

INTERNATIONAL PACIFIC HALIBUT COMMISSION

Annual Report
2000

**Established by a Convention between
Canada and the United States of America**

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PREFACE

The International Pacific Halibut Commission (IPHC) was established in 1923 by a convention between Canada and the United States for the preservation of the halibut (*Hippoglossus stenolepis*) fishery of the North Pacific Ocean and the Bering Sea. The convention was the first international agreement providing for the joint management of a marine resource. The Commission's authority was expanded by several subsequent conventions, the most recent being signed in 1953 and amended by the protocol of 1979.

Three IPHC Commissioners are appointed by the Governor General of Canada and three by the President of the United States. Each country pays one-half of the Commission's annual expenses, as required by the Halibut Convention. The commissioners appoint the director, who supervises the scientific and administrative staff. The scientific staff collects and analyzes the statistical and biological data needed to manage the halibut fishery. The IPHC headquarters and laboratory are located on the campus of the University of Washington in Seattle, Washington.

The Commission meets annually to review all regulatory proposals, including those made by the scientific staff and industry; specifically the Conference Board and the Processor Advisory Group. The measures recommended by the Commission are submitted to the two governments for approval. Upon approval the regulations are enforced by the appropriate agencies of both governments.

The IPHC publishes three serial publications: Annual Reports (U.S. ISSN 0074-7238), Scientific Reports—formerly known as Reports— (U.S. ISSN 0074-7246) and Technical Reports (U.S. ISSN 0579-3920). Until 1969, only the Report series was published; the numbers of that series have been continued with the Scientific Reports.

Unless otherwise indicated, all weights in this report are dressed weight (eviscerated, head-off). Round (live) weight may be calculated by dividing the dressed weight by 0.75.

On the cover:

"Hippoglossus ultramaximus" by Ray Troll (1984)

Alaskan artist Ray Troll blends the latest scientific work in ichthyology and paleontology with his sense of humor in his offbeat paintings of fish.

Troll's work has been featured in museum displays at the Smithsonian and he has had solo exhibitions at Seattle's Burke Museum, the Denver Museum of Nature and Science, the Alaska State Museum in Juneau, and the Anchorage Museum of History and Art, among others. He currently has another traveling museum show touring the United States based on his latest book "Sharkabet, A Sea of Sharks from A to Z". He is also a regular contributor to Natural History magazine.

Ray Troll owns and operates the Soho Coho Contemporary Art and Craft Gallery with his wife Michelle in Ketchikan, Alaska. In addition to his gallery and his artwork, Ray enjoys fishing whenever his schedule allows.

For more information on the art of Ray Troll visit <http://www.trollart.com/> on the World Wide Web.

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DANCING ON THE EDGE: ACTIVITIES OF THE COMMISSION IN 2000

The International Pacific Halibut Commission practices the art of sorting out the physical system of the north Pacific while that system, and our ability to quantify it, changes almost daily. Within the widening gyre of issues, some problems seem perpetually to present themselves to the Commission: stock fluctuations, financial uncertainties, and the eternal conundrum of how to make regulations fair, consistent, and reasonable.

The January, 2000 Annual Meeting of the Commission, held in Lynnwood, Washington, focused on the following concerns:

- Most Pacific halibut stocks are easing toward long-term average levels, after several years of high yields. Scientists believe that stocks are decreasing, but are not yet certain about how great the decline may be.
- Chalky halibut investigations have identified the cause of the condition as a combination of exercise-related lactic acid buildup in the flesh and water temperature. IPHC scientists have found a fairly reliable detection method although it appears that because the condition develops in the water, before the fish is landed on the boat, harvesters can do nothing to prevent the condition.
- Stock assessment data can be altered by any changes in the type and size of bait used in survey fishing. With the commercial fleet's help, our scientists are testing ways to assess the relative effectiveness of different baits. How the hook is threaded also may affect catch levels.

Looking ahead, the Commission considered several proposals and ideas from around the region.

Coordinated research. The Commission signed a Memorandum of Understanding with the North Pacific Marine Sciences Organization (PICES), a scientific research association created by convention among six

Pacific Rim countries: China, Korea, Russia, Canada, U.S., and Japan. PICES conducts environmental research in the Pacific. This agreement formalizes the cooperative relationship between the two agencies, providing for continuity in research and the possibility for pooling some of the IPHC's scientific efforts with other, larger organizations.



2000 Annual Meeting. Photo taken by Stephen Kaimmer.

The Groundfish Forum showed that a factory trawler might cut its halibut mortality by about 50 percent by towing with halibut excluder gear, and by bringing the cod end aboard far forward of the hatch and running water through it while the catch is sorted.

Cod-end halibut sorting for factory trawlers. The industry group Groundfish Forum has had a proposal before the North Pacific Fishery Management Council (NPFMC) since 1997 to require factory trawlers to sort halibut on-deck rather than in the factory, where the catch is currently sorted. At-sea experiments conducted by the Groundfish Forum showed that a factory trawler could cut its halibut mortality by about 50 percent by towing with halibut excluder gear, and by bringing the cod end aboard far forward of the hatch and running water through it while the catch is sorted. The Groundfish Forum issued a plea for support for this measure, which has lost momentum in the Council process due to higher priorities.

Additional bycatch monitoring and reduction efforts coastwide were slow-moving and under-funded. In Area 2A, trawl effort decreased 12 percent between 1995 and 1998, and resulting halibut bycatch by 40 percent. However, bycatch mortality in Alaska remained at levels similar to recent years.

The Commission voted to continue to support halibut bycatch reduction measures in general, and to take a closer look at the Groundfish Forum's research before endorsing it specifically.

Keeping undersized halibut in Area 4E. The Commission agreed to allow CDQ fishers in Area 4E to keep undersized halibut for personal use regardless of size, with the understanding that the communities would provide accurate statistics of catch to the staff by year's end.

Fish habitat protection. The NPFMC asked the Commission for data to support an effort to protect 14 areas in the Gulf of Alaska and along the Aleutian Chain that feature large congregations of Gorgonian coral. The Commissioners agreed to contribute data about halibut fishing effort activity for those areas.

Fish hook injuries. Serious and minor injuries to halibut from prior hooking incidents have decreased overall since 1988. The staff reported to the commissioners that, though there is no way to identify particular groups who are not releasing halibut as they should, the overall trend is toward more careful release practices. Because injuries affect mortality rates, the IPHC has spent extra effort to monitor prior hook injuries in halibut. Later in this report are the results so far.

How bait affects catch rates. Could our survey data be altered, in one direction or another, by the kind of bait we use? This topic is discussed at length in this Annual Report.

Extending halibut season. Should the commercial fishery open earlier in the year, to blunt developing market sales of farmed halibut and to allow U.S. producers to compete against Canadian operators who sell penned, live halibut? The question garnered much discussion, and the Commission assigned the staff to study the question over the next two years.

Bycatch. The Commissioners discussed the possibility that, as halibut stocks decline, the number of fish caught as bycatch will exceed the numbers caught in the commercial fishery. Both Canada and the U.S. are aggressively studying ways to reduce halibut bycatch in other fisheries (Alaska's bycatch, for example, remains much higher than levels targeted in the Commission's 1991 agreement), and this topic remained a concern in 2000.

Shifts extreme and subtle

Some issues are of constant concern to the Commissioners. For example biomass estimates, the difficulty of accurately estimating sport catches, halibut bycatch in other fisheries, and finding funding for special research projects. And there are unique quandaries to be addressed: chalky condition in halibut, how a change in bait can affect a population survey, and assessing the impact of a climatic regime shift on the future of halibut yields.

There are the perennial administrative concerns – salaries, travel costs, insurance and other benefits – that try the souls of financial officers.

Late in the year, the Commissioners discussed the idea of setting up a scholarship fund that would help promising students to study specific fisheries problems. The group liked the idea, and put it on the agenda for next year.

The two IPHC countries trade chairmanship of the Commission, every year handing off the baton to the other country. Dr. Richard Beamish of Canada’s Department of Fisheries and Oceans was named Chair for 2000-2001, and Mr. Steven Pennoyer was named Vice-chair.



Port sampler, Rebecca Hall, sampling the catch. Photo taken by Heather Gilroy.

Regime shift will bring changes

Harvesters can expect a decreasing halibut resource over the next several years, and one reason is the regime shift in the Pacific Ocean in the late 1990s. Pacific Decadal Oscillation – identified and named by our own Dr. Stephen Hare – creates a twenty to thirty-year mood swing along the North American coast of the Pacific, affecting air and water temperatures, currents and weather patterns. In the past century, this part of the world saw a cool regime from 1890 to 1924, and again from 1947 – 1976. Warm regimes ruled between 1925 and 1946 and again from 1977 to at least the mid 1990s. We predict that halibut declines will continue for a few years, but that stronger year-classes of halibut should begin appearing soon after. It is not known exactly what combination of phenomena cause a regime shift, but we and other scientists are working on methods of predicting them.

IPHC receives prestigious award

The IPHC received the Year 2000 Group Award of Merit from the American Institute of Fishery Research Biologists. This award has been bestowed only ten times in the 44-year history of the Institute. The Institute president made the presentation to the Commission during a ceremony held at the University of Washington School of Fisheries on March 30th. The Commission was praised for its sustained record of scientific excellence and its commitment to sound resource management.

Goals for the future

At the last meeting of the year, the commissioners and IPHC staff set a list of goals as they looked forward to 2001:

1. To compile data on catches of Area 2B halibut landed at Neah Bay, by week, in time for the 2001 Annual Meeting.
2. A new budget, with provisional appropriation funds of \$1.881 million identified in the U.S. State Department budget, and a potential catch-based, proportional matching amount from Canada, also to be presented at the 2001 Annual Meeting.
3. To implement corrections and additions to the budgets as noted this year.
4. To review the benefits of five-years worth of comprehensive surveys.
5. To develop a proposal to have a physiologist examine the possibility of reversing chalkiness in landed fish, through chemical or other means.
6. To compare the two different sport catch estimates for Area 2B (the sample-survey estimate, and the DFO Pacific Region composite estimate) and produce an assessment based on each one for the commissioners to review.
7. To include start dates in all research project proposals and reports in the future.
8. To review the staff appraisal format at the 2001 annual meeting.
9. To draft a framework for an IPHC Scholarship Fund in time for the 2001 Annual Meeting.

DIRECTOR'S REPORT

The language of fisheries management has seen the introduction of a new suite of terms over the past decade. Terms such as “Precautionary approach”, “Sustainability”, and “Risk aversion” are all used commonly to support managers’ decisions about harvest levels. These terms may be new but the actions that they represent are not new to the IPHC process. The Commission has been acting according to the precautionary principle ever since the industry demanded that the governments enact harvest controls and the Commission was created in 1923. Simply put, this principle states that when we are uncertain about the status of the resource or its dynamics, we act cautiously.



Bruce Leaman conversing with Jim Gordon, Skipper of *F/V Janatlee* in Port Hardy. Photo by Heather Gilroy.

While the precautionary principle is often spoken of in abstract terms, the halibut industry saw an example of its translation into the real world during 2000. Experiments we conducted in 1999 looked at the effect of alternate baits on survey catch rates, for the purpose of determining which baits might be substituted on our surveys if the standard chum salmon bait could not be obtained. The results showed a striking difference (50-150%) of catching power of salmon over herring, when fished as full skates of each bait. Our pre-1993 surveys had used salmon and herring on alternate hooks and we were very concerned that the change to straight salmon bait after 1993 had artificially increased our survey catch rates, causing us to overestimate halibut abundance from the survey data. This uncertainty caused us to do two things. First,

we undertook a new experiment in 2000 that would specifically test the two baits in the configurations that they were actually fished on the surveys, alternate hooks of salmon/herring vs. all salmon. This experiment was done as comparisons on normal grid survey stations. Second, we applied a precautionary downward adjustment to our survey catch rates after 1993. This downward adjustment resulted in lower estimates of abundance. We recommended, and the Commission accepted, only a 50% reduction toward the catch limits suggested by these lower estimates, both because the

complete experiment would be conducted in 2000 and there was uncertainty about the applicability of the 1999 experiments to the present surveys.

The results of the 2000 experiment are detailed later in this report but the essential result is that the precautionary adjustment to survey catch rates and consequent reduction in catch limits was not required. The reduction in catch limits for 2000 did cause economic hardship for the industry, although increased ex-vessel price per pound made up much of the difference in economic impact for most areas. Clearly, we would prefer that such shifts in catch limits did not have to happen but we must take a conservative and precautionary approach under such conditions of uncertainty. While the staff endeavours to minimize the occurrence of such events, it is always possible that some yield may be lost in the short term in order to ensure that we are making the correct decisions about harvest over the long term.

The other major area of harvest management that commands our attention is the development of an improved procedure for catch limit estimation in Areas 3B and 4. The lack of historical surveys in these areas and the relatively lower historical exploitation rates means that we have little information upon which to base an analytic assessment. We use the relationship of survey catch rates in these areas to the survey and model estimates in Area 3A, as the basis for harvest management. However, we continue to pursue research that may lead to alternate and independent methods of calculating yield for these areas. Exploitation rates derived from tagging programs may offer the best alternative, although such programs typically take several years to produce meaningful results.

Overall, the halibut biomass is showing indications of reduction from the historic levels of recent years. However, biomass is still considerably above the long-term average for the stock. Recruitment has declined from the high levels of the 1980s and 1990s, due primarily to changes in ocean conditions. Recruitment of year classes from spawnings in the 1990s appear generally below average, although we are only beginning to see these fish in the surveys and the fishery.

The staff continues to assist industry in research directed at the problem of chalky fish. Our approach has been a threefold one of avoidance, detection, and utilization. In 2000, we evaluated and distributed information on a rapid pH meter to assist processors in the detection of potential chalkiness conditions of fish at the plants. Detection at the plant level would provide the opportunity for processors to direct such fish into appropriate markets and minimize the lost value arising from chalky claims by end users. While there does not appear to be a means to reverse chalkiness in dead fish, staff will continue its research on the timing and progress of chalkiness in fish, after they are caught.



Bruce M. Leaman
Director

THE ATOMIC CONGRESS OF EVERYDAY LIFE: THE 2000 COMMERCIAL FISHERY

Music critic Stuart Broomer once attributed a piece of improvisational music with “a sense of the teeming life of the micro-organism, of molecules and cells, of flux and change and breathing, and the elaboration of complex organisms, the atomic congress of everyday life in which even remembering is taking place as forgetting.” This teeming life of the micro-organism, multiplied billions of times, comprises our own Pacific Ocean, our most intimate and foreign neighbor.

Perhaps we would not know half of what we know about the Pacific and its resources if not for the commercial fisheries. Of the money fisheries along the Continental shelf, the halibut fishery is one of the oldest. It has been more than a hundred years since the *F/V Oscar and Hattie* left Seattle for the continent’s edge off the northern coast and brought home the first commercial load of *H. stenolepis*.

A commercial catch of 68.3 million pounds of Pacific halibut was landed during the 2000 season in waters from Monterey Bay, California to north of Point Wales, Alaska. These amazingly productive seas along the Pacific continental shelf are fed by the forces of shelf upwelling. Mineral-rich nutrients from the sea bottom are pulled upward to the pelagic layers, where they are circulated by the north Pacific gyre, and help create a cozy, nutritious home for Pacific halibut and their benthic neighbors. More detailed catch information can be found in Appendix I.

The IPHC divides the North American halibut habitat into ten regulatory areas for fishery management purposes. In most cases, each area has its own catch limits, commercial fishing regulations, and even fishery management regimes. The southeastern flats in the Bering Sea, excluding Bristol Bay, remained closed in 2000 to all halibut fishing.

Boundary lines for the regulatory areas, which have remained the same since 1990, are shown in Figure 1.



Crew hauling in a halibut on the *F/V Trident*. Photo by Matt LaCroix.

A commercial catch of 68.3 million pounds of Pacific halibut was landed during the 2000 season in the waters from Monterey Bay to north of Point Wales.

- Area 2A - all waters off the coast of the states of California, Oregon, and Washington.
- Area 2B - all waters off the coast of British Columbia.
- Area 2C - all waters off the coast of Alaska, south and east of Cape Spencer.
- Area 3A - all waters between Cape Spencer and Cape Trinity, Kodiak Island.
- Area 3B - all waters between Cape Trinity and a line extending southeast from Cape Lutke, Unimak Island.
- Area 4A - all waters west of Area 3B and the Bering Sea closed area that are south of 56°20' N. and east of 172°00' W.
- Area 4B - all waters in the Gulf of Alaska and the Bering Sea west of Area 4A and south of 56°20' N.
- Area 4C - all waters in the Bering Sea north of Area 4A and the closed area that are east of longitude 171°00' W., south of latitude 58°00' N., and west of longitude 168°00' W.
- Area 4D - all waters in the Bering Sea north of Areas 4A and 4B, north and west of Area 4C, and west of longitude 168°00' W.
- Area 4E - all waters in the Bering Sea north and east of the closed area, east of Areas 4C and 4D, and south of 65°34' N.

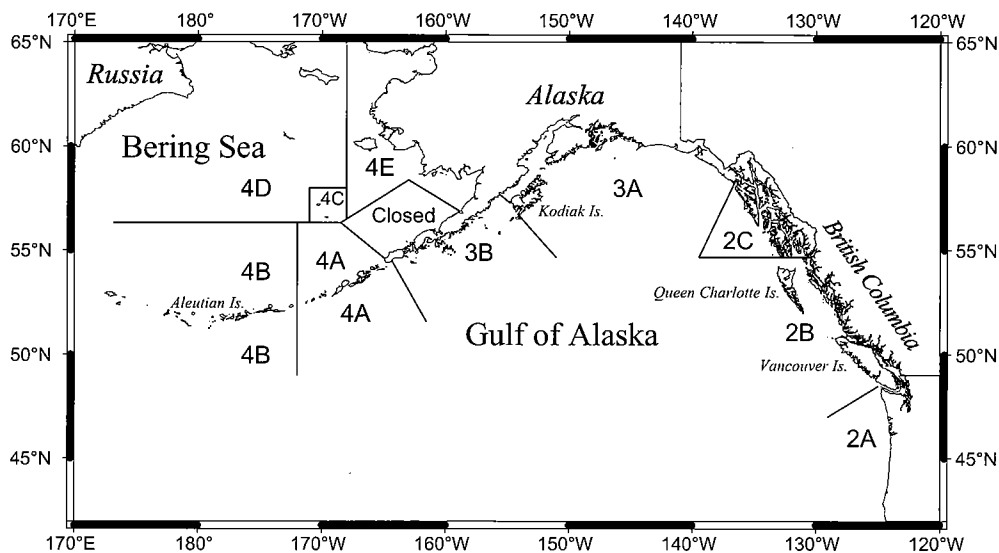


Figure 1. IPHC regulatory areas in 2000.

Key change: Commercial regulations for 2000

The Commission adopted commercial regulations for the 2000 fishery at its Annual Meeting in January. Later, the Canadian and United States governments approved all but one regulation: Canada specifically chose not to approve a regulation requiring commercially caught halibut to be landed with the gills and entrails removed. Some British Columbia operators prefer

to land their halibut live, so they can be penned and delivered fresh to the market after the season closes. When the Commission adopted the regulation requiring landing of eviscerated fish, in 1995, its intent was to improve fish quality and to address sampling concerns, not to prohibit live landings by commercial producers.

The live-landing issue has fomented much discussion at the past two Annual Meetings of the Commission. The IPHC scientists are concerned primarily with conservation issues and biological samples for the live fish deliveries. With a proper regulatory and monitoring framework, live penning does not present a conservation issue. Some U.S. halibut producers worry about competition in the marketplace from live landings. However, the IPHC can only address biological and conservation concerns – not marketing issues. After much discussion, the commissioners decided to keep the current regulation in place until a less problematic regulation can be devised.

The Commission did change one regulation governing off-loading of a vessel landing U.S.-caught halibut. Previously, the processor or buyer was responsible for ensuring that, once off-loading has begun, all the fish are landed, reported and properly documented. In 2000, that responsibility shifted to the vessel operator or owner.

The Commission re-authorized a regulation allowing Community Development Quota (CDQ) commercial fishers in Area 4E to land undersized halibut for subsistence purposes. All CDQ organizations are required to report the total number and weight of undersized halibut, and methodology of data collection to the Commission by December 1 of each year.

The Pacific Fishery Management Council (PFMC) allocates the halibut catch limit between a variety of user groups in Area 2A, including commercial, sport and tribal fisheries. In 2000, the courts ordered an adjustment in the halibut allocations for the years 2000 through 2007, granting an additional 25,000 pounds of catch (above the percentage already allocated) to tribal fisheries.

Catches rise in Area 2A

Harvesters of all halibut user groups in Washington, Oregon, and California were allowed to catch up to 830,000 pounds of halibut in 2000, 109% of the 1999 limit. The IPHC then approved an allocation plan put forth by the PFMC.

The sport fishery was allocated 351,404 pounds. The treaty Indian fishery was allocated a total of 315,500 pounds – 10,500 pounds for subsistence and ceremonial use, and 305,000 pounds for the tribal commercial fishery. The non-treaty commercial catch limit was 163,096 pounds, with 138,632 of those pounds allocated to the directed commercial fishery and 24,464 pounds for incidental catch in the salmon troll fishery. The directed commercial fishery was restricted to waters south of Point Chehalis, WA (46°53’18”N. latitude) under regulations promulgated by the NMFS.

Some British Columbia operators prefer to land their halibut live, so they can deliver fresh fish to the market after the season closes. This worries producers in the U.S., where vessels must land fish eviscerated and head-off.

In 2000, the courts ordered an increase in the halibut allocations to tribal fisheries off the coasts of Washington, giving them an additional 25,000 pounds of catch.

Area 2A halibut licenses went to 633 vessels: 235 licenses for salmon trollers to hold incidentally caught halibut, 268 for the directed commercial fishery, and 130 for the sport charter fishery.

In 2000, the IPHC issued 633 vessel licenses for Area 2A: 235 licenses for the incidental commercial catch of halibut during the salmon troll fishery, 268 for the directed commercial fishery, and 130 for the sport charter fishery. This is about the same number as licenses issued in 1999.

Since 1995, chinook salmon trollers in Area 2A have been given a separate allocation for the halibut they catch as bycatch. The ratio of halibut to chinooks landed has increased in the five years of the program, from one halibut per twenty salmon to one per five salmon in 1999 and one per three salmon in 2000 plus one ‘extra’ halibut regardless of ratio – but the total number of halibut that any troller landed could not exceed 35.

In May and June 2000, salmon trollers caught more than 20,000 pounds of halibut as incidental catch, double the 1999 landing, yet about 3,000 pounds short of their allocation. The remainder was rolled into the directed commercial catch at the end of the June troll fishery. Then, since the total commercial catch limit was not taken during the directed July fisheries, the IPHC allowed two incidental halibut fisheries in August for a total catch of 1,300 pounds.

The directed commercial fishery consisted of three 10-hour fishing periods with fishing period limits (Appendix II, Table 1). The first opening, July 5th, had slightly higher fishing period limits than the previous year’s first fishery, resulting in a slightly higher catch – 129,300 pounds. In-season catch estimates were lower than actual catches. The result was the total commercial catch of 171,000 pounds for Area 2A exceeded the catch limit by five percent.

The treaty Indian catch of 312,000 pounds exceeded the catch limit by 7,000 pounds, a mere two percent. The treaty fishery consisted of two unrestricted openings, March 15 and March 30 and a restricted fishery with had fishing period limits of 500 pounds. The ceremonial and subsistence fishery remained open until December 31, 2000.

A good year for the Metlakatla fishery

The Metlakatla Indian Community of Southeast Alaska each year conducts its own government-authorized commercial halibut fishery within the Annette Island Reserve, an area including the waters within 3000 feet of the island. This year, the Metlakatla fishery harvested 54,026 pounds of halibut (Appendix II, Table 2), higher than last year’s catch of 35,000 pounds. The Metlakatla catch has varied, since it began in 1991, between a high of 126,000 pounds in 1996 and a low of 12,000 pounds in 1998. This catch is included in the Area 2C commercial catch.

Quota fisheries up north

Quota programs can enhance the possibilities for stewardship of the halibut stocks. The two quota share programs – Individual Vessel Quotas (IVQs) for Canadian operators and Individual Fishing Quotas (IFQs) for operators off Alaska – differ slightly in structure and variation, but each

quota program allows individual vessels or operators a predetermined poundage of halibut based on the overall catch limit approved by the IPHC. The Quota Share fisheries of Area 2B and Alaska opened on March 15 and closed November 15. Quota share holders can harvest their quota at any time during the season, catching the best weather and market opportunities. They can also sell, lease, or buy quota shares.

Area 2B: Canada’s quota fishery matures

This was the ninth year for the IVQ fishery in waters off British Columbia. Harvesters in the quota fishery landed the total catch limit of 10.6 million pounds. An additional 145,820 pounds that was available as carryover from the underage/overage program from the 1999 fishery was not harvested.

When the initial IVQ program began in 1991, 435 vessels received individual vessel quotas. Each initial IVQ was split into two shares, called blocks. Starting in 1993, the blocks could be transferred between vessels, but a single vessel could only fish a maximum of four blocks. This transfer program stimulated a decrease in fleet size, but the fleet remained steady at around 280 vessels from 1995 to 1998. In 1999, vessel owners were permitted to make unlimited temporary or permanent reallocations of halibut IVQ, subject to minimum and maximum holdings. As a result, the number of active vessels increased in 2000 to 269, from 257 in 1999. In 2000, 6.9 million pounds, comprising 65 percent of the catch limit, was transferred between vessels, 11,137 pounds of that in permanent transfers.

Participants in the Native Communal Commercial Fishing Program (F licenses) landed an estimated 238,948 pounds of halibut from 8 vessels making 39 trips. The 2000 catch was lower than the 1999 catch of 260,911

pounds, and involved one more boat. The Native Communal Commercial Fishing Program was initiated in 1996 as part of the commercial IVQ program to allow First Nation communities of British Columbia to participate in the quota fisheries.

Several small



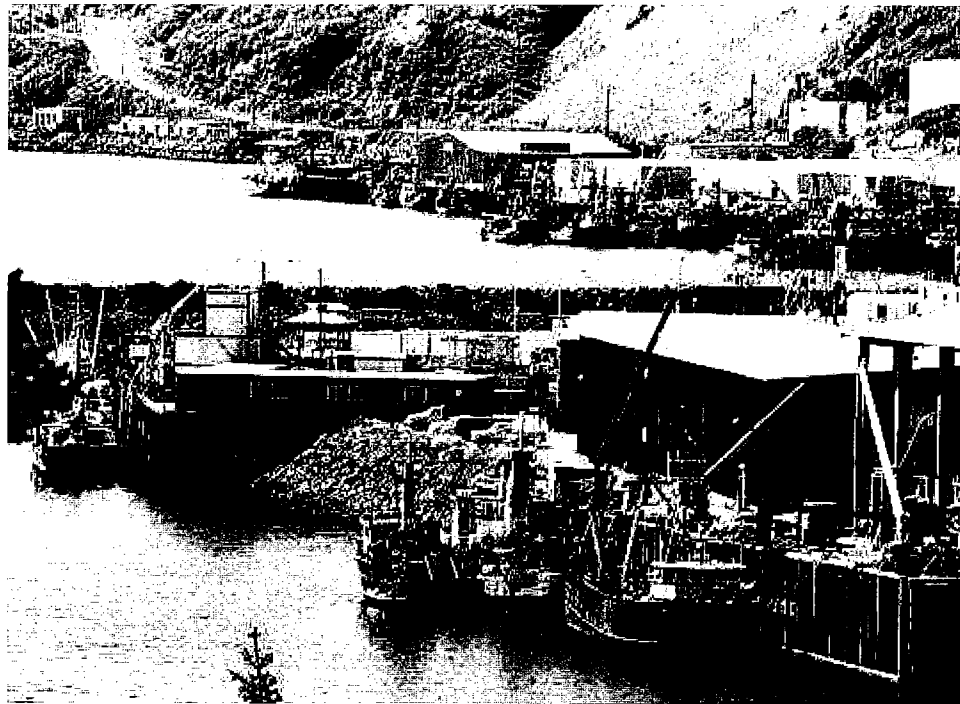
Hauling aboard a big halibut on the *F/V Star Wars II*. Photo taken by Tracee Geernaert.

sub-areas in Area 2B were closed to halibut fishing to protect localized stocks of a variety of species, mainly rockfishes, and to provide improved access to food fish for the Native community.

Alaska fleet compresses

This was the sixth year for the IFQ halibut and sablefish fisheries off Alaska. Under the IFQ program, the NMFS each year allocates halibut quota share to recipients in each regulatory area. Quota share transfers are permitted, with restrictions on the amount of quota share a person can hold and the amount that can be fished per vessel. In early December 2000, NMFS reported that 3,542 individuals held quota shares, down from the 4,830 people who received shares initially.

Altogether, quota share harvesters landed 54.8 million pounds of halibut in waters off Alaska in 2000, two percent under the catch limit and approximately four million pounds less than was harvested last year. For Areas 2C, 3A, 3B, and 4A actual landings missed the catch limits by only two percent. The catches in the remaining Area 4 regulatory areas came within 7 to 14 percent of the catch limits.



Port of Kodiak, Alaska. Photo by Ayala Knott.

By the end of the year, 3,542 individuals held quota shares in the Alaska quota fishery, down from 4,830 people who received shares initially in 1995.

Patterns in the nebula

The 2000 ex-vessel price, averaging coastwide approximately \$2.50 per pound (U.S. dollars), increased slightly over last year's price, though in some cases the ex-vessel price was deflated because of chalky halibut. Chalky fish, a seemingly un-preventable condition that changes the appearance of the final product, continues to concern processors and harvesters (see "Spotting chalky halibut").

In the Gulf of Alaska, Kodiak and Homer were the leading halibut ports receiving over 9 and 10 million pounds of the total Alaska landings, respectively. Each had about 17 percent of the 57 million pounds of commercial Alaska catch. In southeast Alaska, Sitka and Juneau both received over 2 million pounds, each port handling approximately five percent of the total Alaskan halibut catch.

In British Columbia, 1,272 commercial trips brought halibut into 35 different ports this year. However, once again the three landing ports of Prince Rupert/Port Edward, Port Hardy and Vancouver together received close to 90 percent of the Area 2B catch.

In Alaska and British Columbia, landings are spread over nine months of the year, from March to November. March landings in Alaska decreased in 2000. The first two weeks of fishing brought in 11 percent of the Area 2C and nine percent of the Area 3A total catch, compared to 18 percent (2C) and 13 percent (3A) in 1999. May was the busiest month for Alaska landings, (10.513 million pounds), while April was busiest for British Columbia (1.926 million pounds).

This year, 74,000 pounds of halibut, harvested on 17 commercial trips, were landed live in Area 2B, as legally allowed by Canada's DFO. This is slightly lower than the previous year, when 103,000 pounds were landed live.

Kodiak and Homer were the top two leading ports, each handling 16 to 17 percent of the commercial Alaska catch.

BAITING THE WONDROUS DEEP: THE 2000 SPORT FISHERY

*"... You will not find one who, if God baits, does not bite."
– Anne Carson, Men in the Off Hours*

There are many kinds of bait, but few more enticing than a charter boat pushing off from shore on a windswept day that promises sun and sea and quiet. Anglers' delight is so strong, we can only estimate how many people set to sea for sport each year, and exactly how many halibut they catch.

Sport catch estimates throughout halibut territory are gleaned from a variety of sources: The Oregon Department of Fish and Wildlife (ODF&W) and Washington Department of Fish and Wildlife (WDF&W) provide in-

We puzzle over how to improve the timeliness and accuracy of sport catch estimates, which we collect from a variety of sources, and which are nearly impossible to verify.



Sport fish catch in Ninilchik, Alaska. Photo by Stephen Kaimmer.

season creel census estimates for Area 2A. British Columbia's sport catch estimates are under review by the IPHC and the DFO, as we continue to seek the best scientifically-based estimation procedure. Meanwhile, the IPHC assessment used both a revised estimate of the Area 2B catch, based on results from the 1995 DFO National

Survey, as well as an alternate DFO estimate synthesized from a variety of sources in the Pacific region. A detailed account of sport catch can be found in Appendix III.

The Alaska Department of Fish and Game (ADF&G) provides sport harvest estimates for Alaska's waters, Areas 2C, 3 and 4. The Alaska estimates are derived from a Statewide Harvest Survey, conducted by mail, in conjunction with creel sampling in Areas 2C and 3A, and always lag behind by one year. Revisions made to the 1996-1998 Statewide Harvest Survey estimates are reflected in the data presented this year.

For Area 3A, the Gulf of Alaska, the sport harvest estimate is based on a projection of the numbers of halibut harvested during 1995-1999 by each

