

**INTERNATIONAL PACIFIC HALIBUT COMMISSION**

ESTABLISHED BY A CONVENTION BETWEEN  
CANADA AND THE UNITED STATES OF AMERICA

**ANNUAL REPORT**  
**1973**

*50th Anniversary*

COMMISSIONERS:

NEILS M. EVENS

WILLIAM S. GILBERT

CLIFFORD R. LEVELTON

FRANCIS W. MILLERD

JACK T. PRINCE

ROBERT W. SCHONING

SEATTLE, WASHINGTON

1974

This Annual Report is for the Commission's 50th year. Two other series, Scientific Reports and Technical Reports, present the results of scientific studies and statistical records of the fishery. Information Bulletins that summarize research results are distributed to fishermen and industry members.

INTERNATIONAL PACIFIC HALIBUT COMMISSION  
P.O. BOX 9, UNIVERSITY STATION  
SEATTLE, WASHINGTON 98105, U.S.A.

# Preface

---

The International Pacific Halibut Commission was established in 1923 by a Convention between Canada and the United States for the preservation of the halibut fishery of the North Pacific Ocean and the Bering Sea. The Convention was the first international agreement providing for joint management of a marine fishery. The Conventions of 1930, 1937 and 1953 extended the Commission's authority and specified that the halibut stocks be developed and maintained at levels to permit the maximum sustained yield.

Three Commissioners are appointed by the Governor General of Canada and three by the President of the United States. The Commissioners appoint the Director of Investigations who supervises the scientific and administrative staff. The scientific staff collects and analyzes statistical and biological data needed to manage the halibut fishery. The headquarters and laboratory are located at the University of Washington in Seattle, Washington. Each country provides one-half of the Commission's annual appropriation.

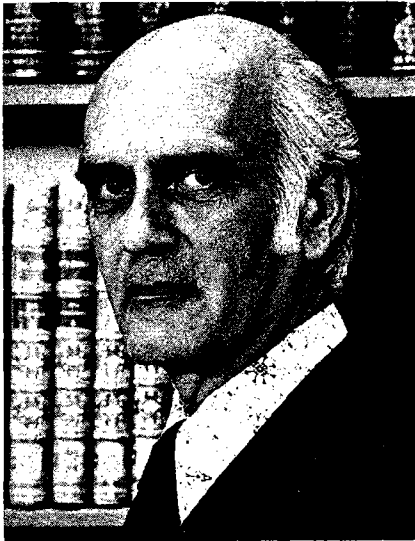
The Commissioners meet annually to review the regulatory proposals made by the scientific staff and consider advice of the Conference Board, representing vessel owners and fishermen, and of other interested parties. The regulatory measures are submitted to the two governments, and the fishermen of each nation are required to observe those regulations that are adopted.

INTERNATIONAL PACIFIC HALIBUT COMMISSION  
ANNUAL REPORT 1973

## Contents

---

|   |       |
|---|-------|
| Activities of the Commission .....                      | 7     |
| Director's Report .....                                 | 8     |
| The Fishery .....                                       | 9     |
| Regulations .....                                       | 9     |
| Regulatory Areas .....                                  | 9     |
| Catch Limits and Length of Seasons .....                | 9     |
| Size Limits .....                                       | 11    |
| Sport Fishing for Halibut .....                         | 11    |
| Statistics of the Fishery .....                         | 11    |
| Landings by Ports .....                                 | 12    |
| Value of the Catch .....                                | 13    |
| Number of Vessels and Fishermen .....                   | 13    |
| Condition of the Resource .....                         | 14    |
| Catch Per Unit Effort (CPUE) .....                      | 14    |
| Age Composition .....                                   | 15    |
| <i>50th Anniversary – Special Section</i> .....         | 17-36 |
| Scientific Investigations .....                         | 37    |
| Assessment of the Halibut Stocks in Areas 2 and 3 ..... | 37    |
| Age of Halibut in Setline Catch .....                   | 37    |
| Fishing Mortality .....                                 | 38    |
| Effect of Trawling .....                                | 38    |
| Bering Sea Groundfish Observer Program .....            | 39    |
| Effects of Trawling in the Eastern Bering Sea .....     | 40    |
| Biostatistics .....                                     | 41    |
| Catch Sampling .....                                    | 41    |
| Age and Weight Differences by Gear .....                | 41    |
| Juvenile Halibut Studies .....                          | 42    |
| Tagging Experiments .....                               | 44    |
| Head-off Size Limit .....                               | 44    |
| Licensing of Halibut Vessels .....                      | 46    |
| Publications .....                                      | 47    |
| Calendar Year 1973 .....                                | 47    |
| Commission Publications, 1928-1973 .....                | 48    |



WILLIAM M. SPRULES  
Canadian Commissioner, 1957-1973



MARTIN K. ERIKSEN  
Canadian Commissioner, 1963-1973

## Activities of the Commission

---

The Commission held its 49th Annual Meeting in Petersburg, Alaska, January 22-26, 1973. Mr. Neils M. Evens presided as Chairman and Mr. Martin K. Eriksen was Vice Chairman. At the public session, the staff reviewed the results of scientific investigations, the effects of the 1972 halibut regulations and the condition of the halibut stocks. The session was attended by representatives of the Pacific Coast halibut industry and other interested persons. The Commission also met with the Conference Board whose members represent vessels owners and fishermen. The Commission received written proposals from the International Trawlers Association and the Tuxthwade Indian Tribe, Angoon, Alaska. The recommendations of these organizations were thoroughly considered by the Commission.

Regulatory proposals were adopted for the 1973 halibut season and submitted to the Canadian and United States Governments for approval. The Commission reviewed administrative and fiscal matters, approved the research plans for 1973 and the budget for fiscal year 1975. Mr. Martin K. Eriksen was elected Chairman and Mr. Robert W. Schoning was elected Vice Chairman for 1973.

During the 1973 fishing season the Commission periodically reported the catch from each regulatory area and announced the closing date for fishing in Area 2. Fishing seasons in Areas 3 and 4 closed on the statutory dates.

The Commission met in Vancouver, British Columbia in September to review the 1973 halibut fishery in the Bering Sea and to consider staff and industry proposals for that area in 1974. The regulations proposed by the Commission were also proposed by the International North Pacific Fisheries Commission and approved by the member governments: Canada, Japan and the United States. The Halibut Commission also recommended to its member governments that trawl fishing be restricted in the Bering Sea during the winter. Japan agreed to adopt some of these restrictions on its trawl fishery as domestic measures.

Mr. Martin K. Eriksen and Dr. William M. Sprules resigned from the Commission during 1973. Mr. Eriksen, a Prince Rupert vessel owner, was appointed as a Canadian Commissioner in 1963 and served as Chairman in 1967 and 1973. Dr. Sprules was the Canadian Government Commissioner from 1957 and served as Chairman in 1963, 1965 and 1971. Dr. Sprules retired from the Canadian Department of the Environment in 1973 where he held the post of Director, International Fisheries Branch, Fisheries and Marine Service.

In addition to the Annual Report of 1972, the Commission published Technical Reports No. 9 and 10 and several articles for other journals. Special papers also were prepared at the request of the Canadian and United States national sections of the International North Pacific Fisheries Commission. Publications are listed at the end of this report.

Expenditures for the 1972-1973 fiscal year (April-March) were \$546,000. In compliance with the Convention, expenses of the Commission were shared equally by both governments.

## Director's Report

---

In its 50th year, the Commission is coping with the same problem — low stock abundance — that it faced in 1924, but today's situation is vastly different. Instead of stock exploitation by setline fisheries of two countries, four countries now are involved and large quantities of halibut are being taken as an incidental catch by trawls. In the intervening years, when the Commission had full control of the participants, the catch doubled and exceeded 70 million pounds in the early 1960's. Landings declined thereafter, in part, as a result of intentionally allowing the catch to exceed maximum sustained yield. This action was necessary to demonstrate that stocks were fully utilized, a requisite for Japanese abstention under the International North Pacific Fisheries Commission. Though stock abundance declined, the North American long-line fishery was not in jeopardy, until the advent of foreign fishing in the mid-1960's. As trawl fleets increased their fishing effort, the Halibut Commission's effective control of the fishery decreased. Reductions of the catch limit for the setline fishery were essentially offset by the incidental catch by Japanese and Soviet trawls in the eastern Bering Sea and northern part of the Gulf of Alaska, and by both domestic and foreign trawl fleets in the southern part of the Gulf.

Realizing the importance of the productive trawl fisheries and recognizing that foreign trawling will likely continue, even if national fishery zones are extended, the Commission proposed a scheme for the Bering Sea to reduce the incidental catch of halibut without serious curtailment of the trawl fishery. At the annual meeting of the International North Pacific Fisheries Commission (November 1973, Tokyo), Canadian and U.S. sections supported the I.N.P.F.C. plan but it was not accepted by Japan. In subsequent months of negotiations, Japan agreed to institute most of the changes. Specific areas in the Bering Sea are closed to trawling during the winter when the incidental catch of halibut is highest, but when Japanese catch and effort are low. Other areas are open to trawling year-round and the special areas are open to fishing when the incidental catch of halibut is low but when the catch of the target species, primarily pollock, is at a seasonal high — allowing time and area for Japan to conduct a productive fishery (see Condition of the Resource).

In essence, the proposal was an attempt to cope with problems of high-seas multi-species fisheries. The seasonal and depth distribution of halibut differs from that of most other groundfish. Because of this difference, the incidental catch of halibut can be reduced if the trawl fisheries are conducted at certain depths during particular months. Furthermore, trawl gear can be adjusted to fish off the bottom and in many circumstances this change can substantially reduce the incidental catch of halibut without decreasing the catch of the target species. Other modifications of gear or the conduct of the trawl fishery may have similar effects and merit attention. Successful control of the trawl fisheries will require the cooperation of all nations, and must be extended to the Gulf of Alaska as well as the Bering Sea. The Commission has asked its member nations to seek this help from foreign nationals.

# The Fishery

---

## REGULATIONS

The Pacific halibut fishery regulations for 1973 were approved by the United States Secretary of State on March 20 and by the Governor General of Canada on May 8. As in previous years these regulations also implemented the conservation measures adopted by the International North Pacific Fisheries Commission for the eastern Bering Sea on behalf of Canada and the United States.

### Regulatory Areas

The regulatory areas in 1973 were (see Figure 1):

- Area 2 – All Convention waters south of Cape Spencer, Alaska.
- Area 3A – Cape Spencer to Kupreanof Point near the Shumagin Islands.
- Area 3B – South of the Alaska Peninsula and the Aleutian Islands between Kupreanof Point and the meridian of 175° W.
- Area 3C – South of the Aleutian Islands and west of 175° W.
- Area 4A – A triangle in the Bering Sea east of 170° W., south of a line between Cape Sarichef and Cape Navarin and north of a line from Cape Sarichef to a point at 54° N. on the meridian of 170° W.
- Area 4B – The Bering Sea side of the Aleutian Islands between Cape Sarichef and the meridian of 170° W., south of Area 4A.
- Area 4C – The Bering Sea between 170° W. and 175° W. and south of a line between Cape Sarichef and Cape Navarin.
- Area 4D – The Bering Sea north of Areas 3C and 4C and north of a line between St. Paul Island and Cape Newenham.
- Area 4E – The southeastern flats in the Bering Sea, east of a line from Cape Sarichef to St. Paul Island and south of a line between St. Paul Island and Cape Newenham.

### Catch Limits and Length of Seasons

In Area 2 the catch limit was 13 million pounds, a reduction of 2 million pounds from the previous year. In Area 3 (Areas 3A and 3B combined) the catch limit of 25 million pounds was unchanged from 1972. Area 4 was managed by limiting the length of the fishing seasons in each regulatory area without assigning catch limits. No fishing was permitted in Area 4E which has been designated as a halibut nursery area since 1967.

The opening and closing dates and the number of fishing days in 1972 and 1973 are compared in Table 1. The fishing seasons began at 1500 hours (Pacific Standard Time) in Areas 2, 3A and 3B and at 1800 hours in all other areas; on the last day of



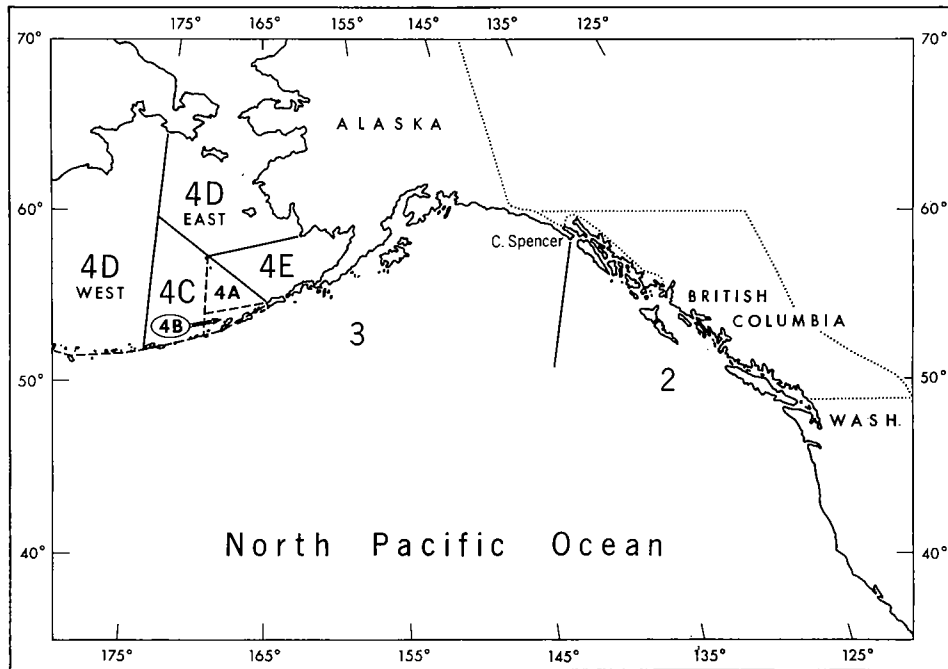


Figure 1. Regulatory areas of the Pacific halibut fishery in 1973.

fishing in each area, fishing ended at 0600 hours. During the summer the Commission proposed that the statutory closure for Area 3 be changed to September 1 instead of October 1 because of the severe decline in abundance since 1972. The emergency proposal was withdrawn because there was not sufficient time for the governments to adopt the proposal and for the Commission to provide adequate notice to the fleet.

Table 1. Opening and Closing dates by area, 1972-1973.

| Area | Opening   |          | Closing   |           | Fishing Days |      |
|------|-----------|----------|-----------|-----------|--------------|------|
|      | 1972      | 1973     | 1972      | 1973      | 1972         | 1973 |
| 2    | March 17* |          | May 1*    |           | 45*          |      |
|      | May 1     | May 10   | August 10 | August 13 | 101          | 95   |
| 3A   | May 1     | May 10   | Sept. 14  | Oct. 1    | 136          | 144  |
| 3B   | March 29  |          | April 3   |           | 5            |      |
|      | May 1     | May 10   | Sept. 14  | Oct. 1    | 136          | 144  |
| 3C   | March 17  | April 1  | Nov. 15   | Nov. 15   | 242          | 227  |
| 4A   | March 17  | April 1  | April 4   | April 19  | 17           | 17   |
|      |           | Sept. 15 |           | Sept. 30  |              | 14   |
| 4B   | March 17  | April 1  | April 4   | April 19  | 17           | 17   |
|      | Sept. 1   | Sept. 15 | Sept. 14  | Sept. 30  | 12           | 14   |
| 4C   | March 17  | April 1  | April 4   | April 19  | 17           | 17   |
|      | Oct. 1    | Sept. 15 | Oct. 17   | Sept. 30  | 15           | 14   |
| 4D   | March 17  | April 1  | Nov. 15   | Nov. 15   | 242          | 227  |

\* Special permit season south of Willapa Bay.

### **Size Limits**

A new minimum commercial size limit of 32 inches with head-on or 24 inches with head-off became effective in Areas 2 and 3 in 1973. The change was instituted to take advantage of an increase in the growth rate of halibut and is expected to increase the yield in future years (IPHC Annual Report, 1972).

The previous minimum size of 26 inches with head-on (or 5 pounds with head-off) was retained in the Bering Sea (Area 4) because regulations for that area had been adopted by the Halibut Commission and by the International North Pacific Fisheries Commission before IPHC's annual meeting.

### **Sport Fishing for Halibut**

Before 1973 all fishing for halibut, including sport or personal use (subsistence), was governed by the commercial fishing regulations. Catching halibut other than in the prescribed commercial season was illegal but sport-caught halibut were regularly taken out of season. Because the sport catch was not large and because violations were subject to the same, relatively high, penalties as those for commercial fishermen, the Commission did not encourage attempts by authorized federal agents to apprehend sport fishermen who violated the regulations. In time, this created an untenable situation for federal and state enforcement officers as well. Several of the states had regulations that governed the take of halibut and had urged the Commission to recognize a sport fishery. In addition, the sport catch was increasing as the commercial catch decreased because the Commission reduced the catch limits.

In 1971 the Commission discussed the feasibility of regulating a sport fishery with the Canadian Department of Fisheries, the National Marine Fisheries Service and the appropriate state agencies in Alaska, Washington, Oregon and California. Agreement was unanimous that sport regulations for halibut should be established, but opinions differed as to length of season, bag limits and size limits. The Commission considered it desirable to establish uniform regulations for all areas and eventually agreement was reached, with the stipulation that the agencies responsible for marine sport fishing could introduce more-restrictive measures if considered necessary.

The Commission approved the sport regulations at its annual meeting in January, 1973 and they became effective on May 8, 1973 (in future years the season will begin on March 1). The season lasted until October 31; the bag limit was 3 fish, and gear was restricted to a hand-held rod or line. There was no size or possession limit. The states adopted these regulations and assumed the responsibility of enforcement along with the federal agencies. State agencies also were asked to collect data on the halibut catch by sport fishermen so that the importance of the fishery could be assessed.

### **STATISTICS OF THE FISHERY**

The 1973 halibut catch was 32.4 million pounds, 10.5 million pounds less than was taken in 1972, and the lowest reported since reliable statistics became available in the early 1900's. The catch by country and regulatory area is compared with the previous 4 years in Table 2. The 1973 catch in all regulatory areas was lower than in 1969-1972.

Table 2. Catch of halibut in thousands of pounds (eviscerated, heads-off) by regulatory areas, 1969-1973.

| Regulatory Area     | 1969   | 1970   | 1971   | 1972   | 1973   |
|---------------------|--------|--------|--------|--------|--------|
| <b>AREA 2</b>       |        |        |        |        |        |
| Canada .....        | 13,346 | 11,147 | 10,189 | 10,517 | 7,351  |
| United States ..... | 9,362  | 8,738  | 6,584  | 5,765  | 5,565  |
| Total .....         | 22,708 | 19,885 | 16,773 | 16,282 | 12,916 |
| <b>AREA 3</b>       |        |        |        |        |        |
| Canada .....        | 19,583 | 17,119 | 14,578 | 11,757 | 6,963  |
| United States ..... | 15,081 | 16,800 | 14,437 | 14,112 | 11,536 |
| Total .....         | 34,664 | 33,919 | 29,015 | 25,868 | 18,499 |
| <b>AREA 4</b>       |        |        |        |        |        |
| Canada .....        | 668    | 889    | 729    | 261    | 96     |
| United States ..... | 565    | 245    | 137    | 606    | 189    |
| Total .....         | 1,233  | 1,134  | 866    | 867    | 285    |
| <b>ALL AREAS</b>    |        |        |        |        |        |
| Canada .....        | 33,597 | 29,155 | 25,496 | 22,535 | 14,410 |
| United States ..... | 25,008 | 25,783 | 21,158 | 20,483 | 17,290 |
| Total .....         | 58,605 | 54,938 | 46,654 | 43,018 | 31,700 |

In Area 2, the 2.8 million pound reduction in catch resulted directly from the lowered catch limit in 1973. Most of this reduction occurred in central and northern British Columbia where the increase in size limit caused many vessels to move away from grounds populated by small fish.

In Areas 3A and 3B, the catch of 18.8 million pounds was 7.1 million less than in 1972 and 6.2 million less than the 25 million pound catch limit. The reduction was general throughout the area and was caused by a decline in abundance, particularly of older fish. Only 47,500 pounds were reported from Area 3C.

The Bering Sea (Area 4) catch was 330,000 pounds — 7,000 in Area 4A, 192,000 in Area 4B and 131,000 in Area 4D. No catch was reported from Area 4C. The total Bering Sea catch was 537,000 pounds less than in 1972. Five United States vessels and no Canadian vessels participated in the spring fishery.

#### Landings by Ports

The distribution of landings by port in 1972 and 1973 is given in Table 3. The 1973 landings were sharply reduced in all British Columbia ports and to a lesser extent in central Alaska, but landings in Washington and southeastern Alaska were similar to those in 1972. Prince Rupert and Kodiak continue to be the leading halibut ports, with landings of 7.2 and 6.5 million pounds respectively. Seward and Petersburg follow with 4.0 and 3.0 million pounds.

Table 3. Halibut landings in thousands of pounds by port and country, 1972-1973.

| Region or Port            | 1972   |        |        | 1973   |        |        |
|---------------------------|--------|--------|--------|--------|--------|--------|
|                           | Canada | U.S.   | Total  | Canada | U.S.   | Total  |
| CALIFORNIA AND OREGON ... | —      | 68     | 68     | —      | 32     | 32     |
| WASHINGTON                |        |        |        |        |        |        |
| Bellingham .....          | 1,185  | 568    | 1,753  | 1,238  | 186    | 1,424  |
| Seattle .....             | 1      | 675    | 676    | 58     | 508    | 566    |
| Other .....               | —      | 229    | 229    | —      | 134    | 134    |
| BRITISH COLUMBIA          |        |        |        |        |        |        |
| Prince Rupert .....       | 10,121 | 1,301  | 11,422 | 6,641  | 189    | 6,830  |
| Vancouver .....           | 3,483  | —      | 3,483  | 1,990  | 29     | 2,019  |
| Vancouver Island .....    | 693    | —      | 693    | 371    | —      | 371    |
| Other .....               | 1,153  | —      | 1,153  | 624    | —      | 624    |
| SOUTHEASTERN ALASKA       |        |        |        |        |        |        |
| Petersburg .....          | 55     | 2,463  | 2,518  | 81     | 2,971  | 3,052  |
| Ketchikan .....           | —      | 970    | 970    | 2      | 706    | 708    |
| Juneau .....              | —      | 1,047  | 1,047  | —      | 937    | 937    |
| Pelican .....             | 463    | 679    | 1,142  | 393    | 657    | 1,050  |
| Sitka .....               | 70     | 1,150  | 1,220  | 9      | 862    | 871    |
| Other* .....              | —      | 815    | 815    | —      | 920    | 920    |
| CENTRAL ALASKA            |        |        |        |        |        |        |
| Kodiak .....              | 3,352  | 5,355  | 8,707  | 1,825  | 4,767  | 6,592  |
| Seward .....              | 1,637  | 3,499  | 5,136  | 1,121  | 2,850  | 3,971  |
| Sand Point .....          | 322    | 708    | 1,030  | —      | 235    | 235    |
| Other** .....             | —      | 956    | 956    | 57     | 1,307  | 1,364  |
| Total .....               | 22,535 | 20,483 | 43,018 | 14,410 | 17,290 | 31,700 |

\* Craig, Hydaburg, Metlakatla, Tokeen and Wrangell.

\*\* Cordova, Homer, Ninilchik, Port Williams, Soldatna, Valdez, Whittier and Yakutat.

### Value of the Catch

The 1973 catch had a value of \$24 million, down \$1 million from the record value in 1972. Record high prices to the fishermen coupled with the virtual elimination of the lower priced "chicken" category were the main reasons for the continued high dollar value of the fishery despite the reduction in catch. The average price per pound of medium-sized halibut was 71 cents in Kodiak and 76 cents in Prince Rupert, whereas last year these prices were 60 and 65 cents.

### Number of Vessels and Fishermen

Most of the halibut catch is taken by large setline vessels called the "regular fleet". These vessels are 5 net tons and over and are licensed by the Commission. Thousands of unlicensed vessels (mostly trollers) also land halibut but are not included in the "regular fleet". Though there are over 4,000 unlicensed vessels, their catch is less than 15% of the total.

The 1973 regular setline halibut fleet was smaller than in 1972. There were 21 fewer Canadian vessels and 20 fewer United States vessels (Table 4). The number of fishermen on regular vessels also declined, particularly in Canada as the reduction in fleet size occurred primarily among the largest vessels.

Table 4. Number of "regular setline vessels"\* and men by area and country.

| Year                         | Area 2 |     | Area 3 |     | Area 2 & 3** |     | Total |       |
|------------------------------|--------|-----|--------|-----|--------------|-----|-------|-------|
|                              | Boats  | Men | Boats  | Men | Boats        | Men | Boats | Men   |
| CANADA                       |        |     |        |     |              |     |       |       |
| 1969 .....                   | 80     | 287 | 48     | 370 | 16           | 108 | 144   | 765   |
| 1970 .....                   | 102    | 353 | 53     | 406 | 12           | 77  | 167   | 836   |
| 1971 .....                   | 92     | 338 | 50     | 383 | 12           | 76  | 154   | 797   |
| 1972 .....                   | 109    | 370 | 41     | 296 | 15           | 96  | 165   | 762   |
| 1973 .....                   | 95     | 338 | 36     | 251 | 13           | 69  | 144   | 658   |
| UNITED STATES                |        |     |        |     |              |     |       |       |
| 1969 .....                   | 117    | 378 | 63     | 340 | 10           | 49  | 190   | 767   |
| 1970 .....                   | 127    | 413 | 71     | 361 | 13           | 53  | 211   | 827   |
| 1971 .....                   | 105    | 341 | 64     | 329 | 21           | 90  | 190   | 760   |
| 1972 .....                   | 110    | 343 | 88     | 380 | 19           | 75  | 217   | 798   |
| 1973 .....                   | 103    | 346 | 77     | 372 | 17           | 60  | 197   | 778   |
| CANADA AND THE UNITED STATES |        |     |        |     |              |     |       |       |
| 1969 .....                   | 197    | 665 | 111    | 710 | 26           | 157 | 334   | 1,532 |
| 1970 .....                   | 229    | 766 | 124    | 767 | 25           | 130 | 378   | 1,663 |
| 1971 .....                   | 197    | 679 | 114    | 712 | 33           | 166 | 344   | 1,557 |
| 1972 .....                   | 219    | 713 | 129    | 676 | 34           | 171 | 382   | 1,560 |
| 1973 .....                   | 198    | 684 | 113    | 623 | 30           | 129 | 341   | 1,436 |

\* Licensed vessels landing at least 10,000 pounds of halibut.

\*\* Vessels that fished both areas.

### CONDITION OF THE RESOURCE

A special review of methods used in the assessment of the condition of the halibut resource was made in 1973 (see Scientific Investigations section). Current estimates of potential yield, fishing mortality, recruitment and stock abundance were compared with estimates over the longer term using several analytical approaches. Recruitment has shown a long-term decline, particularly in Area 2. This decline was masked in the catch statistics by a long-term increase in growth. The recent decline in stock is apparently due to a further reduction in recruitment resulting from intensive trawling in the eastern North Pacific Ocean and from excessive setline removals in the late 1950's and early 1960's.

#### Catch Per Unit Effort (CPUE)

In Area 2 the catch per unit effort (CPUE) declined to 68 pounds from 78 pounds in 1972 and 84 pounds in 1971. The 1973 CPUE is the lowest on record since 1942. The 1973 catch and effort in Area 2 were 13.1 million pounds and 190,000 skates, the lowest since the early days of the fishery. Recent reductions in catch and effort coupled with the 1973 increase in the size limit for the commercial fishery are expected to reverse the present decline in the Area 2 stock, providing that the incidental trawl catch does not increase.

In Area 3 the CPUE declined to 68 pounds from 86 and 105 pounds in 1972 and 1971 respectively. The 18.3 million pounds caught in Area 3 in 1973 was the lowest since the early days of the fishery but the 269,000 skates fished was down only 10% from the 1963-72 average effort. Sharp reductions in catch and effort are required if the decline in Area 3 stock condition is to be reversed.

Restrictions on the North American setline fishery are required if the halibut resource in the North Pacific Ocean is to be rebuilt but these restrictions alone are inadequate. It is essential that the incidental catch of halibut by trawlers be decreased greatly to reduce the mortality of young halibut. As indicated in the Director's Report, the Commission proposed a curtailment of trawling in the Bering Sea and the Japanese Government agreed to institute the appropriate regulatory measures (Figure 2). Japan's agreement to reduce trawling in areas where halibut are concentrated during the winter is a promising step; but similar action by the U.S.S.R. is necessary for the proposal to be successful and comparable measures are needed in the Gulf of Alaska.

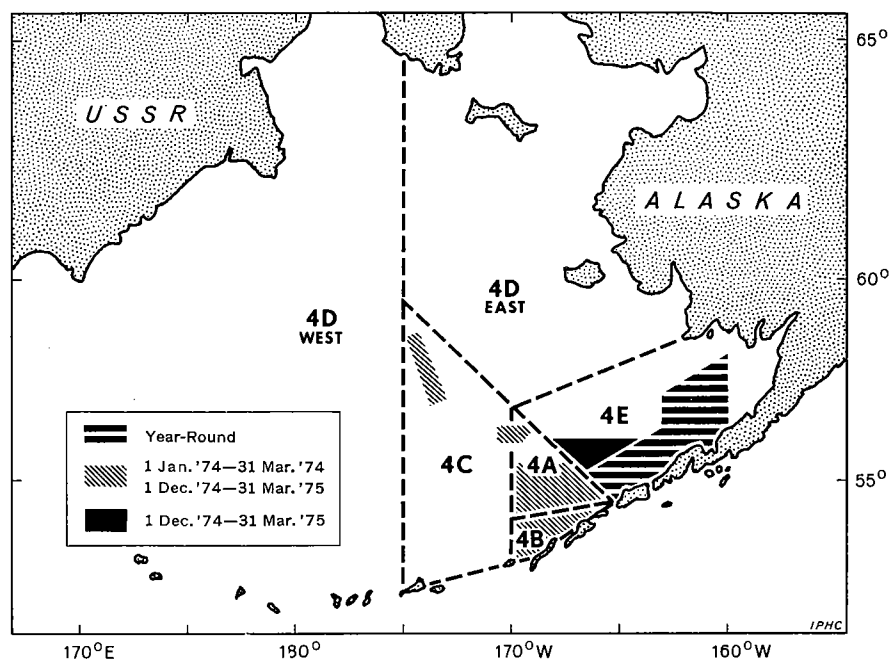


Figure 2. Areas closed to trawling by Japanese vessels. The new closures encompass 24,000 square miles.

### Age Composition

The age compositions of halibut in 1973 and the mean age for several recent years are summarized by regions in Table 5. In Area 2, the catch from Hecate Strait and Queen Charlotte Sound continues to contain a higher proportion of young fish than from other grounds in the area. Several of the younger age groups, especially the 1964 and 1965 year classes were prominent on these British Columbia grounds. Catches from offshore grounds in Area 2—off the west coasts of Vancouver Island and the Queen Charlotte Islands and southeastern Alaska—contained an unusually large proportion of older halibut. In Area 3 young fish were proportionately more abundant in the Chirikof-Semedi Islands region than elsewhere. Halibut 12 years old and older were especially prominent in landings from the Cape Spencer-St. Elias region.

Landings from nearly all regions in 1973 contained fewer young halibut than in 1972, due in part to the change in minimum legal size (Figure 3). In central

Table 5. Age composition of halibut in 1973 and mean age by region, 1970-1973.

| Region                            | Age (1973) |      |       |     | Year     |      |      |      |
|-----------------------------------|------------|------|-------|-----|----------|------|------|------|
|                                   | <9         | 9-11 | 12-14 | >14 | 1970     | 1971 | 1972 | 1973 |
|                                   | Percent    |      |       |     | Mean Age |      |      |      |
| Willapa Bay and South .....       | —          | —    | —     | —   | —        | 10.3 | 10.6 | —    |
| Washington-Vancouver Island ..... | 14         | 33   | 12    | 41  | 10.6     | 8.9  | 9.7  | 13.5 |
| Queen Charlotte Sound .....       | 39         | 40   | 13    | 8   | 9.0      | 7.8  | 10.5 | 9.8  |
| Central Hecate Strait .....       | 40         | 36   | 14    | 10  | 7.5      | 7.5  | 8.1  | 10.0 |
| Northern Hecate Strait .....      | 36         | 44   | 15    | 5   | 8.7      | 8.8  | 8.6  | 9.5  |
| West Queen Charlottes .....       | 1          | 41   | 22    | 36  | 11.2     | 9.0  | 10.6 | 13.6 |
| Inside S.E. Alaska .....          | 14         | 43   | 29    | 14  | 11.2     | 10.7 | 10.3 | 11.4 |
| Outside S.E. Alaska .....         | 5          | 30   | 34    | 31  | 11.4     | 12.3 | 11.3 | 12.9 |
| Cape Spencer-St. Elias .....      | 5          | 32   | 44    | 19  | 11.5     | 11.4 | 12.3 | 12.3 |
| Portlock-Albatross .....          | 11         | 42   | 33    | 14  | 10.8     | 11.0 | 10.8 | 11.5 |
| Chirikof-Semidi Islands .....     | 21         | 47   | 25    | 7   | 10.4     | 11.2 | 9.9  | 10.5 |
| Shumagins and West .....          | 11         | 42   | 35    | 12  | 11.3     | 11.3 | 11.1 | 11.5 |
| Bering Sea — 4A .....             | —          | —    | —     | —   | 10.4     | 10.4 | 11.0 | —    |
| Bering Sea — 4B .....             | 16         | 44   | 25    | 15  | 10.0     | 11.9 | 11.2 | 10.8 |
| Bering Sea — 4C .....             | —          | —    | —     | —   | 13.9     | 12.8 | —    | —    |
| Bering Sea — 4D .....             | —          | —    | —     | —   | —        | —    | 13.8 | —    |

Hecate Strait, a traditional young fish region, halibut under 9 years old comprised only 40% of the catch compared with 68% in 1972; furthermore, 5- and 6-year olds accounted for only 8% of the catch in 1973 compared to nearly 40% in 1972. These reductions of young fish indicate a shift from traditional fishing grounds due to the increase in size limit.

Size and age data for the Bering Sea were obtained only from Area 4B. The minimum size was not changed in the Bering Sea in 1973 and the age composition from this area was similar to that in 1972.

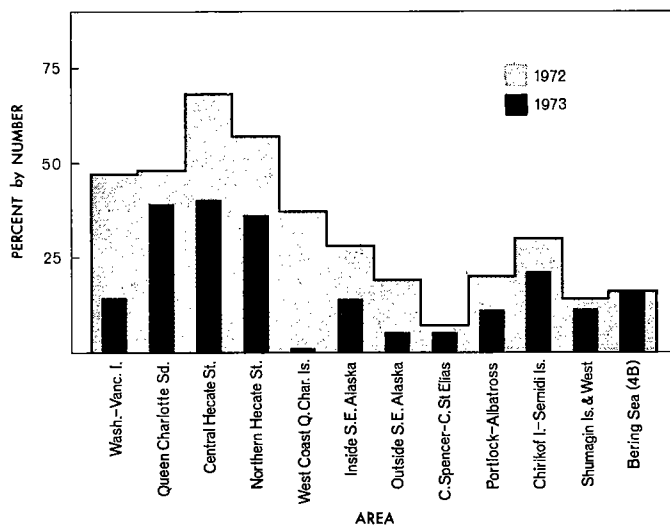


Figure 3. Effect of the larger size limit as indicated by the percentage of halibut under 9 years old, 1972 and 1973.



INTERNATIONAL PACIFIC HALIBUT COMMISSION

1923-1973

*50th Anniversary*



# Advantages of International Co-operation in Control of Fisheries Stressed by For

The advantage of international co-operation and control of fisheries was stressed evening by Dr. W. ...

# HALIBUT INDUSTRY IS HEADING FOR DISASTER SAYS COMMISSION HEAD

Resolution of North Pacific Food Fish Drawn

# Fish Protection Urged by Be

erces  
intern  
or Cha  
l mem  
re pres  
abcock  
Bell, Uni  
Fishes

# U.S.-Canadian Fish Pact Ratified

WASHINGTON

# JOINT RULES FOR FISHING NEEDED TO SAVE HALIBUT

Canada and U.S. Must Act Together to Protect Fisheries, Says Babcock

# First Catch Your Halibut, Then Get His Number

If you catch a halibut, get his number! And, if you practice the strenuous art of snaring this species of sea delicacy, it wouldn't be unlikely that you land one with a number. The numbers are there—just look for it on a metal button on a halibut's cheek.

# N. W. Halibut Catch Breaks 21-Year Record

More halibut was caught in April on the North Pacific halibut banks than during any other month since May, 1915, Harold Lokken, manager of the Fishing Vessel Owners' Association, said today. Last month's catch totaled 3,951,230 pounds, valued at \$260,784 compared with 4,525,000 pounds in 1915.

# VESSEL OWNERS APPROVE PLANS ON CURTAILMENT

Catch to be

# Halibut Inquiry Will Be Most Exhaustive One Commissioner Declares

# HALIBUT STUDY TO BE CONTINUED BY COMMISSION

International Fisheries Body, Meeting in Seattle Saturday, Lays Plans to Preserve Its Work.

PLANS to continue the scientific study of the life history of the North Pacific halibut, begun two years ago to form the basis of permanent regulations for the preservation of an immensely valuable fishery, were laid by the International Fisheries Commission, holding its quarterly meeting in Seattle yesterday.

# Halibut Treaty Given Senate

WASHINGTON, March 17.—(AP)—Senate today gave its approval to the halibut treaty with Canada.

# Fishermen Tell Commission To Shorten Season

Lengthening of the closed season on halibut was advocated by virtually every captain and fisherman who was present at the International Fisheries Commission hearing.

# HERE'S TEXT OF RESOLUTION ON HALIBUT SEASON

Fishing Vessel Owners Association Requests Changes in System

A resolution requesting that the fisheries commission ...

# FISHERIES MEETING SET FOR SATURDAY

Federal Officer Arrives to Attend of International Commission.

A commercial investigation of North Pacific halibut by agents during the year reviewed and plans for the next year's work outlined at the meeting of the International Fisheries Commission to be held tomorrow, according to a statement made by the United States commissioner, who is here in Seattle, to attend the meeting of the International Fisheries Commission. The meeting will carry out provisions of the agreement between the

# New Hopes for Fish Industry

Herring and Cod Markets Developed While Salmon and Halibut Are Being Rehabilitated in North Pacific

... expected to reach 80...

## DEDICATION



EDWARD W. ALLEN



WILLIAM M. SPRULES

This Anniversary Section is dedicated to the two Commissioners with the longest length of service. Mr. Allen was a U.S. Commissioner for 24 years from 1932 to 1955. Dr. Sprules was a Canadian Commissioner for 17 years from 1957 to 1973.

# Seattle Halibut Fleet

## May By-Pass Ketchikan Dal May 3, 1955

# All Alaskan Ports

### Enforcement of Alaska Inco

### Blame Halibut Season on, Rota

### Opens April 15

### Halibut Fleet

### READIES GEAR

### Alaskans Are

### Opposing New

### Split Season

### to Proposal on Halibut - Alaska

### HALIBUT BOATS

### AGREE TO GO BACK

### TO SEATTLE

### HALIBUT YIELD

### 17,684,000 LBS.

### Alaska Halibut Area

### To Close June 11

# Pacific Halibut Group Offers Pattern for Postwar Plan

Special to The Christian Science Monitor

Pacific Northwest planners and peace will find a pattern international called to

How it has been accomplished was told by Miller Freeman, of the first members of the International Fisheries Commission, at present meeting of the Regional Board, who said, "Our work success not attempt enough investment. We need our vision."

# SMALL BOAT OWNERS ARE BEING CROWDED OUT OF HALIBUT AREA BY LARGER FISHING VESSELS

Earl N. Ohmer, of the Alaska Glacier Sea Food Company, and a new fish buyer at the

But it's a controlled market. Own not

# HALIBUT MEN ARE STILL UNDECIDED

Local halibut vessel owners are undecided whether or not they will fish next week. At least one vessel, however, for the first time in the history of all local halibut fishing is being sold. The vessel is owned by a man from Seattle. The man's name is not known.

# B.C. FISHERMEN IN CONVENTION

More than 80 delegates, representing all parts of the British Columbia coast from Vancouver to Rupert, are attending a convention of the Pacific Fisheries Union in the city of Victoria. The convention is being held at the 138 East Cordova Street.

# Pacific Halibut Commission To Meet Here

The International Pacific Halibut Commission will meet here for its annual meeting from

# Longest, Toughest Halibut Season On

BY CAPTAIN BARNACLE

weather, "tough" the longest Pacific halibut season established by the International Pacific Halibut Commission when it was first set up in 1947. The date last week

# 23 1/2 Cents For Halibut On Exchange

Halibut prices on the Ketchikan Exchange this morning were 23 1/2 cents per pound, up from 22 1/2 cents per pound on the exchange here. Five vessels from other Alaskan ports, including morning vessels, are selling here this morning. The vessels are medium and large, and are from Juneau and Sitka. Prices have been around 15 cents per pound for some time.

# Halibut Hit Two Million Pound Mark

Halibut fishermen in the United States and Canada have hit a two million pound mark in their catch of halibut in Prince Rupert, B.C., last year. The catch was more than 2,000,000 pounds.

# FIFTH OF WORLD'S HALIBUT LANDED AT PRINCE RUPERT

Last year, halibut landings totalling 18,153,499 pounds, or one-fifth of the total world catch, were landed at Prince Rupert, B.C., from September

## THE CONVENTIONS

The International Pacific Halibut Commission (IPHC) held its 50th Annual Meeting in January, 1974. IPHC, originally called the International Fisheries Commission, was established in 1923 by a Convention between Canada and the United States for the preservation of the halibut fishery of the North Pacific Ocean and the Bering Sea. This Convention was the first international agreement for joint management of a marine fishery. The Convention has been revised several times to extend the Commission's authority and to meet new conditions of the fishery. The 1953 Convention specified that the halibut stocks be developed and maintained to produce the maximum sustained yield.

### 1919 Draft Treaty

Before the Halibut Convention was signed, several treaties between Canada and the United States had concerned the Pacific halibut fishery. The Draft Treaty of 1919 proposed a single International Fisheries Commission to regulate the fisheries for halibut and the Fraser River sockeye salmon. The treaty stipulated a closed halibut season during the winter. Reciprocal port-use and tariff provisions were also included in the draft. The treaty was not signed chiefly because of objections from the State of Washington.

### The Halibut Convention of 1923

Despite the failure to consummate the 1919 treaty, the halibut industry persisted in advocating international control. In 1922 a Royal Commission found general agreement in British Columbia for a winter closed season and there were similar sentiments in the United States. In 1922 another convention was drafted that excluded the sensitive provision of port-use and tariffs, and Canada and the United States signed the Convention for the Preservation of the Halibut Fishery of the Northern Pacific Ocean on March 2, 1923.

In the past Canada had signed treaties in company with Great Britain but, under the Commonwealth concept, Canada now decided that it alone should sign treaties dealing with domestic matters. Great Britain was reluctant to relinquish this right but finally agreed that a duly-named plenipotentiary from the Dominion of Canada could sign on behalf of His Majesty. This symbolic act was a first for Canada and other Commonwealth nations. The Convention went into effect on exchange of ratifications October 22, 1924 and provided:

1. For a 3-month closed season in the winter.
2. For regulations concerning halibut caught incidentally in the closed season.
3. For an International Fisheries Commission of four members, two from each country, whose salaries and expenses would be paid by each country.
4. That expenses of the Commission be shared equally by the contracting parties.
5. That the Commission study the life history of halibut and recommend regulations for the preservation and development of the fishery.
6. That the Convention remain in force for 5 years and thereafter until 2 years after either party gave notice of termination.

# Halibut Here; Price Down

BY DON PAGE

The first halibut boats of the year put into Seattle today — to disappointing news that reinforced misgivings about the competitive effect of "Greenland halibut" on one of the Pacific's richest fisheries.

halibut. Booth Fisheries paid a roughly equal price for the Grant. The boat's fresh catch

and it doesn't augur well for the forthcoming year. "Greenland halibut" is under found widely in the North Atlantic. The halibut. Most come from the texture of the ent. By continuing to control next

## Eastern Bering Sea Halibut Recovering

BY STANTON H. PATTY

The International Pacific Halibut Commission plans to continue snug control next

even unsold true halibut last year's catch. state legislatures and A

## JAPAN AWAITS ENTRY APPROVAL TO HALIBUT

Close to 90 U. S. and the Eastern Bering Sea this issue went to were feverishly making Canada, and one from certainty was laying in

## RULED NOT A HALIBUT

## Greenland Turbot Spurned, Hits Nfld. Fishery Hard

THE FISHERMAN

Sept. 20, 1968

administration made an try. It said "Northern der" must be sold under name of "Greenland Again distributors were days to clear out their

## Commission Meet Points Need for Inclusive Pact

Discussion at this week's special meeting of the International Pacific Halibut Commission in Seattle again pointed up the need for an all-inclusive fisheries treaty.

lighted in recom- mented by Seattle hat Soviet and n be contacted. permission should be sought to place observers on foreign fishing vessels.

CANADA STEPS IN

## Halibut Fishing To Open May

## Dispute Kets Halibut Boats From Sailing

By PAUL STAPLE  
Labor Editor, The Times

A dispute over the share of the catch prevented some units Seattle's halibut fleet going north for fishing the Bering Sea and the others fishing in other areas it was reported today. The boats that were north are

## Greenland Halibut Sent From Japan

By SVEIN GILJE  
"Greenland halibut" is reported to the

Some witnesses new legislation is the hearing was the request of R Thomas M. P

## Halibut Commission Calls Special Meeting

By STANTON H. PATTY  
The International Pacific Halibut Commission will special meeting here y to consider plans xt 's halibut- ear Eastern

Fishing Bering Sea a dispute United S interest This permi in th and "Ce

## Halibut Fleet Ends Successful Season

By STANTON H. PATTY  
North American halibut fishermen soon will close a successful season in a total harvest of 63.25 million pounds. take compares with million pounds last year represents a "major" F Hewa

pounds in this vital just above the 23 million pound limit set by the mission. Area 3-A (Cape S the Shumaco North

## Spring Halibut Catch About as Expected

By JAY WELLS  
Maritime Editor, The Times

The total halibut catch from the early spring fisheries is expected to be about 1.5 million pounds, including 1.7 million from the Bering Sea and the rest from the Pribilof Islands to Atka Island, the International Pacific Halibut Commission said yesterday.

## Halibut Bill Passed By Alaska House

JUNEAU — (AP) — A bill that would halt the sale of "Greenland halibut" in Alaska was passed today by the House. Representative E. J. Hau said imports of "Greenland halibut" has depressed Alaska halibut prices. The bill, passed by the Alaska House, would allow the halibut to be applied to the halibut fishery.

## Catch limit upper for Areas 2, 3A

An opening date of May 10 for halibut fishing in all areas except two and increased catch quotas

### **The Halibut Convention of 1930**

In 1928 the Commission reported that the closed season alone could not protect the resource and requested authority to institute other conservation measures. Whereas Canada could implement the recommendations by Order-in-Council, constitutional requirements in the United States required a new convention. This was signed May 9, 1930 but industry representatives in both countries delayed the exchange of ratifications until May 9, 1931. The 1930 Convention empowered the Commission to divide the Convention waters into regulatory areas and to limit the halibut catch from each area, to regulate the licensing and departure of vessels for halibut fishing, to collect statistics, to regulate the type of gear and to close nursery grounds. Annual regulations were subject to the approval of the Governor General of Canada and the President of the United States. (In 1969, to expedite the process in the United States, the Presidential authority was delegated to the Secretary of State who was to consult with the Secretary of the Interior.) Enforcement of regulations was the responsibility of the individual governments.

The initiation of the new management program was designed to cause as little disturbance as possible to the industry, but the changes met with considerable resistance from the halibut fleet. To provide a forum for the discussion of regulatory proposals, the Commission established a Conference Board of fishermen and vessel owners on May 27, 1931.

### **The Halibut Convention of 1937**

As stocks improved and more vessels entered the fishery, the fishing season became shorter. This coupled with other problems such as the provision concerning incidentally caught halibut prompted a revision of the treaty. A new convention was negotiated and went into effect July 28, 1937.

The 1937 Convention permitted more effective control of incidentally caught halibut in the closed season. It also provided authority to prohibit the departure of vessels from port when the catch was close to the season's limit. Despite initial popularity with the fleet, this provision soon lost favor and proved to be administratively cumbersome. It only was in effect for 3 years. The United States Act implementing the 1937 Convention prohibited the landing of halibut caught in the Pacific Ocean or Bering Sea by any nation not a party to the Convention, but this stipulation has not been enforced. The fleets endeavored to offset the disadvantages of a short season by instituting a voluntary program of between-trip lay-ins, or rest periods. This program extended the fishing season and helped to regulate the flow of halibut to market.

### **The Halibut Convention of 1953**

By the end of World War II the short fishing seasons were concentrating fishing on certain segments of the stock and treaty changes were recommended in 1946 to permit multiple seasons within a fishing area. A new Convention was signed on March 2, 1953, the anniversary of the first Halibut Convention 30 years earlier. One of the signatories, The Honorable Hughes Lapointe, Canadian Minister of Veterans Affairs, was the son of the Honorable Ernest Lapointe who had signed the 1923 Convention for His Britannic Majesty. On exchange of ratifications, the new Convention became effective on October 28, 1953.

# Halibut price high, but with catch to it

By STANTON H. PATTY  
... it is ...  
... Now, mediums are averaging from 65 to 75 cents a pound here — and have ... as high as an all-time high of 85 cents a pound for the big ...  
... The commission staff said ... these and other measures are needed to reduce fishing intensity. The staff put it this way: "The catch per effort continued ... 1972 and the ..."

# Quota for U.S. reduction Canada

... American and Canadian fishermen likely will ... this year. The indication to ... International Pacific Commission ... meeting in ... for the 1973 ... at the ...  
... Now, mediums are averaging from 65 to 75 cents a pound here — and have ... as high as an all-time high of 85 cents a pound for the big ...  
... The commission staff said ... these and other measures are needed to reduce fishing intensity. The staff put it this way: "The catch per effort continued ... 1972 and the ..."

# Lokken, Bolin blast fishery agreement

By STANTON H. PATTY  
New, two-year Pacific fishing agreements between United States and ... were decried by Harold ... of ...  
... "In my opinion nothing in the way of ... (Russia) that just extent, ...  
... The Golden ... award banquet May 26 will ... Seattle's ... National Halibut Week ... National Halibut ... has been design ... May 21 to 27 ...

# Bell Retires From Halibut Commission

By a Staff Reporter  
... RUPERT, B. C. ... call "Mr. ...

# Halibut Week Banquet

The Golden ... award banquet May 26 will ... Seattle's ... National Halibut Week ... National Halibut ... has been design ... May 21 to 27 ...

# Mercury in Halibut Here

# Halibut Is Still Great

# FISHERMEN DEMAND HALT TO IMPORT OF IMMATURE FISH

Fishermen and vessel ... attending the ... of the Internat ... Halibut Com ... held here ... report ...

# Japanese Fishing Curbs Urged by Halibut Group

... and we ...  
... strong representati ... the governments ... da and the U.S ... violations of ... agreements of ... vessels ... propri ...  
... The Halibut Fishermen's Wives Association today criticized proposals to cut this sea ... son's halibut-fishing quota by 4 ...  
... "It is a mockery ...  
... The 1973 halibut quota set by ... for Canadian and ... men is 38 million ... any year on ... combined ... the ...  
... SEATTLE (UPI)—The Halibut Fishermen's Wives Association in 1912 ... pounds, ... on pounds ... of quotas ...  
... has criticized proposals to cut ... by four million pounds ... this season. ...  
... In a letter to the International Pacific Halibut Commission, ... meeting in Petersburg, Alaska, ... the wives said the ...  
... International fishery was ... several ...

# Halibut fishery may be doomed

... the effects of foreign ... and, instead, in ... that halibut resources ... rebuilt by consistently ... annual quotas ... Canadian and ...  
... the commission ... the quota there ... conservation ... Commission ...  
... IPHC has ... with ... commercial ... meeting in Petersburg, Alaska, ... the wives said the ...  
... International fishery was ... several ...

# Halibut wives rap fishermen's quota cut

The Halibut Fishermen's Wives Association today criticized proposals to cut this sea ... son's halibut-fishing quota by 4 ...  
... "It is a mockery ...  
... The 1973 halibut quota set by ... for Canadian and ... men is 38 million ... any year on ... combined ... the ...  
... SEATTLE (UPI)—The Halibut Fishermen's Wives Association in 1912 ... pounds, ... on pounds ... of quotas ...  
... has criticized proposals to cut ... by four million pounds ... this season. ...  
... In a letter to the International Pacific Halibut Commission, ... meeting in Petersburg, Alaska, ... the wives said the ...  
... International fishery was ... several ...

# Halibut catch brings 'world record price'

What was described as a "world record price" was paid ... Kodiak recently for a catch of halibut, the Associated ... reported today. ...  
... Alaska Ice & Storage, Kodiak, paid the Canadian vessel ...  
... the Bristol Bay area. That amounts to 55½ cents a pound. ... Fifty-five cents a pound was paid to Thor Olsen of ... Seattle and his six-man crew of the halibut schooner Re ... public this week. B & B Fishermen show ...

... the Bristol Bay area. That amounts to 55½ cents a pound. ... Fifty-five cents a pound was paid to Thor Olsen of ... Seattle and his six-man crew of the halibut schooner Re ... public this week. B & B Fishermen show ...  
... rced to conserve for ... other foreign fish ... ted in, because of ... absolute ...

The 1953 Convention contained important changes. Multiple seasons were permitted to distribute fishing effort in accordance with the seasonal availability of different stocks. The number of Commissioners was increased from four to six, three from each country, and the United States decided that one of its members would be from Alaska. The International Fisheries Commission was renamed the International Pacific Halibut Commission and was charged with developing and maintaining halibut stocks at levels which would provide the maximum sustainable yield. This directive was implied in earlier conventions but had not been explicitly stated.

### **The Tripartite Convention of 1951**

An account of the several halibut conventions would not be complete without mention of the Tripartite Convention for the High Seas Fisheries of the North Pacific Ocean which established the International North Pacific Fisheries Commission (INPFC) of Canada, Japan and the United States. This Convention, like that for the preservation of the halibut, was to "ensure the maximum sustained productivity of the fishery resources of the North Pacific".

Included in the Annex of the Convention are conditions of abstention for certain stocks of fish already under exploitation. The halibut originating along the coast of North America qualified for abstention by Japan and remained under the jurisdiction of the Canadian and United States Commission. Halibut west of 175° W. longitude however, were not considered to be of North American origin and did not qualify for abstention. In 1962, INPFC decided that the halibut in the Bering Sea east of 175° W. longitude no longer qualified for abstention, thereby placing management responsibility with INPFC. Consequently, the condition of the halibut stocks in the eastern Bering Sea are reviewed annually by two international fisheries bodies.

### **THE COMMISSIONERS**

Three Commissioners are appointed by Canada and three by the United States. The Commissioners appoint the Director of Investigations who with his scientific staff collects and analyzes statistical and biological data needed to manage the halibut fishery. The Commissioners annually review the regulatory proposals made by the scientific staff and consider advice from the Conference Board that represents vessel owners and fishermen. The regulatory measures adopted by the Commission are submitted to the two governments for approval and the fishermen of both nations are required to observe the approved regulations.

The average tenure of the Commissioners since 1924 has been 9 years, and 12 of the members have had tenures of 10 years or more. All but 4 members have served at least 5 years. This length of service and the overlapping terms of members has had a stabilizing influence in that the individual Commissioners have become fully familiar with the problems of managing the halibut stocks.

In recent years, one Commissioner from each country is an employee of the federal fisheries agency, one is a fisherman, and the other is an industry representative, either a buyer or processor. The chairmanship of the Commission alternates annually between countries. Commission meetings are held in Seattle for 2 years and in either Canada or Alaska every third year.\*

\* At the 1974 Annual Meeting, the Commissioners agreed to alternate the meetings between Canada and the United States.



COMMISSIONERS: CANADA



JOHN PEASE BABCOCK  
1924 - 1936



WILLIAM A. FOUND  
1924 - 1936



A. J. WHITMORE  
1936 - 1948



GEORGE L. ALEXANDER  
1936 - 1937



LEWIS W. PATMORE  
1937 - 1943



GEORGE W. NICKERSON  
1943 - 1953



STEWART BATES  
1948 - 1949



GEORGE R. CLARK  
1949 - 1955



S. V. OZERE  
1955 - 1957

COMMISSIONERS: CANADA



HAROLD S. HELLAND  
1953 - 1963



RICHARD NELSON  
1953 - 1964



WILLIAM M. SPRULES  
1957 - 1973



MARTIN K. ERIKSEN  
1963 - 1973



FRANCIS W. MILLERD  
1964 -



CLIFFORD R. LEVELTON  
1973 -



JACK T. PRINCE  
1973 -

COMMISSIONERS: UNITED STATES



MILLER FREEMAN  
1924 - 1932



HENRY O'MALLEY  
1924 - 1933



EDWARD W. ALLEN  
1932 - 1955



FRANK T. BELL  
1933 - 1940



CHARLES E. JACKSON  
1940 - 1946



MILTON C. JAMES  
1946 - 1952



SETON H. THOMPSON  
1952 - 1959



J. W. MENDENHALL  
1954 - 1958



ANDREW W. ANDERSON  
1959 - 1961

COMMISSIONERS: UNITED STATES



MATTIAS MADSEN  
1955 - 1964



WILLIAM A. BATES  
1958 - 1964



L. ADOLPH MATHISEN  
1965 - 1970



HAROLD E. CROWTHER  
1961 - 1972



HAAKON M. SELVAR  
1964 - 1972



NEILS M. EVENS  
1970 -



ROBERT W. SCHONING  
1972 -



WILLIAM S. GILBERT  
1972 -

## MANAGEMENT

When management of the fishery began in 1932, the stocks had been depleted by years of overfishing. When regulatory measures, in particular catch limits, were imposed the condition of the stocks gradually improved. The catch in 1930 was less than 40 million pounds and increased to 70 million pounds by the early 1960's. All phases of the life history of the halibut have been studied intensively; spawning, recruitment, growth, fishing and natural mortalities, parent-progeny relationships and the identification of stocks. Several investigations initiated by the Commission have become standards for fishery research which not only set a pattern for subsequent biological studies but fathered oceanographic studies in the North Pacific. These early studies indicated that the halibut stocks had declined as a result of fishing, and established the basis for IPHC's management program. Under the 1930 Convention, the Commission was granted the authority to regulate the time and area of fishing and to restrict gear, catch and fish size. These measures coupled with effective enforcement by the two member countries and with the cooperation of fishermen gave IPHC the control necessary to manage the resource.

Scientists have disagreed as to the role of the Commission in revitalizing the halibut stocks, i.e. whether the increase in abundance resulted from the restrictions of effort or was caused by environmental conditions, and economists contend that because there is no restriction on entry, IPHC's regulations have reduced the efficiency of fishing and marketing. Granting that early conservation measures may not have been as effective as initially purported and that economic inefficiencies exist, the maintenance of a viable fishery under intense exploitation for the 30-year period certainly speaks for the Commission's contribution. Many scientists have recognized IPHC's role as a classic example of successful fishery management based on scientific information, but they attributed the success to different causes. Some credited organizational structure, i.e. IPHC has its own research staff, in contrast to other international groups that function through an Executive Secretary and draw on the research agencies of member countries. Other scientists concluded that IPHC simply had the good fortune to work on a long-lived species with an uncomplicated life history and a one-gear fishery. Still others contend that success was achieved because the two member nations of IPHC have similar cultures and interests. Each of these views has some basis in fact, but no single explanation can account for the success of IPHC, and one of the more important aspects has been virtually ignored—that is control of the fishery. Adequate scientific data was essential, but beyond that, to effect the management program, IPHC had the authority to introduce the necessary conservation measures. The cooperation of fishermen also was needed and IPHC helped to engender this support by convincing industry of the benefits to be derived from the curtailment of effort.

The critical condition of the halibut fishery today is due, in part, to the loss of control of certain elements in the fishery; this situation is described in the following section.

### **Stock Decline Since 1960**

The events of past years make it possible to understand the decline in the abundance of halibut that has occurred in the last decade. Before 1960 over 90% of the halibut catch was taken by the regular longline fleet (vessels 5 net tons and over). The sixties saw important changes including increases in (1) the effectiveness of the

fishery; (2) the proportion of the catch taken by small setline vessels and salmon trawlers, particularly in British Columbia and southeastern Alaska; (3) the incidental catch in domestic (Canada and U.S.A.) fisheries; and (4) the incidental catch of halibut by foreign trawlers—Japan and U.S.S.R.\* Other factors such as increased catches by sportsmen also contributed to greater removals from the halibut stocks, but are less important.

The decline of the halibut stocks began when the effort by trawlers fishing for other groundfish was relatively low. By the time the trawl fisheries had expanded, exploitation by the longline fleet was greater than should have been permitted because quantitative measures of the removals by trawls were not available and because the stock decline was not accurately depicted by the catch per unit effort (CPUE). When IPHC did reduce the catch limits, the reductions were not sufficient to compensate for the increased fishing mortality caused by longline exploitation and losses to other gear. The events which created this situation are described in the following paragraphs.

Canada, Japan and the U.S.A. are parties to the International North Pacific Fisheries Commission (INPFC), and Japan agreed to abstain from fishing North American halibut stocks that were fully utilized. IPHC contended that the major halibut stocks were being exploited at maximum levels, but in 1962 INPFC concluded that the evidence was not sufficient to support this position in the eastern Bering Sea. In 1963, halibut was removed from the abstention list in the eastern Bering Sea and the INPFC established a quota for the longline fleets of Canada, Japan and the United States. The catch was 5,000 metric tons in 1963 and 3,000 in 1964; and has been less than 500 tons for the last 3 years. The permitted catch was in excess of maximum sustained yield and caused the decline. Failure of the stock to recover after catch limits were reduced is attributed to the increased effort and incidental catch of halibut by Japanese and Soviet trawlers.

The decline of the Bering Sea halibut stocks also influenced stocks in the Gulf of Alaska because halibut migrate there from the Bering Sea. Halibut are also taken in other groundfish, shrimp and crab fisheries in the Gulf of Alaska, but neither foreign nor domestic trawling were extensive before 1960. The CPUE of the North American longline fleet in the northern Gulf (Area 3) reached a maximum in 1960 and decreased by 30% in 1965. After 1965, when the full effect of the trawl losses was evident, CPUE continued to drop and is now about one half of the 1960 level. In southeastern Alaska and British Columbia (IPHC Area 2), abundance was at a peak in 1952-53, and was nearly four times that of 1930. By 1960 CPUE in Area 2 had declined more than 30% from 1953, even though effort by domestic trawlers had been relatively stable and foreign trawl effort was low.

IPHC allowed the increase in catch in Areas 2 and 3 to demonstrate that the stocks were fully utilized. Catches in Area 2 exceeded MSY in the mid-fifties, and in Area 3, MSY was reached during the early sixties. IPHC expected a decline in CPUE when the fishing intensity was increased, but the rate of decline was greater and lasted longer than anticipated. Changes in recruitment and environmental conditions may have contributed to the decline but the deliberate increase in setline fishing must be considered a major cause.

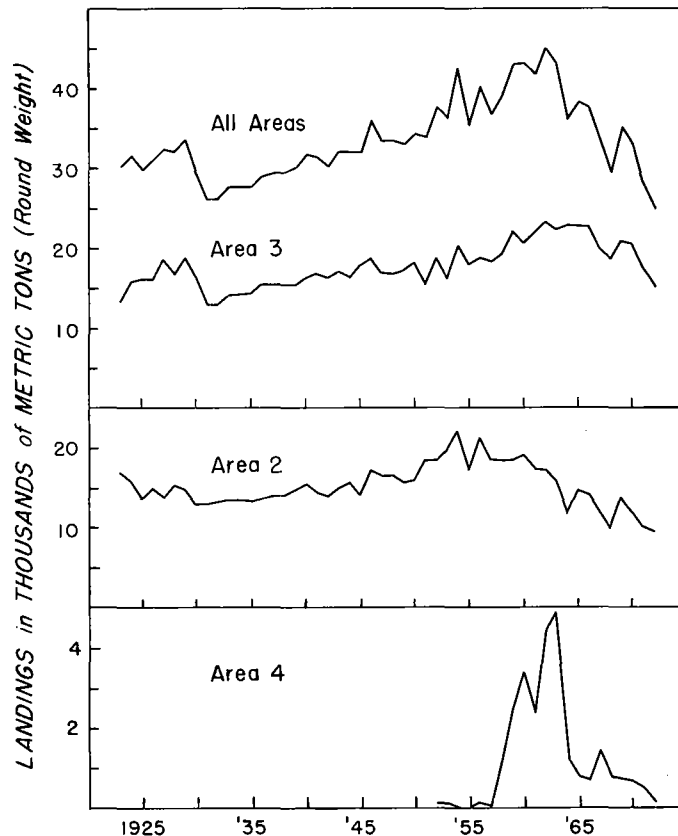
\* Effort by trawlers, foreign and domestic, is directed toward other groundfish but halibut are taken incidentally. IPHC prohibits the retention of halibut caught by domestic trawls because the gear is selective for fish below the optimum harvesting size. Some halibut die even though the incidentally caught fish are returned to the sea.

The decline in abundance of halibut continued in the late sixties, and with vastly increased trawl effort, domestic and foreign, the CPUE of the longline fleet decreased to a level comparable with that of the early forties. Though IPHC gradually reduced the catch limits as CPUE declined, the stocks did not respond as anticipated — i.e. the reductions failed to arrest the decline in abundance. The losses to trawlers accelerated the decline and apparently the total reduction in stock abundance was greater than originally estimated. In addition, fishermen increased their catch per hook on the longline gear by increasing the spacing between the hooks, and as a result IPHC's measure of CPUE was overestimated. To compensate for the change a more drastic reduction in the catch limit was necessary and was initiated in 1972.

### Present Status of the Fishery

In the 1970's the longline fishery in the Bering Sea collapsed. Recovery is impossible as long as the foreign trawl fishery continues its excessive catch of juvenile halibut. In the Gulf of Alaska (Area 2 and Area 3) catch quotas for the longliners have been drastically reduced but the stock abundance continues to fall and is threatened with the same disaster as in the Bering Sea. In addition, new problems have arisen coincident with the quota reductions, in particular, the price of halibut has doubled and many more small vessels have entered the fishery, altering its economic structure.

The Commission has recently completed a study that provides estimates of the losses to foreign trawlers and these data, as well as a reassessment of the effect of the



Annual landings of halibut (round weight) by regions; Area 2 (northwestern states, British Columbia, and southeastern Alaska); Area 3 (Gulf of Alaska and southern Aleutians); Area 4 (Bering Sea).

setline fishery, show that a drastic reduction in the total catch is necessary to stop the decline in stock abundance. Obviously, this reduction includes a lowering of the incidental catch of halibut by trawl gear. Japan has agreed to an IPHC proposal for the Bering Sea that will substantially reduce the incidental catch of halibut. Canada and the United States have asked the U.S.S.R. to consider the same restrictions in the Bering Sea and the need exists to institute a similar arrangement in the Gulf of Alaska.

Hence, in its 50th year, IPHC is no longer coping with the "simple" halibut fishery of yesteryear and will need the help of all concerned to attain the second recovery of the halibut resource.

#### COMMISSION STAFF AND ADMINISTRATION

##### Staff

The Commission staff of Canadian and United States employees consisted of 4 biologists and 4 supporting personnel in 1925. In 1973 there were 12 biologists and 10 administrative, clerical and technical persons. The staff is supervised by the Director of Investigations who is responsible to the Commission for the research, regulatory and administrative functions of the Commission. The Commission headquarters have been on the campus of the University of Washington in Seattle since 1924, except for 5 years (1931-1936) when the staff was housed in a laboratory of the U.S. Bureau of Fisheries.

Each summer about 15 temporary employees are engaged to collect data on the stocks and the fishery. The temporary employees hired in 1973 were graduates and undergraduates from eight different universities in Canada and the United States. During the fishing season an office is maintained in Prince Rupert and temporary staff members are stationed at Vancouver, British Columbia and at Petersburg, Sitka, Seward and Kodiak, Alaska.



HEADQUARTERS, UNIVERSITY OF WASHINGTON  
1924 - 1931; 1936 - 1968





**STAFF, 1973**

First Row—(left to right) R. J. MYHRE, N. D. SPEEDIE, G. M. SOUTHWARD,  
I. R. MCGREGOR, D. I. GARRITY, W. H. HARDMAN, J. E. WATSON,  
K. W. EXELBY, M. S. SCHMID, E. A. BEST.

Second Row—(left to right) B. E. SKUD, G. W. MAUPIN, G. J. PELTONEN,  
J. ROSS, S. H. HOAG, M. M. JONES, J. H. HAMLEY.

Third Row—(left to right) M. A. PAPE, J. A. WARREN, G. ST-PIERRE,  
J. M. DEVOE, E. M. MARGESON, P. K. RAMSAY.

DIRECTORS OF INVESTIGATIONS



WILLIAM F. THOMPSON  
1924 - 1939



HENRY A. DUNLOP  
1939 - 1963



F. HEWARD BELL  
1963 - 1970



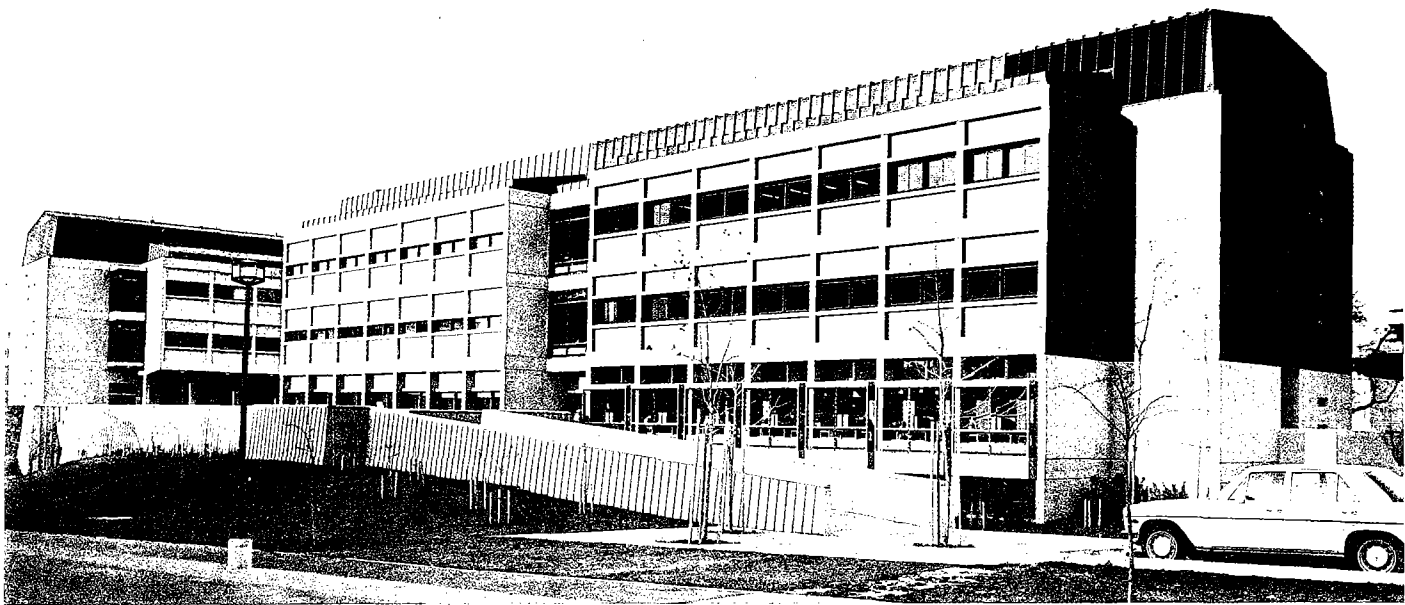
BERNARD E. SKUD  
1970 -

### Administration

The Convention specifies that expenses of the Commission are to be shared equally by the two governments. The Director submits a budget to the Commissioners and when approved it is forwarded to the Canadian Department of the Environment (Fisheries) and to the U.S. State Department. During most of IPHC's existence, payments for expenditures assumed by IPHC were executed from Ottawa and the U.S. was billed for its share. Quarterly audits were prepared for the U.S. Government. IPHC observed the fiscal years of both countries. In 1972 this system was changed and monies are now deposited quarterly in a Seattle bank so that IPHC makes payments directly. With this change, new financial regulations were incorporated and the Commission adopted its own fiscal year (April 1 to March 31). An annual audit is prepared and submitted to both governments.

The Commission budget in fiscal year 1924-25 was \$20,000, most of which was for staff salaries. The budget increased to \$63,000 by FY 1929-30 and dropped to \$50,000 in FY 1932-33, at the depth of the depression. Appropriations remained at that level until after World War II when inflation and increased staff and field activities necessitated more operating funds. The Canadian and United States appropriations for FY 1973-74 of \$582,000 brought the total funds appropriated during the 50-year history of the Commission to \$8.7 million.

For the most part, the administrative policies and salaries are consistent with those of the U.S. Civil Service. The Commission has a pension plan through the auspices of the International Fisheries Commission Pension Society, a body that was created in 1956 and services five other international fisheries agencies; the International Commission for Northwest Atlantic Fisheries, International North Pacific Fisheries Commission, Great Lakes Fishery Commission, International Pacific Salmon Fisheries Commission and Inter-American Tropical Tuna Commission.



HEADQUARTERS, UNIVERSITY OF WASHINGTON  
1969 - 1973

# Scientific Investigations

## ASSESSMENT OF THE HALIBUT STOCKS IN AREAS 2 AND 3

The stocks of halibut have declined since the 1950's and 1960's. Catch per unit effort (CPUE) declined from 130 pounds in Area 2 and 165 pounds in Area 3 to less than 70 pounds in both areas in 1973.\* This decline began after high setline catches in the late 1950's and early 1960's when the Commission intentionally established catch limits in excess of maximum sustainable yield. This action was necessary to demonstrate that the stocks were being fully utilized, a requisite for Japanese abstention from the fishery under the International North Pacific Fisheries Convention. The halibut Commission did not detect the severity of the decline and although catch limits were reduced beginning in 1964, they were still excessive. By the mid-1960's, foreign and domestic trawl fishing expanded and, of course, the incidental catch of halibut increased markedly. This incidental catch and the excessive setline removals together accelerated the decline in abundance in recent years. All available information on the recruitment, mortality and growth of halibut is being studied to assess the condition of the stocks. Some preliminary results are described below.

### Age of Halibut in Setline Catch

The CPUE (in numbers) of young halibut in setline catches is an indication of the recruitment into the fishery. In Area 2 the CPUE of fish 6 to 10 years old has declined since 1945 (Figure 4). Trawling cannot account for the decline before 1960 because neither domestic nor foreign trawling was intensive then. However, during the mid-1960's, losses to both domestic and foreign trawling increased and contributed to the decline of young fish.

\* In 1973, the decline of CPUE in Area 2 was partially due to the increased minimum size. CPUE is expected to improve as the undersized halibut grow to legal size. The change in minimum size had little effect in Area 3 because young halibut are a small percentage of the catch.

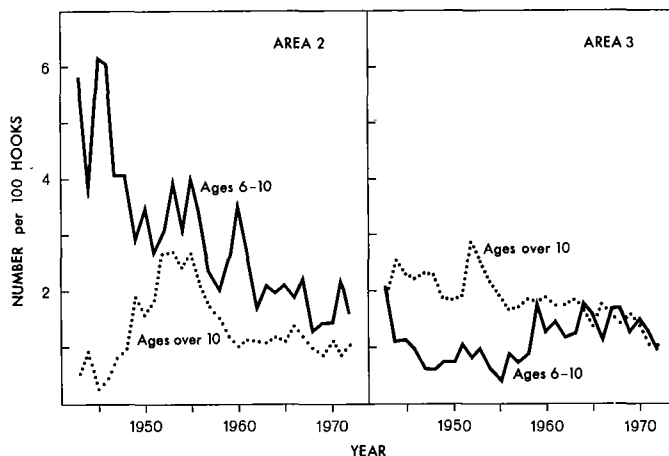


Figure 4. CPUE of fish under and over age 10 in Areas 2 and 3.

In Area 3 the CPUE of 6- to 10-year old fish has not declined in the setline catch (Figure 4), but, yearly surveys of juveniles conducted by IPHC indicate that the abundance of very young (1- to 6-year old) halibut has declined slightly. The CPUE of young halibut in Area 3 may not be a reliable indicator of recruitment because of changes in the age that young halibut enter the setline fishery. The major concern in Area 3 is the decline in numbers of older halibut (over 10 years) since the 1940's. This decline was obscured because CPUE was measured in weight rather than numbers of fish. The growth rate of halibut was increasing during this period, so the CPUE (by weight) was increasing whereas the number of halibut was decreasing. This decrease in numbers of older fish began before foreign trawlers appeared in Area 3 and fish of this age are not generally caught by trawls. These older fish are caught by setlines; hence, the initial decline must be attributed to excessive setline catches allowed by IPHC or to a long-term decline in recruitment. The effects of foreign trawling were not significant until the 1960's.

### Fishing Mortality

Figure 5 shows changes in setline effort and fishing mortality rate in Areas 2 and 3. In both areas fishing mortality is correlated with setline effort (correlation coefficient  $r = 0.80$  for Area 2 and  $0.77$  for Area 3). Although fishing mortality and effort have decreased in Area 2 since the early 1960's, the abundance has continued to decline. This suggests that the abundance in Area 2 is affected by factors other than the setline fishery. In Area 3 fishing mortality and setline effort has increased since 1960. The increased mortality has contributed to the recent decline in CPUE but cannot explain the decline (in numbers of older halibut) that began in the 1940's.

### Effect of Trawling

Most halibut caught by trawls are young. If the young fish were not caught, their rapid growth would more than compensate for deaths due to natural causes; therefore, the poundage caught by trawlers produces an even greater loss in potential yield to the setline fleet. In Areas 2 and 3, the combined loss in yield that resulted

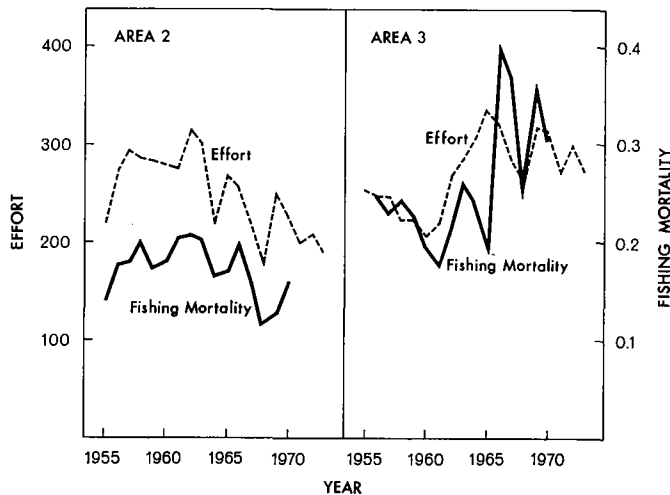


Figure 5. Setline effort and fishing mortality in Areas 2 and 3.

from the incidental catch by foreign and domestic trawlers was estimated to be 2 million pounds annually in the 1950's and early 1960's. These losses were too small to explain the early decline in abundance. As trawling increased, the estimated loss reached 5 million pounds in 1965 and 15 million pounds in 1973 (Figure 6). These recent losses have had a severe effect on stock abundance in recent years and have seriously impaired efforts by the Commission to rebuild halibut stocks.

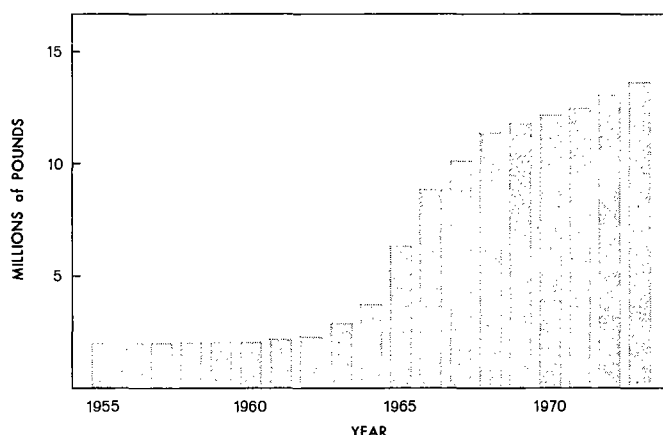


Figure 6. Estimated yield loss in Areas 2 and 3 from foreign and domestic incidental trawl catch.

#### BERING SEA GROUND FISH OBSERVER PROGRAM

The Japanese groundfish fishery has expanded enormously since the mid-1950's. Landings increased from 13,000 metric tons (m.t.) in 1954 to nearly 2 million m.t. in 1971. Most of the catch was yellowfin sole during the 1950's but since 1963 the catch has been primarily Pacific pollock. Halibut are caught incidentally with other groundfish and this large fishery has had a profound effect on the North American halibut fishery in the Bering Sea; the North American catch declined from 4,500 m.t. (round weight) in 1962 to about 500 m.t. in 1972.

To collect data on the incidental catch of halibut, an observer program on Japanese trawlers was initiated in 1972 and expanded in 1973. The program is coordinated by the U.S. National Marine Fisheries Service (NMFS) under the auspices of the International North Pacific Fisheries Commission (INPFC). One observer was placed on each of two independent stern trawlers and two observers on each of two motherships during each quarter of the year. Each observer spent 30 days on the assigned vessel. A total of 24 observers were on board from March, 1973 to January, 1974. Five were from the INPFC and the remainder were from NMFS, Alaska Department of Fish and Game, and the Fisheries Agency of Japan.

The large catches by Japanese trawlers precluded examination of all halibut in the catch and the number and size of halibut was estimated from randomly selected samples. These data will be used to estimate the total catch of halibut by area, season and type of vessel. Data on age and viability of halibut also were collected. According to preliminary analysis, the incidence of halibut is highest in southeastern Bering Sea during the winter and early spring and is inconsequential west of the Pribilof Islands during the summer. The incidence of halibut in catches by independent stern trawlers was less than in catches by the mothership fleet (primarily pair trawlers and

Danish seiners). The lower incidence in catches by stern trawlers may be due to the large bobbins (rollers) which raise the groundline slightly off bottom and may allow halibut to escape (Figure 7). Most of the incidentally caught halibut are under 50 cm long and 5 years old or younger. Halibut were smaller and younger in catches from the southeastern Bering Sea than in catches west of the Pribilof Islands.

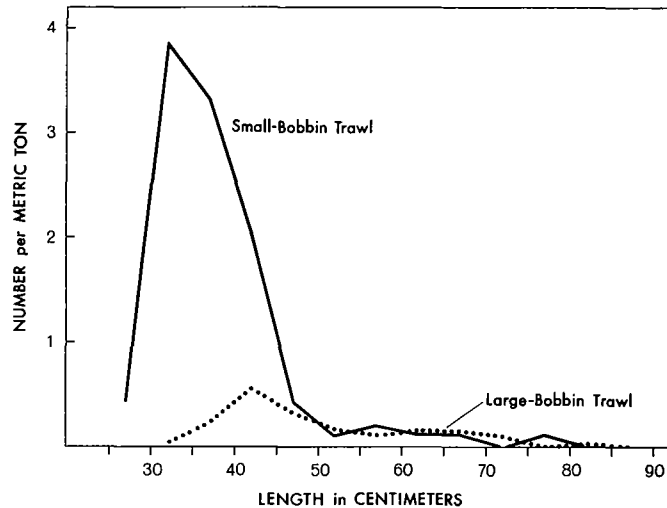


Figure 7. Length distribution of halibut caught with large- and small-bobbin trawls; March 1973, southeastern Bering Sea. (Large bobbins have a diameter of approximately 50 cm and small bobbins 20 cm.)

These data are in general agreement with earlier data reported by Japanese scientists and were used in developing IPHC proposals for reducing the incidental halibut catch. The NMFS observer program is scheduled to continue in 1974. IPHC has the responsibility for analyzing data on the incidental catch of halibut and NMFS is analyzing the data on other species.

#### EFFECTS OF TRAWLING IN THE EASTERN BERING SEA

Japanese and Soviet vessels have trawled for groundfish in the eastern Bering Sea since the mid-1950's. Initially effort was relatively low and directed at yellowfin sole, but since the mid-1960's fishing effort has increased and shifted to Alaska pollock. These trawl fisheries catch halibut incidentally. Except for a short season in one area, Japan is required by the International North Pacific Fisheries Commission (INPFC) to release halibut caught by trawls in the eastern Bering Sea but most of the released halibut do not survive. The Soviet Union is not a member of INPFC and is not required to release halibut.

The Japanese Fisheries Agency estimated the incidental catch of halibut from 1969 to 1971 and reported the results through INPFC. The incidence was estimated as catch ratios (the average number of halibut in a metric ton of groundfish catch). These catch ratios were higher during the winter than the summer and ranged from 28.3 halibut per m.t. in December to 0.0 halibut in July.

| Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------|------|------|------|-----|------|------|------|-------|------|------|------|
| 25.7 | 4.6  | 6.2  | 2.7  | 5.7 | 1.8  | 0.0  | 0.2  | 0.2   | —    | 6.8  | 28.3 |

This seasonal change in the incidental catch has been confirmed in 1973 by observers placed on Japanese vessels (see previous section). Differences in the incidental catch rate can be expected with different target species, but tag recoveries indicate that the seasonal differences pertain throughout the southeastern Bering Sea.

The annual trawl catch of halibut was estimated from the catch ratios reported by the Japanese. The Japanese catch was estimated for each month by multiplying the reported groundfish catch by the catch ratio. Data on Soviet groundfish catches by month are incomplete so the Soviet halibut catch was estimated by multiplying the annual groundfish catch by the average catch ratio of Japanese vessels for all months. The estimated total halibut catch by trawls increased from 25,000 fish in 1954 to over 1,000,000 in 1966 and over 7,000,000 fish in 1971. The estimated weight of the 1971 catch is about 15 million pounds. About 70% of the catch since 1967 was by Japanese trawlers. These estimates of annual catches are preliminary and will be refined by including data from the observer program. However, the general magnitude of the trawl catches in recent years is much higher than the 11-million pound setline quota permitted by IANFAC in 1963 when the stocks were in good condition. Setline catches are now at a negligible level and foreign trawling is indicated as the major cause of the continued low abundance of halibut in the eastern Bering Sea.

## BIOSTATISTICS

### Catch Sampling

The Commission began sampling landings in the mid-1930's to study changes in size and age composition. Particular fishing grounds were selected for sampling and were assumed to be representative of an entire area. Fish were sampled at random during the unloading process. In recent years, the limitations of the sampling design became apparent and the program was revised to provide systematic sampling from all grounds. Now, every third landing over 5,000 pounds and every tenth landing between 1,000 and 5,000 pounds is sampled. When possible, otoliths (ear bones) are taken from all fish in every third unloading sling until a prescribed number of otoliths is obtained. The otoliths are used to determine the age and size composition by area and the results are weighted by the monthly catch.

Catches from 587 commercial landings were sampled at Seattle, Vancouver, Prince Rupert, Petersburg, Juneau, Sitka, Pelican, Kodiak and Seward in 1973. The sling-sampling method, in which all fish in a specified sling were measured, was used routinely in Prince Rupert, Petersburg and Kodiak where 70% of the commercial catch was landed. This method of sampling was not feasible at all of the ports and, when not, individual fish were selected randomly from the catch as it was unloaded.

Approximately 62,000 fish were measured and 19,000 otoliths (ear bones) were collected for age and growth studies. Another 11,900 fish were measured and 1,800 otoliths collected at sea from sampling on board vessels chartered by the Commission. In addition, 1,500 fish were measured in nine trips by observers aboard Japanese vessels in the Bering Sea.

### Age and Weight Differences by Gear

Landings of troll-caught halibut were sampled in 1973 at ports in British Columbia and in southeastern Alaska. The mean ages and weights of the landings are compared with those of setline gear by area of origin in Table 6. Troll-caught halibut



were younger and smaller than setline-caught fish in all regions. Similar differences were observed in 1970 and 1971 before the larger size limit was adopted. These differences are due to fishing location as well as to gear selection.

Table 6. Mean age and weight by gear by region.

| Gear          | Northern B.C. |             | Southeastern Alaska |             | Cape Spencer-Cape St. Elias |             |
|---------------|---------------|-------------|---------------------|-------------|-----------------------------|-------------|
|               | Mean Age      | Mean Weight | Mean Age            | Mean Weight | Mean Age                    | Mean Weight |
| Troll .....   | 8.6           | 21.7        | 10.9                | 26.9        | 10.5                        | 37.5        |
| Setline ..... | 10.2          | 32.2        | 12.1                | 44.2        | 12.3                        | 50.8        |

### JUVENILE HALIBUT STUDIES

The Bering Sea was measurably warmer in 1973 than in the 2 years previous. Bottom water temperatures averaged 3° C and were 2° warmer than the temperatures measured during 1971 and 1972. Ice was not encountered at any stations during the June 1973 juvenile halibut survey in contrast to June 1972 when several stations had to be bypassed. The southerly extension of the ice cover in March 1973 was approximately 60 miles less than March 1972 in the vicinity of the Pribilof Islands and to the west. East of the Pribilof Islands the reduction in ice cover was even greater in 1973 (Figure 8).

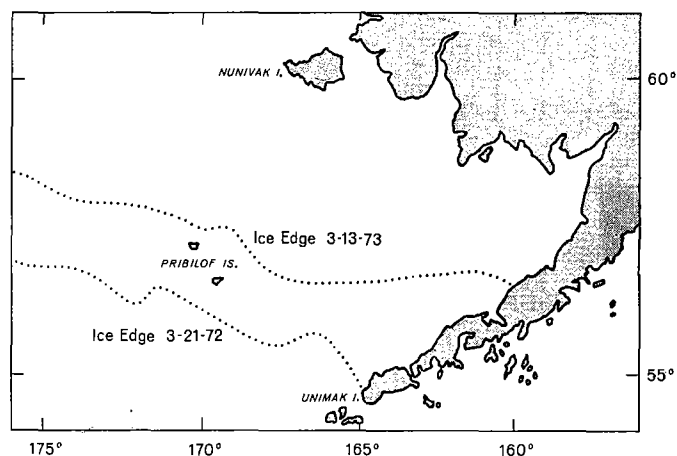


Figure 8. Difference in ice cover, March 1972 and 1973.

The survey of the southeastern Bering Sea in 1973 had the lowest catch per effort since the work began in 1963 and no fish of the 1972 year class were taken at inshore stations where the 1-year olds are usually most numerous. The CPUE of older juveniles (ages 2 through 6) was less than average for most ages. However, the CPUE of 3- and 4-year olds (1970 and 1969 year classes) was several times greater than usual at shallow inshore stations. In the Gulf of Alaska, the abundance of 1- to 4-year old halibut was generally below average, whereas the 5- to 7-year olds were slightly above average abundance (Table 7).

Table 7. Catch per haul by age in 1973 and long term average (in parentheses).\*

| Station          | Age and Year Class        |           |           |           |           |           |           |
|------------------|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                  | 1<br>1972                 | 2<br>1971 | 3<br>1970 | 4<br>1969 | 5<br>1968 | 6<br>1967 | 7<br>1966 |
| <b>INSHORE</b>   | Number per 15 minute haul |           |           |           |           |           |           |
| Bering Sea       | 0 (25)                    | 3 (40)    | 45 (10)   | 12 (2)    |           |           |           |
| Unimak Island    | 1 (40)                    | 13 (30)   | 6 (15)    | 1 (5)     |           |           |           |
| Kodiak Island    | 32 (140)                  | 35 (30)   | 3 (7)     | 1 (1)     |           |           |           |
| Trinity Island   | 7 (50)                    | 14 (5)    | 4 (1)     |           |           |           |           |
| Cape St. Elias   | 51 (30)                   | 4 (15)    | 5 (10)    | 2 (4)     |           |           |           |
| Shelikof Bay     | 1 (10)                    | 0 (2)     | 1 (3)     | 1 (1)     |           |           |           |
| <b>OFFSHORE</b>  | Number per 60 minute haul |           |           |           |           |           |           |
| Bering Sea       | —                         | <1 (2)    | 5 (5)     | 2 (4)     | 1 (2)     | <1 (1)    | —         |
| Unimak Island    | —                         | 1 (7)     | 18 (13)   | 12 (10)   | 3 (4)     | 4 (2)     | 1 (1)     |
| Chirikof Island  | —                         | 7 (27)    | 15 (33)   | 12 (15)   | 17 (8)    | 5 (5)     | 3 (1)     |
| Cape Chiniak     | —                         | 0 (2)     | 9 (16)    | 4 (11)    | 10 (6)    | 3 (3)     | 1 (1)     |
| Cape St. Elias   | —                         | —         | 3 (2)     | 2 (3)     | 5 (4)     | 3 (3)     | 0 (1)     |
| Dixon Entrance** | —                         | 2         | 2         | 4         | 10        | 18        | 14        |

\* Long term average based on 6 to 15 years.

\*\* Only 3 years of sampling.

The average length at each age of the juvenile halibut collected in the Bering Sea during June 1971, 1972 and 1973 is compared with data from the surveys of 1963 through 1970 (Table 8). During the last 3 years, halibut age 2 through 5 were from 10% to 15% smaller than in former years. The reduction in average size of age 1 fish was about 25%. Juvenile halibut from the eastern Gulf of Alaska did not show this reduction in size.

The recent cold years apparently have had a deleterious effect on the survival and growth of young halibut in the Bering Sea. The smaller number of juveniles indicates continued poor recruitment. The slower rate of growth in some areas may also delay entry into the fishable stocks.

Table 8. Length of juvenile halibut from the southeastern Bering Sea.

| Year              | Age          |      |      |      |      |      |
|-------------------|--------------|------|------|------|------|------|
|                   | 1            | 2    | 3    | 4    | 5    | 6    |
|                   | Length in Cm |      |      |      |      |      |
| 1971              | 9.9          | 19.8 | 27.9 | 34.8 | 45.0 | —    |
| 1972              | 7.3          | 17.1 | 25.3 | 28.4 | 41.9 | 55.0 |
| 1973              | —            | 18.8 | 25.8 | 32.5 | 36.9 | 49.3 |
| Average 1963-1970 | 11.7         | 21.6 | 29.5 | 37.5 | 46.0 | 52.7 |

### TAGGING EXPERIMENTS

Tag returns in 1973 totaled 393. The Fisheries Agency of Japan returned 23 tags through the International North Pacific Fisheries Commission and 17 tags were received from the Soviet Union. The remainder were taken by North American fishing vessels.

Eight \$100.00 rewards were paid in 1973, bringing the total to 54 since the premium-reward program was initiated in 1966. Five premium-reward tags were recovered in Area 2 and three in Area 3. One was returned by a plant worker, one by a trawl vessel and six by setline vessels.

IPHC released 1,023 tagged halibut in March and April, 1973 in deep water northwest of Triangle Island in Queen Charlotte Sound and 46 were recovered during 1973. Most of these recoveries were taken near the release area or on the Goose Island and Cape Scott grounds, indicating an expected summer movement to shallower water. Two fish made extensive migrations in opposite directions; one was recovered near Shumagin Island, Alaska, and one near the mouth of the Columbia River.

In 1970 the Commission tagged and released 66 fish off the west coast of Vancouver Island from the U.S. stern trawler *Seafreeze Pacific*. One fish was recaptured in 1970 and two more were returned in 1973, all near the release area. These three recoveries (5% of the number released) demonstrate that halibut caught by large stern trawlers can survive the rough treatment inherent in such an operation if they are released quickly.

Tagging of young halibut in conjunction with the juvenile surveys was continued in 1973. During the period of August 1-6 a total of 1,003 halibut were tagged on the Marmot Flats east of Kodiak Island (ca. 57° 50' N., 151° 40' W.). Forty-two tags released during previous recruitment surveys were returned in 1973.

A noteworthy result from earlier juvenile tagging experiments was the return of two tags released on the Pacific Ocean side of Unimak Island and recovered by the Japanese trawlers in the Bering Sea. This is the first record of halibut moving from the Pacific Ocean into the Bering Sea. The fish were released in July and August, 1971 and were recovered in January and April, 1972.

Tag releases of adult halibut in 1973 were as follows:

| Vessel              | Gear    | Area of Release       | Number Released |
|---------------------|---------|-----------------------|-----------------|
| <i>Republic</i>     | Setline | Queen Charlotte Sound | 1,023           |
| <i>Tordenskjold</i> | Trawl   | Cape Chiniak          | 1,003           |
| <i>Universe</i>     | Setline | Queen Charlotte Sound | 153             |
| <i>Universe</i>     | Setline | "W" Ground            | 295             |
| Total .....         |         |                       | 2,474           |

### HEAD-OFF SIZE LIMIT

In 1973 the Commission increased the minimum size from 26 inches (65 cm) to 32 inches (81 cm); i.e. fork length with head on. For head-off halibut, the new minimum size was set at 24 inches (61 cm) measured from the base of the pectoral fin to the fork of the tail (body length). The body length replaced the head-off weight (5 pounds) used in earlier years. This change was made because fish with the head

Table 9. Relation of head length to fork length.

| Head Length<br>(cm) | Fork Length (cm) |                  |
|---------------------|------------------|------------------|
|                     | 81               | 82               |
|                     | No. (%)          | No. (%)          |
| 16                  | —                | —                |
| 17                  | 47 (12)          | 21 (6)           |
| 18                  | 143 (37)         | 119 (32)         |
| 19                  | 148 (39)         | 163 (45)         |
| 20                  | 39 (10)          | 60 (16)          |
| 21                  | 3 (1)            | 5 (1)            |
| 22                  | 1                | —                |
| 23                  | 1                | —                |
| <b>Total</b>        | <b>382 (100)</b> | <b>368 (100)</b> |

removed were often below the minimum weight, even though they were of legal size with heads on. Furthermore, there usually is a weight loss during storage. To minimize this problem a length limit was adopted for both head-on and head-off halibut.

To establish the minimum body length, data on head length were examined from numerous locations in the North Pacific and the Bering Sea. The fish selected for the study ranged from 76 to 82 cm (fork length) and over 2,500 fish were measured. The head lengths for 81 and 82 cm fish were the most critical and are presented in Table 9. The average body length for 81 cm fish was 62.48 cm with a range from 58 to 64 cm (Table 10). Only 1% of the 81 cm fish had a body length

Table 10. Relation of body length to fork length.

| Body*<br>Length (cm) | Fork Length (cm) |                  |
|----------------------|------------------|------------------|
|                      | 81               | 82               |
|                      | No. (%)          | No. (%)          |
| 56                   | —                | —                |
| 57                   | —                | —                |
| 58                   | 1                | —                |
| 59                   | 1                | —                |
| 60                   | 3 (1)            | —                |
| 61                   | 39 (10)          | 5 (1)            |
| 62                   | 148 (39)         | 60 (16)          |
| 63                   | 143 (38)         | 163 (45)         |
| 64                   | 47 (12)          | 119 (32)         |
| 65                   | —                | 21 (6)           |
| <b>Total</b>         | <b>382 (100)</b> | <b>368 (100)</b> |
| <b>% &lt; 61 cm</b>  | <b>( 1)</b>      | <b>( 0)</b>      |

\* Body length = fork length minus head length.

below 61 cm, and that was selected as the minimum head-off length. Though some fish with a fork length less than 81 cm will have body lengths of 61 cm or more, this is considered to be relatively unimportant to the management program.

#### LICENSING OF HALIBUT VESSELS

The Commission has licensed halibut vessels since 1932 to obtain statistics of the fishery. Inherent in the licensing scheme is a procedure for clearing from a port before fishing and for filing a statistical report upon completion of the trip. These procedures were generally handled by Customs officers. The clearance procedure provided a count of the number of vessels fishing at any time and the statistical returns provided a record of the total catch by licensed vessels, information needed to determine when the quota would be attained.

Only vessels 5 net tons or larger were licensed in the early fishery as practically all vessels fishing for halibut exceeded this size. Conditions have changed and today a large fleet of vessels under 5 net tons fish for halibut with various forms of setline or salmon gear. However, vessels under 5 tons still are not licensed by the Commission. The following table shows the numbers of licensed and unlicensed vessels in 1972 and 1973.

|                  | 1972   |       |       | 1973   |       |       |
|------------------|--------|-------|-------|--------|-------|-------|
|                  | Canada | U.S.  | Total | Canada | U.S.  | Total |
| Licensed .....   | 170    | 178   | 348   | 376    | 353   | 729   |
| Unlicensed ..... | 1,625  | 2,140 | 3,767 | 1,234  | 2,341 | 3,575 |
| Total .....      | 1,795  | 2,318 | 4,115 | 1,610  | 2,694 | 4,304 |

The Department of Environment in British Columbia as well as the Alaska Department of Fish and Game, and the fisheries departments of Washington, Oregon and California require a detailed receipt of each sale of fish. These receipts are available to the Commission and have become the primary source of halibut landing data. Consequently, statistical returns are no longer essential and license validation and clearances have also decreased in importance. The necessity for continuing these procedures is questionable and the staff has recommended that these requirements be eliminated from the regulations in 1974.

Information presently available from the large number of unlicensed halibut vessels is inadequate and some needed information such as whether a vessel is a troller, a setliner or both, is not obtained with the present licensing scheme. Also, a record of the number of vessels in the fishery now must be obtained in an indirect manner and there is no provision in our present licensing system to void a license if a vessel stops fishing for halibut. Before instituting a comprehensive licensing scheme for all vessels fishing halibut, we will attempt to obtain the necessary statistical information through the licensing procedures of Alaska, British Columbia, Washington and Oregon and thereby avoid duplication of licensing requirements. However, until a new plan is adopted all hook and line vessels 5 net tons or over fishing halibut are still required to obtain an IFHC halibut license which is issued free of charge.

# Publications

---

## CALENDAR YEAR 1973

Forrester, C. R. and D. F. Alderdice

- 1973 Laboratory observations on early development of the Pacific halibut. International Pacific Halibut Commission, Technical Report No. 9, 13 p.

Hamley, John M. and Henry A. Regier

- 1973 Direct estimates of gillnet selectivity to walleye (*Stizostedion vitreum vitreum*). Journal of the Fisheries Research Board of Canada, Volume 30, No. 6, pp. 817-830.

Hoag, Stephen H.

- 1973 The effect of foreign trawling on halibut stock. Western Fisheries, Volume 85, No. 5, pp. 12, 42-43.

International Pacific Halibut Commission

- 1973 Annual Report 1972. 36 p.  
1973 Information Bulletin No. 4. Minimum commercial size for halibut. 1 p.

International Pacific Halibut Commission, Director and Staff

- 1973 Halibut Commission reaches half century – fifty years of management. Western Fisheries, Volume 87, No. 3, pp. 10-11, 32-35, 48.

Myhre, Richard J.

- 1973 Setting the new halibut size limit. Western Fisheries, Volume 85, No. 5, pp. 14, 38-39.

Skud, Bernard E.

- 1973 Further quota reductions may be ahead. Western Fisheries, Volume 85, No. 5, pp. 10-11, 43-44.  
1973 Factors regulating the production of pink salmon. International Council for the Exploration of the Sea, Symposium: Fish Stocks and Recruitment, Rapports et Proces-Verbaux, Volume 164, pp. 106-112.  
1973 Management of the Pacific halibut fishery. FAO Technical Conference on Fishery Management and Development. Journal of the Fisheries Research Board of Canada, Volume 30, No. 12, Part 2, pp. 2393-2398.

Southward, G. Morris

- 1973 The non-licensed halibut fleet – 1971 and 1972. Western Fisheries, Volume 85, No. 5, pp. 16, 39-41.

Southward, G. Morris and William H. Hardman

- 1973 Otolith length and fish length of Pacific halibut. International Pacific Halibut Commission, Technical Report No. 10, 10 p.

## COMMISSION PUBLICATIONS — 1928-1973

### Reports

- 1.\* Report of the International Fisheries Commission appointed under the Northern Pacific Halibut Treaty. John Pease Babcock, William A. Found, Miller Freeman and Henry O'Malley. 31 p. (1931).
2. Life history of the Pacific halibut (1) Marking experiments. William F. Thompson and William C. Herrington. 137 p. (1930).
3. Determination of the chlorinity of ocean waters. Thomas G. Thompson and Richard Van Cleve. 14 p. (1930).
4. Hydrographic sections and calculated currents in the Gulf of Alaska, 1927 and 1928. George F. McEwen, Thomas G. Thompson and Richard Van Cleve. 36 p. (1930).
- 5.\* History of the Pacific halibut fishery. William F. Thompson and Norman L. Freeman. 61 p. (1930).
- 6.\* Biological statistics of the Pacific halibut fishery (1) Changes in the yield of a standardized unit of gear. William F. Thompson, Harry A. Dunlop and F. Heward Bell. 108 p. (1931).
- 7.\* Investigations of the International Fisheries Commission to December 1930, and their bearing on the regulation of the Pacific halibut fishery. John Pease Babcock, William A. Found, Miller Freeman and Henry O'Malley. 29 p. (1930).
- 8.\* Biological statistics of the Pacific halibut fishery (2) Effect of changes in intensity upon total yield and yield per unit of gear. William F. Thompson and F. Heward Bell. 49 p. (1934).
- 9.\* Life history of the Pacific halibut (2) Distribution and early life history. William F. Thompson and Richard Van Cleve. 184 p. (1936).
10. Hydrographic sections and calculated currents in the Gulf of Alaska, 1929. Thomas G. Thompson, George F. McEwen and Richard Van Cleve. 32 p. (1936).
11. Variations in the meristic characters of flounders from the northeastern Pacific. Lawrence D. Townsend. 24 p. (1936).
12. Theory of the effect of fishing on the stock of halibut. William F. Thompson. 22 p. (1937).
13. Regulation and investigation of the Pacific halibut fishery in 1947 (Annual Report). IPHC. 35 p. (1948).
14. Regulation and investigation of the Pacific halibut fishery in 1948 (Annual Report). IPHC. 30 p. (1949).
15. Regulation and investigation of the Pacific halibut fishery in 1949 (Annual Report). IPHC. 24 p. (1951).
16. Regulation and investigation of the Pacific halibut fishery in 1950 (Annual Report). IPHC. 16 p. (1951).

\* Out of print.

## Reports

17. Pacific Coast halibut landings 1888 to 1950 and catch according to area of origin. F. Heward Bell, Henry A. Dunlop and Norman L. Freeman. 47 p. (1952).
18. Regulation and investigation of the Pacific halibut fishery in 1951 (Annual Report). Edward W. Allen, Milton C. James, George R. Clark and George W. Nickerson. 29 p. (1952).
19. The production of halibut eggs on the Cape St. James spawning bank off the coast of British Columbia 1935-1946. Richard Van Cleve and Allyn H. Seymour. 44 p. (1953).
20. Regulation and investigation of the Pacific halibut fishery in 1952 (Annual Report). Edward W. Allen, George R. Clark, Milton C. James, George W. Nickerson and Seton H. Thompson. 22 p. (1953).
21. Regulation and investigation of the Pacific halibut fishery in 1953 (Annual Report). IPHC. 22 p. (1954).
22. Regulation and investigation of the Pacific halibut fishery in 1954 (Annual Report). IPHC. 32 p. (1955).
23. The incidental capture of halibut by various types of fishing gear. F. Heward Bell. 48 p. (1956).
24. Regulation and investigation of the Pacific halibut fishery in 1955 (Annual Report). IPHC. 15 p. (1956).
25. Regulation and investigation of the Pacific halibut fishery in 1956 (Annual Report). IPHC. 27 p. (1957).
26. Regulation and investigation of the Pacific halibut fishery in 1957 (Annual Report). IPHC. 16 p. (1958).
27. Regulation and investigation of the Pacific halibut fishery in 1958 (Annual Report). IPHC. 21 p. (1959).
28. Utilization of Pacific halibut stocks: yield per recruitment. Staff, IPHC. 52 p. (1960).
29. Regulation and investigation of the Pacific halibut fishery in 1959 (Annual Report). IPHC. 17 p. (1960).
30. Regulation and investigation of the Pacific halibut fishery in 1960 (Annual Report). IPHC. 24 p. (1961).
31. Utilization of Pacific halibut stocks: estimation of maximum sustainable yield, 1960. Douglas G. Chapman, Richard J. Myhre and G. Morris Southward. 35 p. (1962).
32. Regulation and investigation of the Pacific halibut fishery in 1961 (Annual Report). IPHC. 23 p. (1962).
33. Regulation and investigation of the Pacific halibut fishery in 1962 (Annual Report). IPHC. 27 p. (1963).



## Reports

34. Regulation and investigation of the Pacific halibut fishery in 1963 (Annual Report). IPHC. 24 p. (1964).
35. Investigation, utilization and regulation of the halibut in southeastern Bering Sea. Henry A. Dunlop, F. Heward Bell, Richard J. Myhre, William H. Hardman and G. Morris Southward. 72 p. (1964).
36. Catch records of a trawl survey conducted by the International Pacific Halibut Commission between Unimak Pass and Cape Spencer, Alaska from May 1961 to April 1963. IPHC. 524 p. (1964).
37. Sampling the commercial catch and use of calculated lengths in stock composition studies of Pacific halibut. William H. Hardman and G. Morris Southward. 32 p. (1965).
38. Regulation and investigation of the Pacific halibut fishery in 1964 (Annual Report). IPHC. 18 p. (1965).
39. Utilization of Pacific halibut stocks: study of Bertalanffy's growth equation. G. Morris Southward and Douglas G. Chapman. 33 p. (1965).
40. Regulation and investigation of the Pacific halibut fishery in 1965 (Annual Report). IPHC. 23 p. (1966).
41. Loss of tags from Pacific halibut as determined by double-tag experiments. Richard J. Myhre. 31 p. (1966).
42. Mortality estimates from tagging experiments on Pacific halibut. Richard J. Myhre. 43 p. (1967).
43. Growth of Pacific halibut. G. Morris Southward. 40 p. (1967).
44. Regulation and investigation of the Pacific halibut fishery in 1966 (Annual Report). IPHC. 24 p. (1967).
45. The halibut fishery, Shumagin Islands and westward not including Bering Sea. F. Heward Bell. 34 p. (1967).
46. Regulation and investigation of the Pacific halibut fishery in 1967 (Annual Report). IPHC. 23 p. (1968).
47. A simulation of management strategies in the Pacific halibut fishery. G. Morris Southward. 70 p. (1968).
48. The halibut fishery south of Willapa Bay, Washington. F. Heward Bell and E. A. Best. 36 p. (1968).
49. Regulation and investigation of the Pacific halibut fishery in 1968 (Annual Report). IPHC. 19 p. (1969).
50. Agreements, conventions and treaties between Canada and the United States of America with respect to the Pacific halibut fishery. F. Heward Bell. 102 p. (1969).
51. Gear selection and Pacific halibut. Richard J. Myhre. 35 p. (1969).
52. Viability of tagged Pacific halibut. Gordon J. Peltonen. 25 p. (1969).

### Scientific Reports

53. Effects of domestic trawling on the halibut stocks of British Columbia. Stephen H. Hoag. 18 p. (1971).
54. A reassessment of effort in the halibut fishery. Bernard E. Skud. 11 p. (1972).

### Technical Reports

1. Recruitment investigations: Trawl catch records Bering Sea, 1967. E. A. Best. 23 p. (1969).
2. Recruitment investigations: Trawl catch records Gulf of Alaska, 1967. E. A. Best. 32 p. (1969).
3. Recruitment investigations: Trawl catch records eastern Bering Sea, 1968 and 1969. E. A. Best. 24 p. (1969).
4. Relationship of halibut stocks in Bering Sea as indicated by age and size composition. William H. Hardman. 11 p. (1969).
5. Recruitment investigations: Trawl catch records Gulf of Alaska, 1968 and 1969. E. A. Best. 48 p. (1969).
6. The Pacific halibut. F. Heward Bell and Gilbert St-Pierre. 24 p. (1970).
7. Recruitment investigations: Trawl catch records eastern Bering Sea, 1963, 1965 and 1966. E. A. Best. 52 p. (1970).
8. The size, age and sex composition of North American setline catches of halibut (*Hippoglossus hippoglossus stenolepis*) in Bering Sea, 1964-1970. William H. Hardman. 31 p. (1970).
9. Laboratory observations on early development of the Pacific Halibut. C. R. Forrester and D. F. Alderdice. 13 p. (1973).
10. Otolith length and fish length of Pacific halibut. G. Morris Southward and William H. Hardman. 10 p. (1973).

### Annual Reports

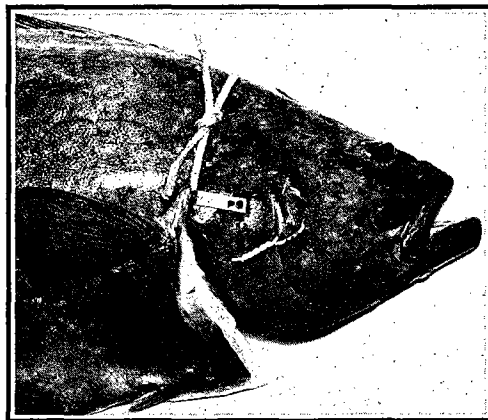
- Annual Report 1969. 24 p. (1970).
- Annual Report 1970. 20 p. (1971).
- Annual Report 1971. 36 p. (1972).
- Annual Report 1972. 36 p. (1973).

### Information Bulletins

1. Bait Experiments. 2 p. (1972).
2. Hook-Spacing. 2 p. (1972).
3. Length-Weight Relationship. 1 p. (1972).
4. Minimum commercial size for halibut. 1 p. (1973).

# TAGGED HALIBUT

The INTERNATIONAL PACIFIC HALIBUT COMMISSION tags halibut with plastic tags and metal strap tags attached to the cheek on the dark side of the fish. Some fish have two tags. Retain all tagged halibut regardless of size or gear used.



## REWARD

**\$2.00 WILL BE PAID FOR THE RETURN OF THE TAGS AND RECOVERY INFORMATION FROM EACH FISH. \$100.00 WILL BE PAID FOR SPECIAL PRESELECTED TAGS.**

**WHEN YOU CATCH A TAGGED HALIBUT:**

1. Record Tag Numbers, Date, Location and Depth in your log book.
2. Leave Tags on the fish.
3. Mark the fish with a gangion.

**WHEN YOU LAND A TAGGED HALIBUT:**

1. Report fish to a Commission Representative or Government Officer  
or
2. Forward tags to address below and enclose recovery information (see above), your name, address, boat name, gear, overall length of fish and, if possible, earstones from the fish.

**FINDER WILL BE ADVISED OF MIGRATION AND GROWTH OF THE FISH.**

**International Pacific Halibut Commission**

P. O. Box 9  
University Station  
Seattle, Washington 98105

Tag Reward Poster.