub-arctic hydrographical conditions that prevail in most of the Bering Sea would not be conducive to the existence of any extensive stock in that area. Recoveries from marking experiments conducted in 1930 and 1947 indicated that Bering Sea halibut were taken to some degree by the established fishery elsewhere.

In 1947 when it appeared that a fishery might be developed in that area, the Commission placed a catch limit of 500,000 pounds on Area 4, none of which was taken. The difficulty was that for purposes of enforcement it was necessary to close Area 4 at the same time as Area 3. The catch limit was removed in 1952 as it was superfluous in view of the specified fishing period of 17 days being provided in the regulations.

As a result of the change in the regulations in 1952, about 253,000 pounds were caught by eight units of the regular fleet in Bering Sea waters which include Area 4 and a portion of Area 3B, thus establishing a halibut fishery therein.

The marketed catch of incidentally caught halibut by crab trawlers in the Bering Sea was limited to 1,210 pounds landed by the one trawler fishing that area after August 19. It is estimated that about 6,000 pounds were caught between August 19 and November 13, the period during which incidentally caught halibut could be retained, but storage space and transportation problems prevented retention of most of the catch.

### SIZE AND AGE COMPOSITION OF CATCHES

In addition to changes occurring in the abundance of the commercially available stocks of halibut on the various grounds, differences are also found in the size and age-composition of the catches from place to place and from year to year. These changes determine the productivity of the stocks and must be assessed in order to regulate the fishery.

Sampling of the commercial catches for length-composition and age-composition materials was conducted at Seattle, Vancouver and Prince Rupert during the fishing seasons. Approximately 47,300 measurements and some 8,600 otoliths were secured from 80 trips distributed as follows: 29 trips from Area 2A, 10 from Area 2B, 10 from Area 2C, 25 from Area 3A, and 6 from Areas 3B and 4. These samples from the commercial catch were supplemented by 8,800 measurements and 4,400 otoliths collected incidentally during tagging operations in Areas 2A, 2B, 2C and 3A.

The Goose Island grounds in Area 2A have been sampled for 19 consecutive years, during which several short term fluctuations in the supply of young have been apparent. The 1952 samples showed a continuation of a decline in the number of "chicken" halibut (below 10 pounds) which has made the fishery increasingly dependent upon "medium" halibut (10 to 60 pounds) since 1947. There was a noticeable scarcity of 7-year-old and younger fish (Figure 4) and the 9- to 11-year-olds, which are the mainstay of the present fishery, were being drawn upon heavily. The contribution of fish 11 years of age and older was heavy and of those above 12 years was the highest observed in 19 consecutive years. The abrupt increase in the catch of older fish must be attributed to changes in distribution and availability, inasmuch as individuals of these declining year classes were taken in greater abundance than in 1951.

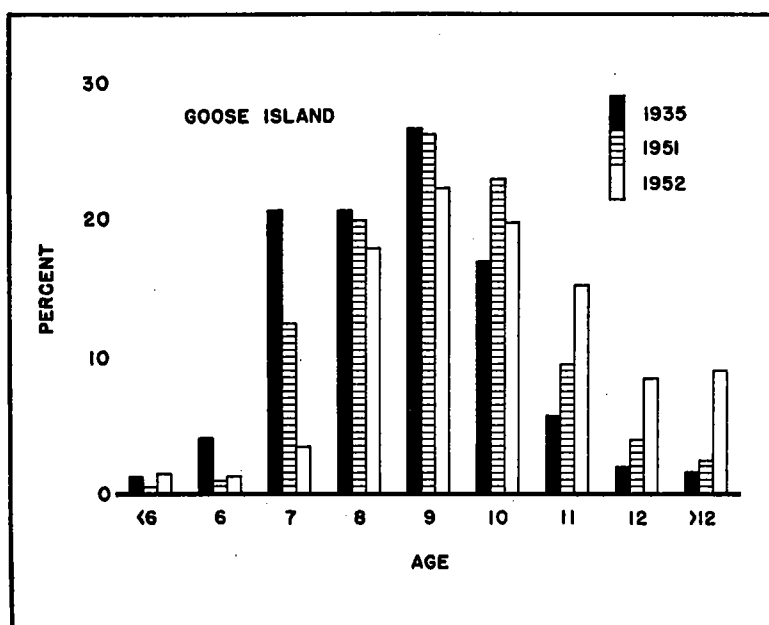


FIGURE 4. Per cent of halibut at each age, by numbers, in May-June catches from the Goose Island region of Area 2A, in 1935, 1951 and 1952.

Though the over-all abundance of halibut on Goose Island grounds has been well maintained, the reduced showing of younger fish should not be discounted in judging future prospects.

Length samples taken at Prince Rupert of northern and middle Hecate Strait stocks from 1949 to 1952 contained a higher proportion of medium-sized fish than did the corresponding Goose Island samples. Middle Hecate Strait fish were also consistently larger than those in northern Hecate Strait.

The age composition of the catches from Area 2B (Figure 5) which had been little fished in recent years, showed in 1951 a much greater increase

in the proportion of older fish over 1935 levels than did the catches from the adjoining Goose Island section of Area 2A (Figure 4) which had been continuously subjected to an intense fishery. In 1952, the age composition of the Area 2B stock showed the effect of the heavy withdrawals from this stock during the 1951 and 1952 fishing seasons in that area. The number of the fish 12 years of age and older in 1952 was about 25 per cent lower than in 1951, but was still much higher than in the mid-1930's.

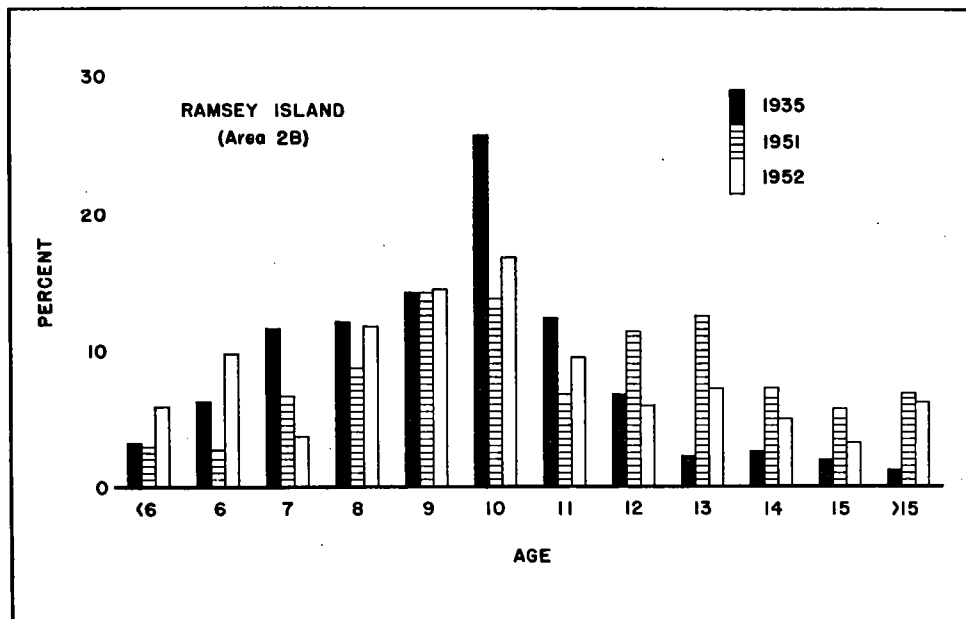


FIGURE 5. Per cent of halibut at each age, by numbers, in July-August catches from Area 2B grounds, in 1935, 1951 and 1952.

The analyses of the size and age composition of the Area 3A stocks were continued for the fourth consecutive year. The size composition showed consistent differences in the character of the stocks in four main portions of the area, but from year to year no significant changes were apparent. Some differences in the strength of the year classes were indicated by the progressive prominence of some of the classes.

The few market samples obtained from Area 4 tend to indicate that the stock in Bering Sea consists of young fish. Samples from the Slime Bank were composed predominantly of fish from 8 to 12 years old and contained very few individuals as old as 16 years, the upper limit of immaturity for females. In Area 3A, in contrast, the main contributing groups were from 10 to 15 years old and individuals over 16 years of age were numerous. Occasional fishing in Bering Sea in earlier years was also characterized by catches of small fish.

**TAGGING PROGRAM**

Tagging in 1952 marked the fourth year of operations under the expanded program started in 1949. This program was initiated for purposes discussed previously\*, namely, to ascertain the relationship existing between stocks in different sections of the large regulatory areas and between stocks found on the same grounds at different seasons of the year, and the contribution of each to the present fishery. It involves tagging both within and without the current short fishing season.

During the four years, samples of halibut stocks have been tagged and released from Cape Flattery to the Sanak Islands. From 1949 to 1951 operations were conducted chiefly after the commercial fishing season. A summary of recent operations are shown by years in the following table:

Year	Number of Trips	Days of Charter	Skates Fished	Total Pounds Caught	Number Tagged
1949.....	3	61	940	134,000	2,416
1950.....	7	97	1,789	160,000	4,337
1951.....	10	154	2,737	390,000	11,140
1952.....	8	121	1,982	238,000	4,255
Total	29	433	7,448	912,000	22,148

The above table does not include 26 tags released in 1950 by courtesy of scientists of the Alaska Department of Fisheries during their tagging of troll-caught salmon, nor 192 halibut tagged in the Bering Sea in 1952 by courtesy of Captain W. M. Blackford of the Deep Sea Trawlers Inc. while fishing for crab.

The 22,148 halibut tagged by the Commission from 1949 to 1952 inclusive exceeds the 21,625 tagged during the previous 24 years from 1925 to 1948.

The regions fished, time of tagging and number released during the 1952 operations were as follows:

Region Fished	Month	Number Tagged
Albatross and Seward Gullies.....	May	1,390
Forrester I.—Cape Addington.....	April-June-July	250
North end of Graham Island.....	April-July	1,185
Hecate Strait.....	June-July	658
Cape Scott.....	March-April	772
		4,255

An urgent need for tagging in Areas 2B and 2C necessitated continued operations there in spite of less successful fishing. This circumstance coupled with adverse weather conditions and the larger average size of fish caught in 1952 reduced the number of tags released per trip to a level below the previous three years.

\*Report No. 15, pp. 13-17, 1950.

In 1952, a total of 1,162 tags were recovered, more than in any previous year. Of this number, 886 were recovered from releases in 1951 and 109 from 1952. The remaining 167 were recovered from experiments conducted in the years 1946 through 1950.

The 1952 recoveries from recent summer tagging on the far western grounds of Area 3A supported previous indications that these stocks contribute little to the total Area 3A catch during the present May to July season. Of the 3,414 tags released from Trinity Islands and westward in the summer of 1950, only 1.5 per cent were recovered in two years. None of these was returned during the special season in Areas 3B and 4 in August 1952.

The first year's returns from the large sample tagged on Goose Island ground in September-October 1951 corroborated the results from the small 1946 August experiment, namely, that the late summer stocks are not contributing proportionately to the current spring fishery.

The Area 2B fishery in 1951 and 1952 recovered 12 per cent and 8 per cent respectively of the tagged fish released in 1950 on the same grounds at the same season. This recovery rate appears to be low in view of the intense fishing during the 10-day seasons and the sharp decline in catch per skate from day to day. The relatively low rate of recoveries in the first two years would seem to justify the tentative conclusion that the fishery in Area 2B reached only part of the accumulated stock of larger halibut in that region.

None of the tags released in Area 2B were recovered during the May season in Area 2A in 1951 and 1952. Thus, the first two years' recoveries failed to show any exploitation of the summer stocks of Area 2B during the spring fishing season in Area 2A.

The Area 2C fishery in 1952 recovered 9 per cent of the fish tagged on the same grounds at the same season in 1951. Only one per cent of the fish tagged in Area 2C was recovered outside the area of tagging.

Thus, evidence to date indicates that the stocks of Areas 2B and 2C do not contribute appreciably to present May-June fishing in Area 2A, nor is there any noteworthy migration of stock from Area 2A into Area 2B or Area 2C.

The compilation of data concerning the estimated intensity of fishing in subsections of Areas 2 and 3 was nearly completed. These data, which cover the years from 1927 to 1952, are necessary to properly evaluate the recoveries from tagging experiments both past and present.