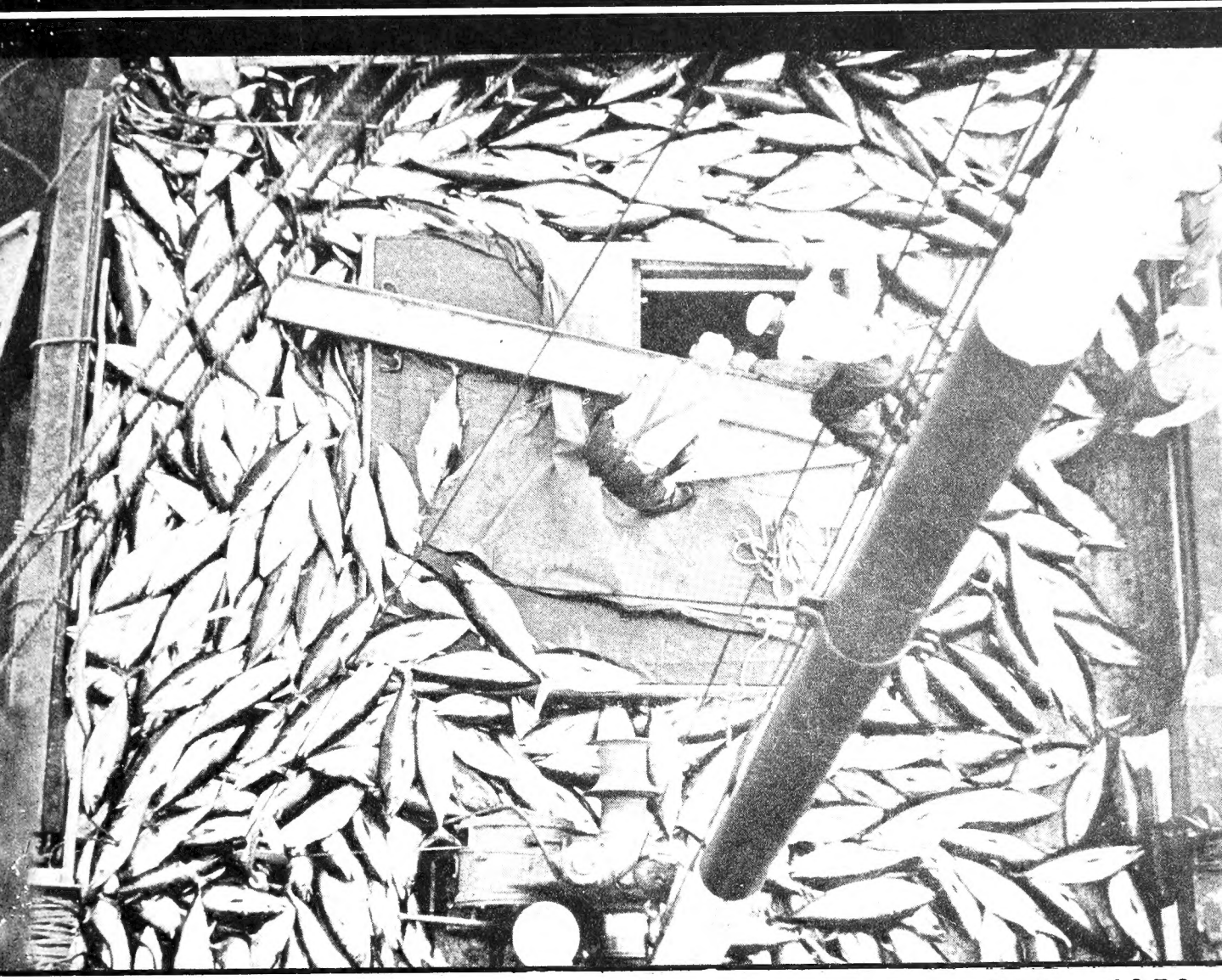
COMMERCIAL FISHERIES REVIEW



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DOUGLAS McKAY, SECRETARY

FISH AND WILDLIFE SERVICE
JOHN L. FARLEY, DIRECTOR

COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the BRANCH OF COMMERCIAL FISHERIES

A. W. Anderson, Editor *F. F. Johnson, Associate Editor*
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Mailed free to members of the fishery and allied industries. Address correspondence and requests to the: Director, Fish and Wildlife Service, U.S. Department of the Interior, Washington 25, D. C.

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GULF OF MAINE BLUEFIN TUNA EXPLORATION--1952

By J. J. Murray*

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SUMMARY

Exploratory fishing for bluefin tuna, using Japanese-style long-line gear, was conducted from June through October 1952 in offshore waters from Maine to New Jersey. Gill nets, trammel nets, surface-trolling gear, and hand lines were also tested to a lesser extent. A catch of 311 bluefin tuna (about 12,000 pounds) was made with the long lines during July, August, and September, with best fishing during July and August. Between July 21 and August 10, 216 tuna were caught at the average rate of 12.8 tuna per hundred hooks. Individual catches ran as high as 46 tuna per hundred hooks. Best fishing results were obtained off Cape Cod and off Eastern Point, Massachusetts. The total catch of sharks was over twice that of tuna. Gill nets and trammel nets failed to catch tuna in 16 sets. Catches on trolling lines were also poor, only 6 bluefin and 3 little tuna being taken.

FIG. 1 - SCHOONER MARJORIE PARKER LEAVING PORTLAND, MAINE, ON HER INITIAL EXPLORATORY FISHING TRIP IN JUNE 1952.

All available evidence suggests that this year's run of tuna in New England was far below normal. In spite of the low total catch, some aspects of this season's long-line fishing were encouraging. Potentially-valuable tuna grounds producing excellent individual catches were found within 30 miles

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of land. This is well within the operational range of small local fishing craft, which are easily adaptable to long-lining. The initial cost and upkeep of long-line gear is moderate. Also, long-line gear may be operated under rather severe weather conditions which would prohibit purse seining or other methods. A good supply of long-line bait is readily available in the immediate area during the fishing season.

INTRODUCTION

The second phase of exploratory fishing for bluefin tuna (Thunnus thynnus) in the Gulf of Maine and adjacent waters was conducted during the summer and early fall of 1952 by the Exploratory Fishing and Gear Development Section, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service. A New England fishing schooner was chartered from June through October, and exploratory operations were carried out in the offshore waters of New England, New York, and New Jersey.

This work was a continuation of a project started in 1951 to investigate the possibilities of developing a Gulf of Maine commercial tuna fishery. Purse seining was employed during the 1951 season and 190,000 pounds of bluefin were caught (Murray 1952).

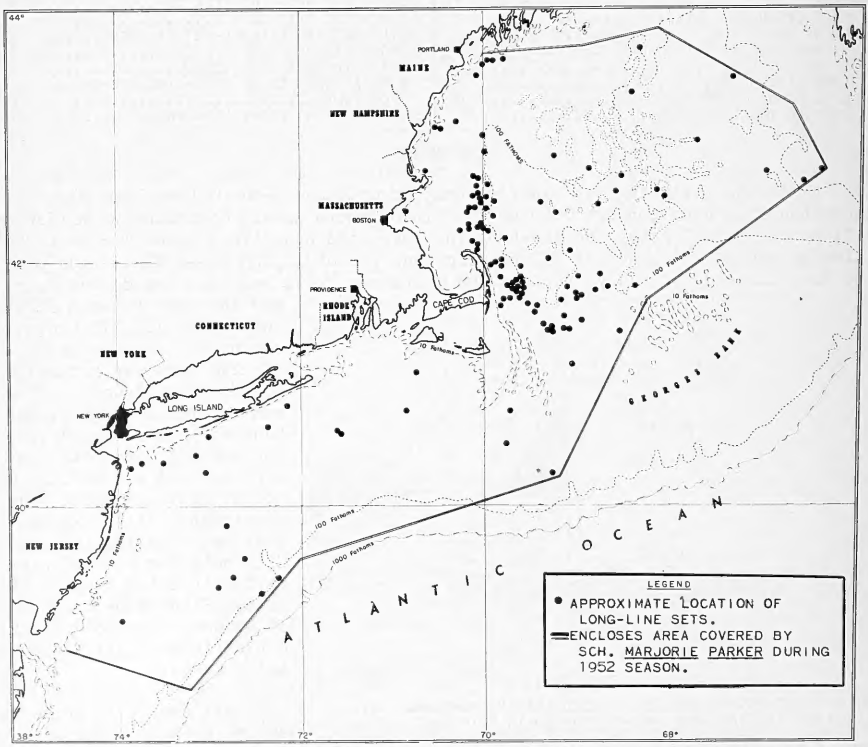

FIG. 2 - AREA OF OPERATION DURING THE 1952 BLUEFIN TUNA EXPLORATION, SHOWING LOCATION OF LONG-LINE SETS.

To test other fishing methods, floating long-line gear developed and successfully operated by the Japanese and Chinese in their offshore tuna fisheries was obtained from Japan and used as the principal fishing gear for the 1952 season. Other gear tested to a lesser extent included gill nets and trammel nets, surface-trolling lines, and hand lines.

AREA OF EXPLORATION

Most of the year's work was carried out between Nantucket Shoals and Portland, Maine. During July, August, and part of September, explorations were made mainly off Massachusetts Bay, along the eastern edge of South Channel, and on the small fishing banks lying up to 100 miles off the New England Coast.

Cruises were made outside of the Gulf of Maine in September and October, and long-line operations were conducted on Browns Bank and off the Nova Scotian coast near the Seal Island fishing grounds. During June and early October, long-line sets were also made in the area southwest of Nantucket Shoals as far south as the lower New Jersey coast. This general area is contiguous to the route presumably traveled by the bluefin tuna in their seasonal migration to the Gulf of Maine. The area covered during the 1952 exploration and locations of long-line fishing operations are shown in figure 2.

EQUIPMENT AND OPERATIONAL PROCEDURES

VESSEL: The schooner Marjorie Parker, active for many years in the New England groundfish fisheries, was chartered for the season's work. Registered measurements of the vessel were: length, 78 ft.; beam, 21 ft.; depth, 9 ft.; tonnage, 76 gross tons. The vessel was powered with a 200-horsepower Diesel engine, and had a small Diesel auxiliary engine. Other equipment included a depth recorder, loran, radio direction finder, and radiotelephone. Deck arrangements were of a conventional schooner rig, with the pilothouse aft. The foremast was fitted with a crows-nest which served as a lookout stand during scouting operations. A crew of seven men handled the vessel and ran all fishing gear.

LONG-LINE GEAR: Japanese tuna long lines are designed to operate at subsurface levels, ranging to 50 or more fathoms in depth. The long line is suspended in an approximate horizontal position by the attachment of floats at one-basket intervals. Fishing depths may be varied by increasing or decreasing the length of float lines. Shapiro (1950) describes some of the many variations that are used in rigging tuna long lines. Forty baskets of Japanese long-line gear were used during this exploration. On the first trip and part of the second, locally-made long line was employed.

The basket, used to hold one section of the long line, is the customary fishing unit. The components of one basket include main line, branch lines, float lines, and floats. Construction details of the gear used on the Marjorie Parker are shown in figure 3.

A Japanese long-line hauler was installed on the starboard bow section of the main deck. Power was supplied by a two-cylinder gasoline engine coupled to the hauler by an automobile transmission.

Long-line gear was set while the vessel was moving slow ahead. All hooks were baited before the setting operation started. The main line was made fast to a flag-pole buoy which was dropped overboard, and successive baskets of gear were paid out over the stern rail. Ends of the main line in individual baskets were tied together, and glass floats (approximately one foot in diameter) with the selected float-line

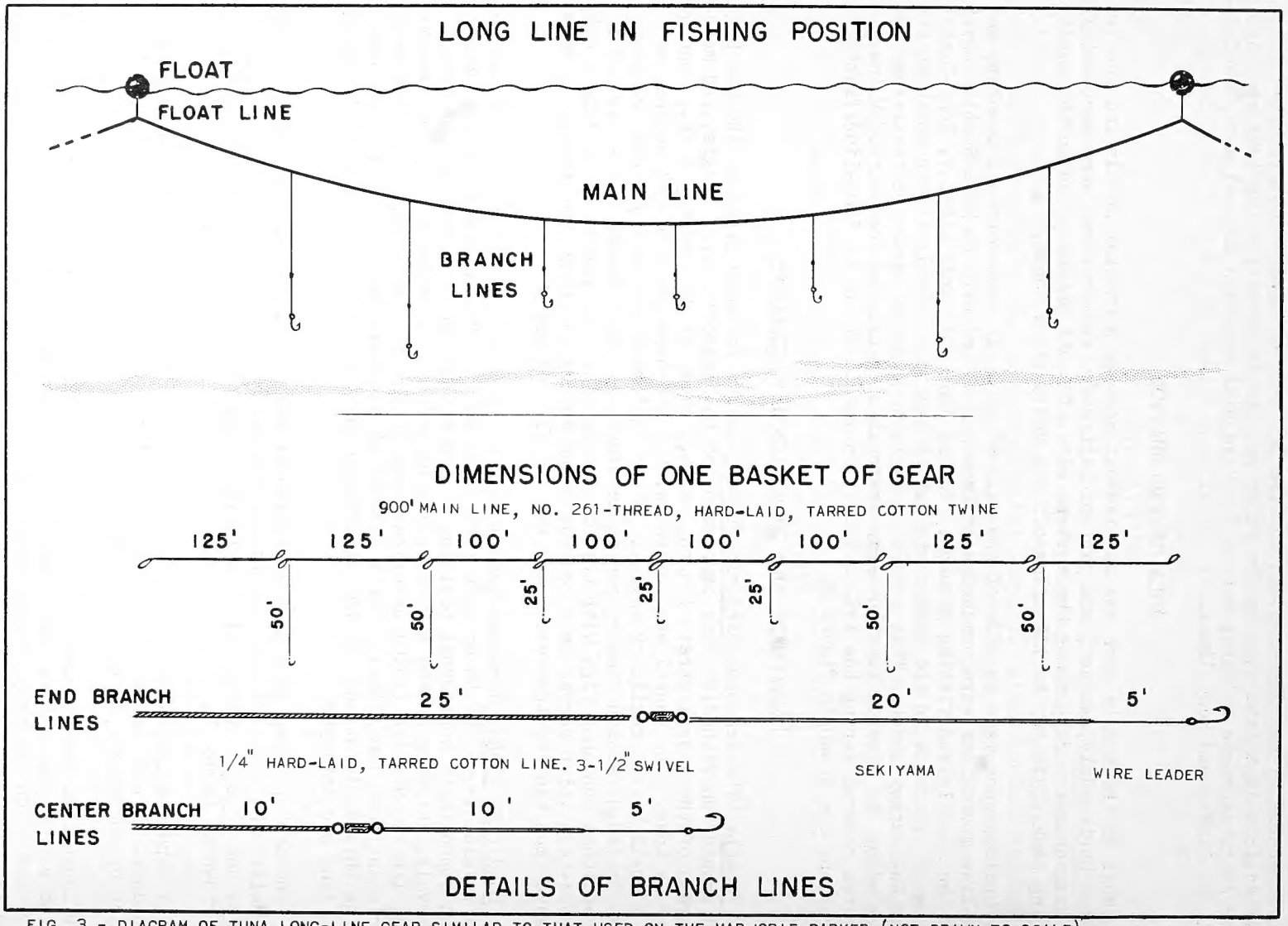

FIG. 3 - DIAGRAM OF TUNA LONG-LINE GEAR SIMILAR TO THAT USED ON THE MARJORIE PARKER (NOT DRAWN TO SCALE).

lengths were attached between baskets. For very shallow fishing, extra floats were attached to the center of the main line of each basket to reduce sag. A flagpole buoy was attached at every fifth basket and on the end of the last basket.

The gear was allowed to float free of the vessel except in periods of poor visibility when one end of the long line was secured to the vessel. When hauling, the gear was kept off the windward bow as the vessel moved up on it slowly. The end of the long line was brought aboard and passed over a roller set in the deck rail and into the line hauler, which automatically coiled the main line into an empty basket placed on a low platform directly beneath the line-pulling sheaves. Branch lines were coiled by hand and placed in the baskets. Flagpole buoys and glass floats were removed as they came aboard. Except for baiting, the gear was then ready for the next set. Under normal conditions 10 baskets could be set in 20 minutes and the same number could be hauled in about one hour.

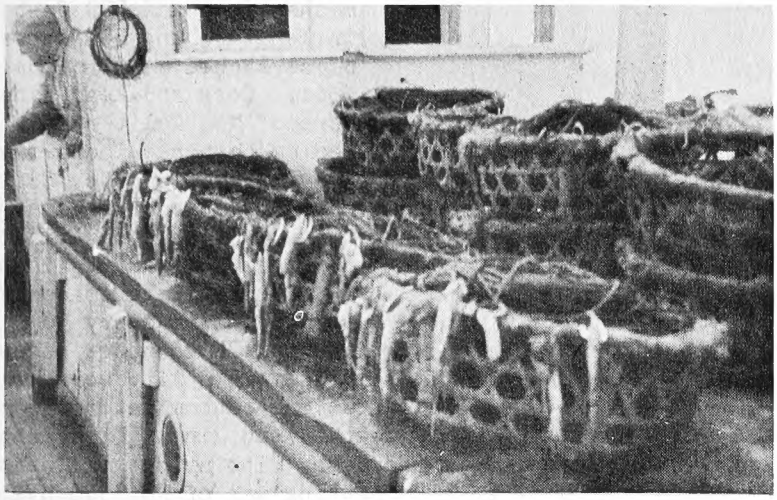

FIG. 4 - BAITED BASKETS OF LONG-LINE GEAR READY FOR FISHING.

Most of the long-line bait used was purchased in New England fishing ports. Additional bait was caught at night with drift gill nets similar to those used in the mackerel fishery. These nets were 40 fathoms long and 75 meshes deep, constructed of 14/6 cotton twine, $3\frac{1}{2}$-inch stretched mesh.

Of the baits tried, squid (Loligo pealei) was the most acceptable and was used on most of the long-line sets. It stayed on the hooks even during lengthy sets, and kept well on ice for periods of over a week. Menhaden (Brevoortia tyrannus) and mackerel (Scomber scombrus) caught in drift-net operations had good hook endurance and satisfactory storage qualities. Menhaden made good chum and on a few occasions was used to attract tuna alongside the vessel. Of the baits tested, sea herring (Clupea harengus) and alewives (Pomolobus psuedoharengus) had the softest flesh, making it difficult to keep them on hooks for even comparatively short periods.

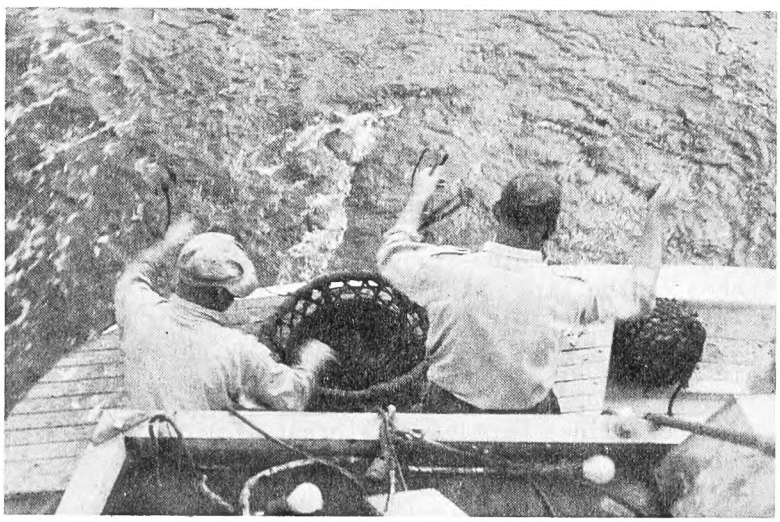

FIG. 5 - SETTING BASKET OF LONG-LINE GEAR FROM STERN OF MARJORIE PARKER.

GILL NETS AND TRAMMEL NETS: Sets were made with gill nets and trammel nets to test their fishing possibilities for bluefin tuna. Eleven linen and six nylon drift gill nets of four mesh sizes were used; 12-, 13-, 14-, and 15-inch stretched mesh. The linen nets were constructed of 16/5 thread, 24 to 30 meshes deep and 300 feet in length, hung 30 inches of stretched mesh to the foot. Cork and lead lines were of No. 261 thread medium cotton seine twine. Hanging line was No. 48 thread soft cotton seine twine. Oiled cedar floats, 6 inches long and 2½ inches in diameter, were spaced on the cork line every 36 inches. Five-ounce leads, 3/16-inch split, were spaced at one-fathom intervals on the lead line. Treatment with a cutch compound imparted a brownish color to the nets. The nylon gill nets had dimensions identical to the linen gill nets. The netting was of No. 346 nylon twine, and was not treated with a preservative. Cork and lead lines were ¼-inch diameter nylon maitre cord.

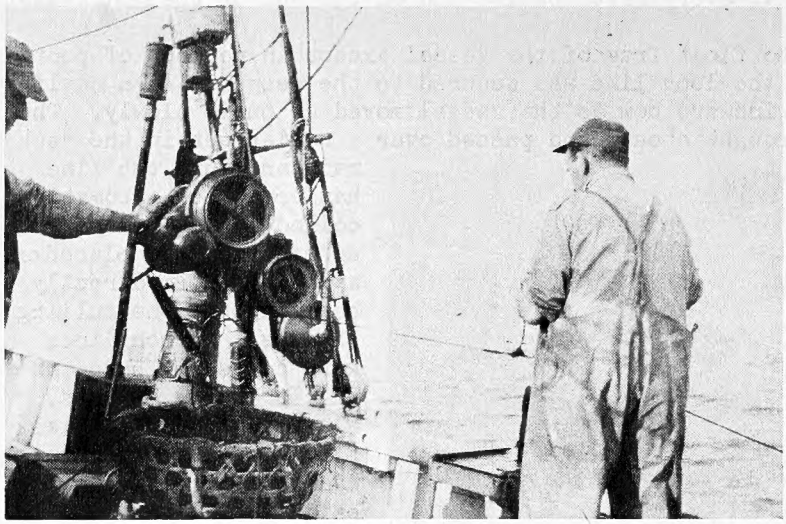

FIG. 6 - HAULING LONG LINE WITH JAPANESE-TYPE LINE HAULER. THE MAIN LINE IS AUTOMATICALLY COILED IN THE BASKET BELOW THE MAIN HAULING SHEAVE.

Five trammel nets, 300 feet long and approximately 18 feet deep, were used. Two had an outer walling of 24-thread, medium laid, cotton-seine twine, 24-inch stretched measure, and inner netting of 20/12 fine yarn cotton twine, 10-inch stretched mesh. The other three nets had the same thread sizes with an outer walling of 15-inch stretched mesh and inner netting of 5-inch stretched mesh. These nets were hung extra full in accordance with commercial practice, and were treated with a cutch compound.

SURFACE-TROLLING GEAR: Seven trolling lines were towed while the vessel was under way; 3 from each of 2 trolling poles and one from the stern rail. This gear was patterned after that used in the North Pacific albacore fishery (Powell, Alverson, and Livingstone 1952).

The two trolling poles were of Douglas fir, 35 feet in length and tapering from 4½ inches in diameter at the base to 1-7/8 inches at the tip, with a steel band and swivel enclosing the butt end. When not in use, the poles were raised and lashed to the main rigging.

Troll lines were of 261-thread, hard-laid, cotton-seine twine. Inboard lines on the poles were 15 fathoms in length, center lines were 20 fathoms, and the outer lines were 22 fathoms long. Paired galvanized steel springs (placed between the poles and the

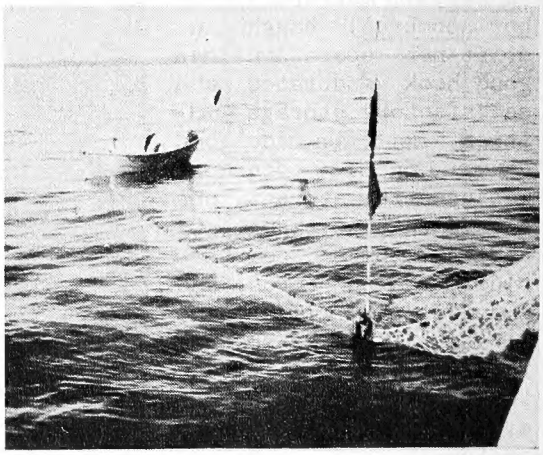

FIG. 7 - SETTING TRAMMEL NETS NEAR BOON ISLAND, MAINE, JULY 1952.

lines) and trolling rubbers (spliced into the lines about 10 fathoms from the poles) served as shock absorbers.

Several types of trolling jigs were used throughout the season, including white, yellow, and red double-hook "bone" jigs; black wooden jigs; green and red plastic squids; and lead jigs with red and white feathers.

FISHING AND SCOUTING RESULTS

Bluefin tuna production by Cape Cod Bay traps and pound nets during 1951 amounted to 779,000 pounds. Catches from the same area during 1952 amounted to 223,000 pounds, a decrease of 71 percent from the preceding year. State of Maine bluefin landings declined from a catch of 113,000 pounds in 1951 to 37,000 pounds in 1952. Catches elsewhere in the Gulf of Maine closely followed the same pattern, substantiating observations on surface schools of bluefin tuna made by exploratory fishing crews during 1951 and 1952 which indicated a much smaller stock present during the 1952 season. Surface schools sighted in 1952 were estimated at 200 tons as compared to over 500 tons observed by the crew of the Western Explorer in 1951. It is believed that this apparent decline in available stocks materially affected the quantity and frequency of exploratory catches.

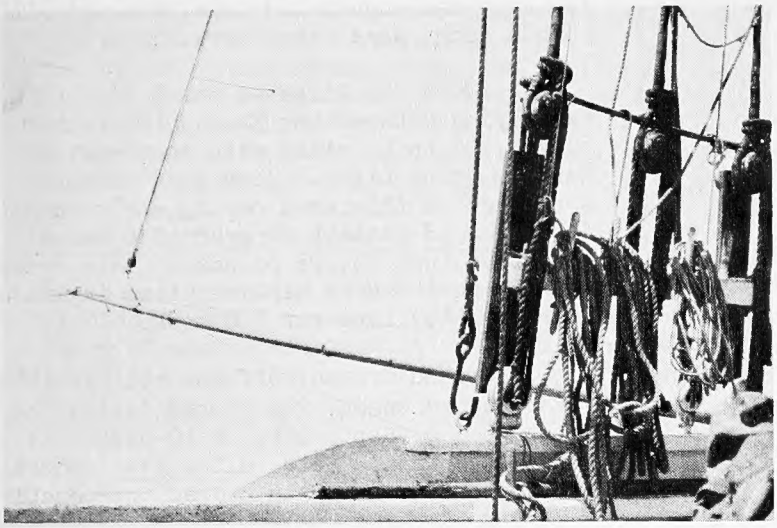

FIG. 8 - OUTRIGGER POLE USED FOR SURFACE-TROLLING LINES.

LONG-LINE CATCHES: During the survey period, 118 long-line sets were made. A record of these sets is presented in table 2. The bluefin tuna catch amounted to 311 fish with an estimated round weight of 12,000 pounds. Sizes ranged from 9 pounds to approximately 200 pounds per fish, with the average about 38 pounds (round weight). Best fishing of the season was experienced during July and August. Sets made between July 21 and August 10, using a total of 240 baskets of gear, resulted in a catch of 216 tuna; a fishing return of 12.8 fish per 100 hooks. The largest individual catch of the season occurred on July 23 when an overnight set of 20 baskets (140 hooks) produced 51 tuna with an estimated weight of 2,000 pounds.

Tests with various lengths of float lines revealed that most of the catches were being made fairly near the surface. Also, the surface layer of warm water was found to be relatively shallow. Consequently the majority of sets were made with a minimum length of float line (about 3 feet). Sag in the main line obviously allowed some hooks to fish at depths near the thermocline.

Practically all of the tuna were alive when removed from the hooks. Due to their liveliness, some difficulty was experienced in bringing the fish to gaff after the branch line was brought alongside the vessel. Attempts to land the fish by lifting the branch line resulted in the loss of some fish, and gaffs had to be used.

Long-line catches of bluefin tuna were made over an extensive area throughout the Gulf of Maine and in the coastal waters southeast of Cape Cod. Two exceptionally productive fishing areas were found within the Gulf of Maine.

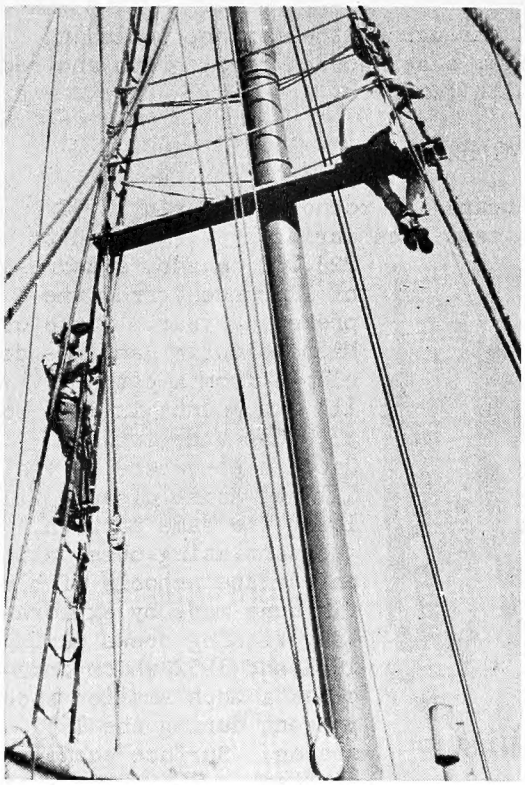

FIG. 9 - MASTHEAD LOOKOUTS ON WATCH FOR TUNA SCHOOLS.

1. East of Cape Cod--grounds situated 11 to 26 miles east by north of Chatham Light, near the southern tip of Cape Cod. This was the most productive of all areas fished, yielding the highest poundage and some of the best sets of the season. During July and August 103 tuna, averaging 40 pounds each, were taken here.

2. Wild Cat Ridge--a small fishing bank lying between the 50- and 100-fathom curves, 28 to 40 miles east southeast of Eastern Point Light. Very good catches were made in this area during early August. Sets with 48 baskets of gear (336 hooks) caught 96 tuna (3,325 pounds). Late-season fishing on the same bank resulted in catches averaging 4.7 tuna per 100 hooks.

Newfound Ground, off the southwestern Nova Scotian coast, was fished during the first week of September. A 10-basket set produced 9 tuna. Sets in the same general area later in the month proved unproductive.

Sets made near surface indications of tuna usually resulted in good catches. Blind sets occasionally resulted in good catches; however, over the season the average catch was much lower in areas where no tuna were seen at the surface.

An important factor affecting tuna long-line fishing is the great number of sharks present in New England waters during the summer, especially in August and September. The most numerous species encountered was the blue shark (Prionace glauca). The cumulative catch of this species amounted to twice the total tuna catch. Sand sharks and mackerel sharks were caught in lesser numbers.

In addition to affecting the fishing potential of the long-line gear by fouling lines and reducing the number of hooks available for tuna. sharks attacked and lacerated many hooked fish. Shark catches from overnight sets were much larger than those from daylight operations.

Based on American fishing standards, the June-October average of 3.7 tuna per 100 hooks seems to be too low a return for profitable operation. However, catches made at the peak of the season (July and August)

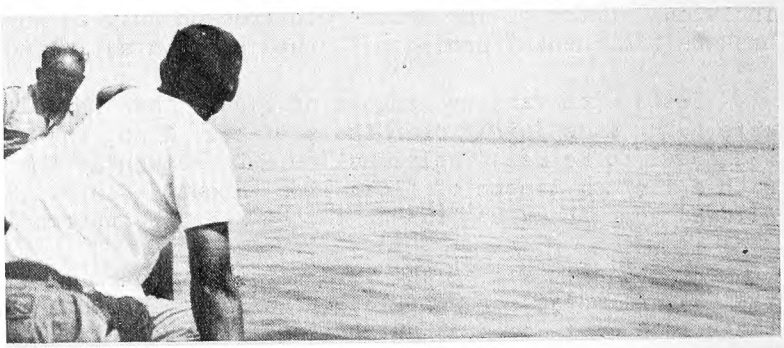

FIG. 10 - TUNA SCHOOLS--DARK STREAK IN BACKGROUND SIGHTED OFF EASTERN POINT, MASS., IN AUGUST 1952.

averaged 7.2 tuna per 100 hooks on sets of approximately 4 hours' duration, and individual sets ranged as high as 46 tuna per 100 hooks. A monthly summary of

Table 1 - Monthly Summary of Exploratory Long-Line Fishing by the Marjorie Parker, 1952

	June	July	Aug.	Sept.	Oct.	Season Total
Sets - number	19	11	47	29	12	118
Average number of hours per set	4.6	7	2.7	2.4	2.1	3.3
Hooks - total number fished	1765	852	2986	2016	834	8453
Hooks - percentage fished per month	21	10	35	24	10	100
Hook-hours fished - total	8559	6608	8685	5407	1805	31064
Hook-hours - percentage fished per month	28	21	28	17	6	100
Tuna caught - number	0	105	171	35	0	311
Tuna caught - percentage caught per month	0	34	55	11	0	100
Tuna caught per 100 hooks - number	0	12.3	5.7	1.7	0	3.7
Tuna caught per hook-hour	0	.016	.020	.006	0	.010
Sharks caught - number	24	35	309	273	42	683
Sharks - percentage caught per month	4	5	45	40	6	100
Sharks caught per 100 hooks - number	1.4	4.1	10.3	13.5	5	8.1
Sharks caught per hook-hour	.003	.005	.035	.050	.023	.022

the season's results are presented in table 1. Concentration of fishing effort to coincide with the seasonal periods of greatest availability of bluefin tuna, discovery of additional productive fishing areas, and improvements in long-line gear design and operation should measurably increase the present catch return.

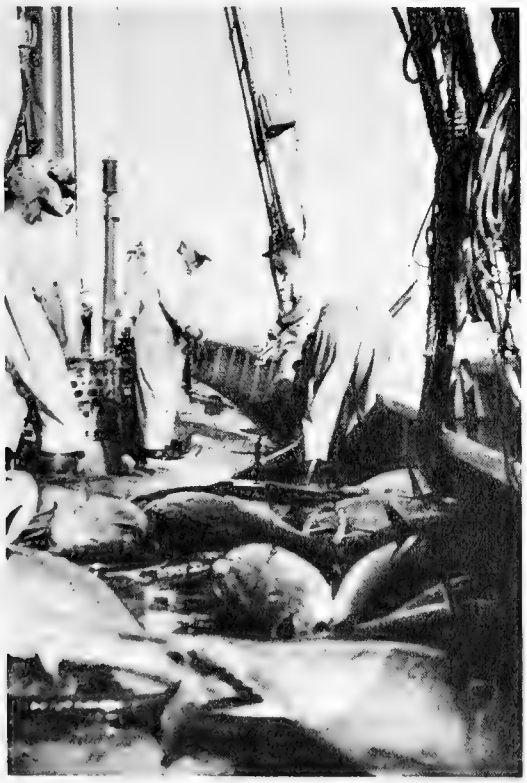

FIG. 11 - BLUEFIN TUNA ON DECK DURING HAULING OF LONG LINE.

FIG. 12 - AFTER DECK OF MARJORIE PARKER WITH PORTION OF LONG-LINE CATCH.

GILL-NET AND TRAMMEL-NET CATCHES: With one exception, all gill- and trammel-net sets were made at night following the daytime long-line activities. Both gill and trammel nets were set in one continuous string using 3 to 8 nets. Some sets were made using only trammel nets. Following attachment of buoys and lights, the nets were set over the stern rail and allowed to drift clear of the vessel until daylight.

FIG. 13 - SHARK ON LONG LINE. THE CATCH OF SHARKS WAS TWICE THAT OF TUNA.

The 16 sets made during the season failed to catch tuna. Small quantities of herring, mackerel, dogfish and other shark, and on one occasion a porpoise were caught in the trammel nets. A record of the gill- and trammel-net sets is presented in table 3. All sets were made without visual signs of tuna except on July 23 when a set of 3 trammel nets and 2 gill nets was made in the immediate vicinity of schooling tuna. This set was unproductive.

TROLL CATCHES: Catches on the trolling lines were very poor. Only six bluefin and three little tuna (Euthynnus alletteratus) were caught throughout the entire season.

WATER TEMPERATURES: Surface-temperature (507) and bathythermograph (50) recordings were made during the survey period. Subsurface water temperatures area major factor in determining the operational depth of long-line gear. Data based on the development of long-line fishing by Asiatic fishermen show that where water currents of different temperatures are present at subsurface levels, the colder water may act as a barrier which the tuna hesitate to enter. Favorable fishing conditions are as a rule found near the thermocline or dividing line between the relatively warm surface waters and cooler underlying waters (Shapiro 1950). Bathythermograph recordings made during the 1952 operations showed the thermocline at approximately 90 feet in waters exceeding 75 fathoms deep.

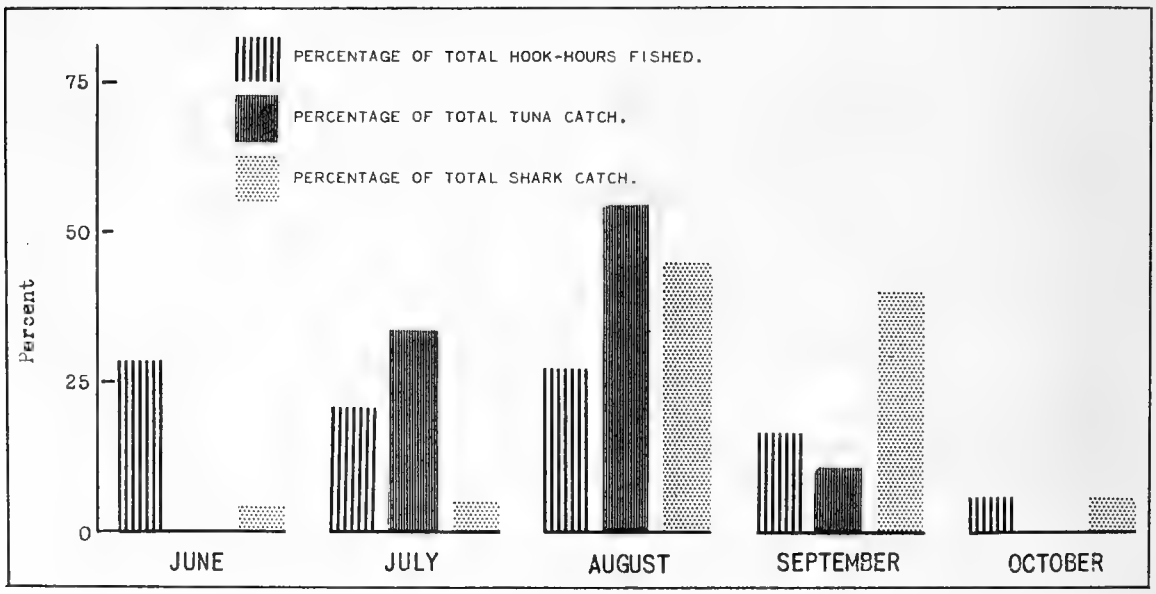

FIG. 14 - MONTHLY DISTRIBUTION OF LONG-LINE FISHING AND CATCH, 1952.

In shallower water the thermocline was generally found at depths of 50 to 75 feet. This relatively shallow layer of warm water presumably keeps the tuna fairly close to the surface in the Gulf of Maine.

Seasonal occurrence of warm water closely coincides with the arrival and duration of tuna schools off New England. The lowest surface temperature in which tuna were caught was 59° F. Above this temperature catches showed a very close correlation with effort.

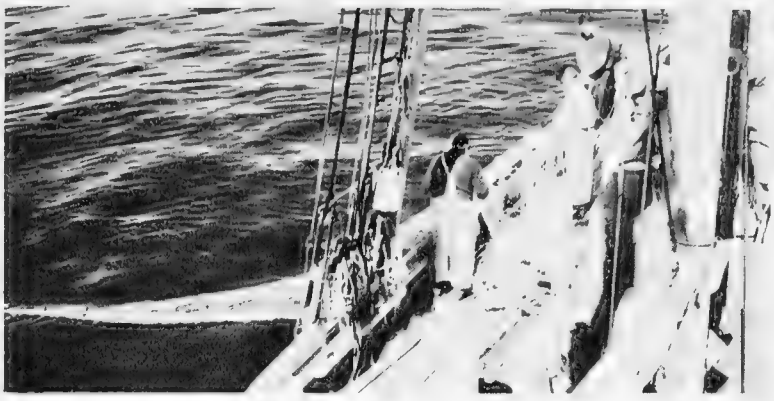

FIG. 15 - HAULING IN THE NYLON GILL NETS.

SOME ADVANTAGES OF LONG LINE FISHING FOR TUNA: While catch results from this season's work were not high, the 1952 experiments disclosed some special advantages in long-line gear for Gulf of Maine bluefin-tuna fishing.

Practically all the small and medium fishing boats now operating in the New England trawl and seine fisheries are suitable for long-line fishing. Conversion of these boats into long-liners would be simple and comparatively inexpensive. A long-line hauler would be the only additional mechanical equipment required.

FIG. 16 - MAKING A BATHYTHERMOGRAPH CAST, JUNE 1952.

The moderate cost of gear procurement and maintenance, and low operational expenses of small and medium boats are distinct advantages. Materials for fabrication of one basket of gear cost approximately $35. The line hauler and side roller represent the only other permanent equipment needed, and these can be installed without making major changes in deck gear and machinery. Under normal conditions long-line gear should serve for a minimum of four tuna seasons. Costs of seasonal gear maintenance should be approximately 10 percent of the total value of the gear operated.

Long-line fishing operations can be carried out under rather severe weather conditions. Fishing was conducted in rough weather with winds up to 30 m. p. h. When surface conditions preclude visual observations of tuna schools, fair fishing returns can be achieved under conditions which would prevent purse seining or other types of fishing.

Potentially valuable fishing grounds were found within a distance of 30 miles from land. This distance lies within the usual operational orbit of small fishing craft based at New England ports. A long-line fishery farther offshore would require larger boats similar to the type now used in the otter-trawling and scallop fishery on the outer Gulf of Maine fishing banks.

LOG OF FISHING TRIPS (CONDENSED)

TRIP 1: June 2-5: Left Portland, Maine, for Provincetown, Massachusetts, to pick up frozen bait. Proceeded to Hudson Canyon, approximately 80 miles southeast of Ambrose Channel Lightship.

June 6-8: Long-line sets in Hudson Canyon area unproductive. A series of long-line sets off Cape May, New Jersey, and Block Island, Rhode Island, unproductive.

June 9-13: Long-line sets made in South Channel, between Georges Bank and Cape Cod; off Race Point, Cape Cod; Ipswich Bay, Massachusetts, and Boon Island, Maine. No tuna caught.

Summary of Trip: Bluefin tuna were not sighted on the trip. Long-line and surface-trolling gear were not successful in capturing tuna.

TRIP 2: June 17-19: Long-line sets and an overnight gill-net and trammel-net set east of Portland, near Halfway Rock. No tuna caught.

June 20-23: Gill nets and surface-trolling gear worked in the Boon Island-Isle of Shoals area. No tuna caught.

June 24: Proceeded to New York and picked up 40 baskets of Japanese long-line gear and line hauler. One set made east of Fire Island, New York.

June 25-29: Long-line fishing conducted southeast of Nantucket Lightship, Georges Bank, and on Stellwagen Bank in Massachusetts Bay. No tuna caught.

June 30: One set on Sewell Ridge, about 50 miles southeast of Cashes Ledge Buoy. Returned to Portland.

Summary of Trip: Sets were made without difficulty and the Japanese gear worked smoothly. Bluefin tuna were not observed on the trip and fishing operations failed to catch tuna. Surface temperatures ranged from 61° F. to 71° F.

TRIP 3: July 5: Received report of school tuna observed off Halfway Rock, Maine, by local fishermen. A combined gill- and trammel-net set made in the area proved unsuccessful.

July 6-9: Long-line fishing conducted on southwestern Georges Bank, South Channel, Cashes Ledge, Stellwagen Bank, and York Ledges, Maine. No tuna caught.

July 10-13: Trammel-net operations at night in Cape Cod Bay and Ipswich Bay. Trolling operations conducted from Boon Island, Maine, to Eastern Point, Massachusetts, during daytime.

July 14: Sighted small school of bluefin tuna near Portland Lightship. Troll lines failed to obtain strikes. No tuna caught on this trip. July 15 returned to port.

Summary of Trip: First observations of school tuna noted. Surface water temperatures recorded from 4 to 6 degrees higher than those obtained during June. Comparison of Gulf of Maine surface water temperatures taken at corresponding dates and areas during the 1951 and 1952 season revealed that 1952 readings were from 1 to 4 degrees higher.

TRIP 4: July 18-21: Long-line fishing in vicinity of "Tobins," approximately 60 miles southeast of Cape Cod Light. First bluefin tuna of season taken by long line on July 21.

July 23: Proceeded inshore towards Cape Cod. Sighted school of tuna, estimated at 50 tons, 24 miles southeast by east of Peaked Hill Bar Buoy off Cape Cod Light. A four-hour set of 10 baskets of long-line gear produced 32 bluefin tuna, averaging 40 pounds (round weight) each. An overnight set of 20 baskets in the same area resulted in a catch of 51 tuna of the same average size. Trammel nets set near surfacing fish were unsuccessful.

July 24: School fish still in area. Sets of 10 and 5 baskets resulted in a total catch of 13 tuna. Catch of blue sharks on long line increased--especially heavy during night sets.

July 25: Contact with main body of fish lost although small schools of tuna were still visible. Set resulted in a catch of 6 tuna and 4 blue sharks. While standing by long-line gear, a successful attempt was made to bring schooling tuna alongside the vessel, using frozen herring and alewives for chum. Hand lines baited with frozen squid caught only four tuna. July 26 returned to port.

Summary of Trip: A total of 105 bluefin tuna (3,800 pounds round weight) was captured in 8 long-line sets, employing 91 baskets of long-line gear. A total of 34 sharks were caught at the same time. Trammel-nst and surface-troll fishing caught no tuna. Best fishing was found in an area 24 miles southeast by east of Peaked Hill Bar Buoy, Cape Cod Light, where 59 baskets of long-line gear caught 97 bluefin tuna. Surface water temperatures recorded ranged from 56° F. to 72° F.

TRIP 5: August 1-6: Long-line fishing conducted in waters southeast of Cape Cod with poor results. Thirteen sets produced 27 bluefin tuna and 53 blue sharks. Trammel-net fishing and surface trolling were also tried, but no tuna were caught.

August 8-10: Long-line operations in waters from 30 to 40 miles east by south of Eastern Point Light, Massachusetts, caught 86 tuna and 28 sharks on 56 baskets of gear. All long-line sets were made without surface indications of tuna.

Summary of Trip: Best results of the season were achieved during this period when the majority of long-line sets proved successful in capturing tuna. Excellent fishing encountered in area approximately 30 miles east of Eastern Point Light. Long-line sets totaled 18, comprising 170 baskets of gear resulting in a catch of 113 bluefin tuna. Average round weight of fish was 32 pounds each.

Surface water temperatures were consistently higher than those recorded on preceding trip, ranging from 63° F. to 70° F.

TRIP 6: August 14: Departed Portland at noon. Set 10 baskets of long-line gear for 3 hours off Boon Island. No tuna and few sharks caught. Moved SW. to Eastern Point, Massachusetts.

August 15; Completed 3 long-line sets in an area 30 miles SE. of Cape Ann Light. Results poor,

with catch of 4 tuna and 46 blue sharks. Trouble with line hauler necessitated return to Portland for repairs.

August 17: Left Portland and proceeded S. by W. to Cape Cod.

August 18: About 40 miles SE. of Cape Cod Light--2 bluefin tuna caught on troll lines. Set 15 baskets of gear in vicinity of troll catch and caught 6 bluefin tuna and 10 blue sharks.

August 19: Trolling on Northern Edge of Georges Bank. Set of 15 baskets of long line caught 3 tuna. Radio message from fishing trawler reported schools of tuna sighted on August 18 about 14 miles WSW. of Mt. Desert Rock, Maine. Proceeded to position reported.

August 20: Set 10 baskets at 0600 in area where tuna had been observed. Caught 1 tuna and 10 sharks. Moved NW. for 3 hours and set 8 baskets of gear for 3 hours. No tuna captured. Moved overnight to the southwest. Dragger Victory hand-lined 168 bluefin tuna on "Tobins" today.

August 21: Troll lines caught 2 tuna while fishing E. by S. of Cape Ann Light. Completed two long-line sets during day and caught 43 blue sharks; no tuna.

August 22: Made unsuccessful set of 10 baskets at daybreak off Cape Ann. Docked at Gloucester for supplies in early afternoon. Departed Gloucester at 1900, and set course for Cape Cod. Anchored for evening off Race Point, Cape Cod.

August 23: Docked at Provincetown for shelter from strong northwest winds. Departed at 2000 for offshore fishing grounds.

August 24: Completed 2 sets, 13 miles E. by N. of Chatham Buoy, Cape Cod, with poor results. Proceeded offshore at 2200 for "Tobins." Fresh northwest winds all day. Trolled for 7 hours without strikes.

August 25: Completed 3 sets during day, catching 17 tuna and 19 blue sharks in waters about 60 miles S. by E. of Cape Cod. Sharks mutilated 7 hooked tuna, including one estimated at 200 pounds. Hand-lined 2 tuna in afternoon.

August 26: Three long-line sets produced 5 tuna and 8 sharks. Fishing trawler reported sighting school tuna near Pollock Rip Lightship, about 25 miles west of our position. Moved to position reported and set 10 baskets of gear at 1600. Caught 6 tuna and 8 sharks on 2-hour set. Trolled for 5 hours with no strikes.

August 27: Made 3 long-line sets in same generel area. Caught 4 tuna and 21 sharks. Trolled without success.

August 28-29: Scouted area from Stellwagen Bank in Massachusetts Bay to Jeffreys Bank off Cape Ann. Four sets caught 4 bluefin tuna and 28 sharks. Docked at Portland at 2200 on the 29th.

Summary of Trip: Catch of 56 bluefin tuna from long-line fishing--3 tuna caught on troll lines, 2 on hand lines. Catch of sharks four times greater than tuna. Operations conducted in four general areas: west southwest of Mt. Desert Light, southeast of Cape Ann and Cape Cod, and in the vicinity of Pollock Rip Lightship. School tuna observed on four occasions between Cape Cod and Cape Ann.

TRIP 7: September 8: Departed Boston for fishing grounds 50 miles southeast of Cape Cod.

September 9-10: Night set of 20 baskets resulted in a catch of 44 blue sharks and 2 bluefin tuna. Completed 6 sets with a total catch of 12 tuna and 86 sharks.

September 11-13: Cruised in area between Cape Ann and Baileys Island, Maine, operating troll lines and conducting long-line fishing over a wide area. Results poor in all areas fished--shark catches remained high, but tuna were scarce. Completed 6 sets--catch totaled 4 tuna and 41 sharks.

September 14-16: Refueled and loaded supplies at Portland.

September 17: School tuna reported in vicinity of Portland Lightship. Overnight set of 3 trammel nets proved unproductive. Set 10 baskets of long-line gear in same area and caught 24 blue sharks. Another set of 10 baskets near Boon Island was unsuccessful in capturing tuna. Moved to Race Point, Cape Cod.

September 18-19: Long-line fishing off Cape Cod caught 2 tuna. Proceeded to Provincetown for shelter.

September 20-22: Left Provincetown. Proceeded through Cape Cod Canal and resumed long-line fishing south of No Mans Land. Sighted small schools of tuna in area--3 tuna with an average weight of 9 pounds each caught on long line.

September 23: Long-line set off Chatham, Massachusetts, unsuccessful. Weather bad--proceeded to Boston for shelter and supplies.

Summary of Trip: Long-line fishing and one trammel-net set conducted between Portland Lightship and No Mans Land with poor results. Only two small schools of tuna were sighted during the trip. Blue shark catches remained high. Surface water temperatures lower than those recorded in August and early September. A total of 21 long-line sets, comprising 188 baskets of gear, caught 22 bluefin tuna and 214 blue sharks.

TRIP 8: September 27: Left Boston and proceeded to South Channel fishing area, between Georges Bank and Cape Cod.

September 28: Long-line fishing and surface troll operations conducted in South Channel about 50 miles southeast of Cape Cod shore. Twenty four sharks caught on 3 long-line sets. Trolling operations unproductive. Proceeded east during evening to Browns Bank.

September 29-30: Series of long-line sets made on Browns Bank and Seal Island Ground near Nova Scotian coast. Strong tides encountered in both locations caused difficulty in setting and hauling gear. Four tuna and several sharks were caught. Water temperatures ranged from 50° F. to 59° F.

September 30-October 2: Resumed long-line fishing in general area of Cashes Ledge and southwest to edge of Georges Bank. Weather poor with strong southeast winds and periods of heavy fog. No tuna returns from 7 long-line sets. Negative results from troll fishing. Shark catch high during this period.

October 3: Docked Portland. A total of 5,230 pounds of blue sharks sold to fish meal and oil processor.

Summary of Trip: Only 4 tuna caught. Sharks very abundant. No schools of tuna observed.

TRIP 9: October 7-8: Departed Portland and proceeded to New York coastal waters south of Ambrose Channel Lightship.

October 9: Made 3-hour set of 10 baskets of long line on Cholera Bank (approximate position 40°24' N. latitude 73°22' W. longitude) with negative results. Ran inshore towards New Jersey coast--troll lines caught 3 little tuna (Euthynnus alletteratus). Set of long line near site of troll catch proved unproductive. Weather bad; strong northeast winds in late afternoon.

October 10: Northeast winds of force 8 velocity. Docked at Cape May, New Jersey, for shelter.

October 12: Left Cape May at 0700. Made long-line set 35 miles ENE. of Five Fathom Bank Lightship--no fish. Trolled to the northeast and set 7 trammel nets for overnight fishing at 1800.

October 13: Hauled trammel nets at daybreak. Small quantity of mackerel in nets. Continued course to the northeast--trolling lines out; no strikes. Strong northeast winds. Anchored for night approximately 12 miles southeast of Ambrose Channel Lightship.

October 14-16: Worked area 15-20 miles off Long Island coast from point 12 miles southeast of Ambrose Channel Lightship to vicinity of Block Island, using long-line and troll fishing during day and gill- and trammel-net fishing at night. Long-line fishing results negative. Troll lines caught 1 bluefin tuna weighing 20 pounds. Series of 3 combination gill- and trammel-net sets caught small quantities of fish, including 3 common bonito, 4 bluefish, 32 chub mackerel, 226 menhaden, 2 blue sharks, and 1 porpoise.

October 17-18: Completed unsuccessful trammel-net set 10 miles southeast of Block Island. Trolled to entrance of Cape Cod Canal without obtaining strikes. Docked Portland for supplies on the 19th. Weather delayed resumption of cruise.

October 23: Departed Portland for Cashes Ledge.

October 24: Strong northwest winds all day prevented fishing operations. Ran inshore and anchored off Race Point, Cape Cod.

October 25: Docked Provincetown for shelter.

October 26: Weather improved. Left Provincetown for offshore Cape Cod waters. Set 17 baskets of long line 12 miles E. by S. of Chatham Buoy, Cape Cod--no tuna; few blue sharks. Wind increased. Ran northwest in Massachusetts Bay. Anchored for night near Stellwagen Bank.

October 27: Weather still bad. Proceeded to Boston and docked at 0930. Fishing operations terminated for the season.

Summary of Trip: No bluefin tuna caught on long-line gear. One caught on trolling lines. Weather was unfavorable during most of the trip. Scouting and long-line fishing operations conducted off New York and New Jersey coasts were unsuccessful in locating or capturing bluefin tuna. Troll lines caught 3 little tuna and small schools of this species were observed off the Long Island coast. Experienced worst weather of season during this period.

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NOTE: FOR TABLES 2 AND 3, SEE PAGES 15-17.

Table 2 - Record of Exploratory Long-Line Sets by the Marjorie Parker, June-October 1952

Set Number	Date	Location		Number of Hooks	Bait[1/]	Length of Float Lines	Time of Set	Length of Set (Hours)	Surface Water Temperature (° F.)	Catch	
		Lat.	Long.							Tuna (No. of Fish)	Shark (No. of Fish)
	June										
1*	6	39°40'	72°30'	32	H, M	60'	0730	4	58°	0	0
2*	6	39°35'	72°38'	30	H, M	60'	1620	4	61°	0	1
3*	7	39°23'	72°50'	32	H	60'	0700	4	60°	0	1
4*	7	39°25'	72°46'	32	H, M	30'	1530	3.5	60°	0	0
5*	8	40°38'	70°51'	35	A, H	60'	0500	5	58°	0	0
6*	10	41°24'	68°33'	70	A,H,M	60'	0600	3.5	57°	0	0
7*	10	42°10'	70°09'	130	H, M.	3'	2200	7	58°	0	3
8*	12	42°46'	70°36'	130	M	3'	1500	3	59°	0	0
9*	13	43°09'	70°27'	180	A, M	3'	0600	5	58°	0	6
10*	17	43°37'	70°03'	200	H, M	3'	1630	3	56°	0	10
11*	18	43°42'	69°57'	140	H, M	3'	0830	4	55°	0	0
12*	18	43°35'	70°00'	140	H, M	3'	1430	6	56°	0	0
13*	23	40°27'	73°04'	96	H, M	3'	1800	12	61°	0	1
14	25	40°16'	73°03'	140	S	3'	2130	8	65°	0	0
15	26	40°41'	72°20'	70	S	3'	1345	4	67°	0	0
16	27	40°44'	69°57'	140	S, M	3'	1000	3	57°	0	0
17	28	40°15'	69°05'	63	S	3'	1120	4	56°	0	0
18	29	42°12'	71°50'	35	S	3'	1800	1.5	61°	0	0
19	30	42°35'	68°04'	70	S	3'	1430	2.5	57°	0	2
	July										
20	7	42°28'	70°04'	35	S	3'	1840	2	64°	0	0
21	13	42°44'	70°44'	35	P, S	3'	1000	4	64°	0	0
22	18	42°38'	69°58'	140	P, S	3'	2130	8.5	68°	0	1
23	21	41°45'	68°58'	70	P, S	30'	1100	5.5	70°	1	0
24	22	41°48'	69°37'	84	S	3'	2330	10	65°	1	8
25	23	41°46'	69°34'	84	S	30'	2145	12	68°	1	0
26	23	41°46'	69°32'	70	S	3'	1245	4	70°	32	5
27	23	41°46'	69°32'	140	S	3'	2000	10.5	66°	51	10
28	24	41°46'	69°32'	70	S	3'	1345	3	72°	7	1
29	24	41°46'	69°31'	49	S	3'	1930	10	71°	6	6
30	25	41°39'	69°35'	75	S	3'	2110	7	69°	6	4
	Aug.										
31	1	41°57'	69°97'	35	S	3'	0900	3	66°	5	15
32	1	41°58'	69°43'	70	S	3'	1430	3.5	67°	1	10
33	2	41°44'	69°29'	70	S	3'	1330	4	65°	5	3
34	2	41°45'	69°40'	35	S	3'	1830	2.5	63°	3	5
35	3	41°55'	69°48'	105	A, S	3'	0700	6	66°	7	0
36	3	41°57'	69°43'	105	A, S	3'	1430	4.5	66°	1	0
37	4	42°15'	70°12'	35	S	3'	0730	3	66°	0	0
38	5	41°38'	69°42'	35	S	3'	1400	3	66°	5	1
39	5	41°42'	69°42'	70	S	30'	1830	3	68°	0	6
40	6	41°42'	69°45'	35	S	3'	0900	2	69°	0	6
41	6	41°42'	69°30'	70	S	60'	1400	3	70°	0	2
42	7	42°05'	70°04'	35	S	3'	1000	3	66°	0	1
43	7	42°08'	70°06'	105	S	30'	1630	3.5	65°	0	4
44	8	42°26'	70°08'	56	S	3'	1300	2.5	68°	26	6
45	8	42°26'	70°04'	55	A, S	60'	1740	2	64°	2	1
46	9	42°26'	70°08'	140	S	3'	0730	4	65°	35	4
47	9	42°26'	70°04'	70	S	3'	1430	4.5	65°	14	10
48	10	43°08'	70°15'	70	S	3'	0645	4	64°	9	7
49	14	43°08'	70°15'	70	S	3'	1640	3	68°	0	6
50	15	42°26'	69°59'	70	S	3'	0640	2	66°	2	25
51	15	42°17'	70°02'	42	S	3'	1300	2.5	67°	0	6
52	15	42°30'	70°03'	70	S	3'	1800	2	67°	2	15
53	18	41°39'	69°04'	110	S	3'	0830	3	68°	6	10
54	18	41°40'	69°03'	69	S	3'	1640	3	70°	6	10
55	19	41°50'	68°20'	70	S	3'	1100	3	64°	2	6
56	19	41°48'	68°41'	35	S	3'	1800	2	66°	1	5
57	20	43°20'	68°23'	68	S	3'	0700	3	64°	1	10
58	20	43°43'	68°17'	56	A, S	3'	1430	3	58°	1	0
59	21	42°40'	70°07'	140	A, S	3'	0830	3	68°	0	18
60	21	42°37'	70°05'	70	S	3'	1700	2.5	66°	0	25

(TABLE 2 CONTINUED ON NEXT PAGE)

Table 2 - Record of Exploratory Long-Line Sets by the Marjorie Parker, June-October 1952 (Contd)

Set Number	Date	Location		Number of Hooks	Bait[1/]	Length of Float Lines	Time of Set	Length of Set (Hours)	Surface Water Temperature (° F.)	Catch	
		Lat.	Long.							Tuna (No. of Fish)	Shark (No. of Fish)
	Aug.										
61	22	42°24'	70°09'	70	A, S	3'	0700	2.5	64°	0	8
62	24	41°34'	70°10'	70	A, S	30'	0815	3	64°	1	0
63	24	41°49'	69°33'	42	S	3'	0630	2	65°	0	0
64	25	41°36'	69°25'	33	S	3'	0715	2	64°	0	2
65	25	41°39'	69°30'	35	A, S	3'	1400	2	66°	4	2
66	25	41°39'	69°30'	70	A, S	3'	1700	3	66°	13	15
67	26	41°38'	69°28'	35	S	3'	0515	1.5	66°	0	2
68	26	41°38'	69°00'	35	S	3'	0900	2	65°	4	4
69	26	41°38'	69°05'	35	A, S	3'	1200	2	68°	1	2
70	26	41°30'	69°12'	770	S	3'	1620	2	66°	6	8
71	27	42°30'	69°12'	33	A, S	60'	0630	1.5	66°	1	0
72	27	41°36'	69°25'	70	M, S	3'	1200	2	66°	2	4
73	27	41°40'	69°29'	70	S	3'	1030	2	67°	1	17
74	28	42°18'	70°05'	70	S	3'	1530	1.5	66°	1	3
75	28	42°25'	70°02'	42	S	3'	1800	2	65°	2	5
76	29	42°52'	70°00'	70	S	60'	0630	2	65°	1	15
77	29	43°02'	70°01'	70	S	3'	1400	1.5	65°	0	5
	Sept.										
78	4	43°29'	67°17'	70	S	3'	0800	2	65°	9	20
79	6	42°27'	70°41'	70	S	3'	1230	1.5	64°	0	14
80	9	41°42'	68°58'	70	A, S	3'	0630	2	63°	3	1
81	9	41°35'	69°04'	70	A, S	3'	1000	2	61°	3	4
82	9	41°35'	68°56'	70	A, S	3'	1415	1.5	62°	1	3
83	9	41°44'	68°59'	140	A, S	3'	1910	10	62°	2	44
84	10	41°44'	68°55'	70	A, S	3'	1215	2	62°	2	24
85	10	41°54'	68°44'	35	A, S	3'	1820	1	62°	1	10
86	11	42°24'	69°13'	35	S	3'	0730	2	62°	2	4
87	11	42°24'	69°13'	35	S	3'	1000	2	64°	1	5
88	11	42°44'	68°51'	70	S	3'	1630	4	64°	0	5
89	12	42°51'	69°10'	35	S	3'	0900	1.5	60°	0	4
90	12	42°25'	69°56'	70	S	3'	1700	2	65°	1	20
91	13	43°37'	69°47'	56	S	3'	0715	5	59°	0	3
92	17	43°31'	70°03'	70	S	3'	0800	3	60°	0	24
93	17	43°03'	70°30'	70	S	3'	1700	2	61°	0	1
94	18	42°26'	69°58'	70	S	3'	0730	2	61°	2	20
95	18	42°14'	69°56'	70	S	3'	1315	2	60°	0	9
96	20	41°05'	70°45'	70	S	3'	1610	2	60°	0	6
97	21	40°33'	71°34'	70	S	3'	0730	2	66°	3	4
98	21	40°33'	71°34'	70	S	3'	1100	2	66°	0	4
99	22	40°29'	69°31'	70	S	3'	1130	2	65°	0	4
100	23	42°04'	69°03'	70	S	3'	0600	2	62°	1	15
101	28	41°52'	68°59'	70	S	3'	0600	2	61°	1	15
102	28	42°29'	68°02'	70	S	3'	1500	2	61°	0	1
103	29	42°40'	66°38'	70	A, S	3'	0610	2	59°	3	3
104	29	42°44'	66°26'	140	S	3'	1130	2	54°	0	3
105	30	42°43'	66°58'	70	S	3'	0845	2	57°	0	2
106	30	42°57'	67°40'	70	S	3'	1430	2	58°	0	1
	Oct.										
107	1	42°37'	68°19'	70	S	3'	0630	2	59°	0	3
108	1	42°28'	68°27'	70	S	30'	1120	2	60°	0	3
109	1	42°23'	68°33'	70	S	3'	1500	2	61°	0	1
110	2	42°11'	69°48'	70	S	30'	0615	2	60°	0	4
111	2	42°40'	70°07'	70	S	3'	1340	2	60°	0	23
112	9	40°24'	73°22'	70	S	3'	0645	2	62°	0	0
113	9	40°21'	73°33'	42	S	3'	1225	2	66°	0	0
114	12	39°05'	73°59'	70	S	3'	1230	2	63°	0	0
115	14	40°21'	73°38'	35	S	3'	0700	2	62°	0	0
116	15	40°33'	72°52'	77	S	3'	1200	3	62°	0	0
117	16	40°50'	72°11'	70	P	3'	1100	2	62°	0	5
118*	26	41°45'	69°43'	120	P, S	30'	1400	2.5	54°	0	3

1/ "A" ALEWIVES, "H" HERRING, "M" MACKEREL, "P" MENHADEN, AND "S" SQUID.
* THE FIRST 13 SETS AND THE LAST SET WERE WITH LOCALLY-MADE LONG-LINE GEAR. THE REMAINDER WERE MADE WITH JAPANESE LONG-LINE GEAR.

Table 3 - Record of Gill-Net and Trammel-Net Sets, June-October 1952

Date	Location		Number of Nets		Length of Set	Surface Water Temperature	Wind Direction and Force	Catch
	Lat.	Long.	Gill	Trammel	(Hours)	(° F.)		
June	20 43°09'	70°34'	1	1	9½	52°	NW. 3	Blank set
"	22 42°06'	70°08'	2	1	8	61°	W. 2	Mackerel, 100 lbs.
"	23 40°43'	71°50'	2	1	8	61°	SE. 4	Blue shark
"	27 40°22'	69°20'	2	1	7	57°	NE. 4	Blank set
July	5 43°30'	69°57'	2	1	10	57°	W. 3	Mackerel, 50 lbs.; Herring, 30 lbs.
"	10 42°23'	69°55'	-	6	9	64°	SE. 4	Blank set
"	11 42°02'	70°08'	-	6	10	63°	SW. 3	Dogfish, 2,000 lbs.; Mackerel, 50 lbs.
"	13 43°04'	70°32'	-	8	11	62°	W. 3	Blank set
"	17 42°51'	70°39'	-	1	9	65°	SW. 2	Blank set
"	19 42°44'	68°42'	-	4	9	66°	SW. 3	Blank set
"	20 42°37'	68°03'	2	6	10	62°	W. 3	Blank set
"	23 41°46'	69°32'	-	2	3	68°	NW. 3	Blank set
Oct.	12 39°15'	73°40'	-	8	12	63°	WSW. 4	Mackerel, 20 lbs.
"	14 40°03'	73°09'	-	8	13	62°	SW. 3	Mackerel, 100 lbs.
"	15 40°39'	72°40'	-	8	10	62°	SW. 2	Blank set
"	16 40°52'	71°50'	-	8	13	62°	NW. 4	1 Porpoise; 2 Blue sharks

NOTE: JULY 23 SET WAS MADE IN THE DAYTIME; ALL OTHER SETS WERE MADE AT NIGHT (FROM DUSK TO DAWN).

PRELIMINARY REVIEW OF THE FISHERIES OF THE UNITED STATES AND ALASKA, 1952

Fisheries of the United States and Alaska, 1952 (A Preliminary Review), Fishery Leaflet 393, recently revised by the Service's Branch of Commercial Fisheries, gives preliminary 1952 estimates for the fishing industry with comparative data for earlier years. For those phases of the industry for which preliminary estimates are not available, the most recent information is listed.

The publication includes United States and Alaska fish production 1929-1952; catch by states, principal species, gear, and months; and landings of fishery products at leading U. S. fishery ports. There is also information on craft, employment, and shore establishments; manufactured fishery products; per-capita consumption; and value of the fisheries for 1951 and 1952. Average wholesale price indexes for fish and shellfish are given for December 1951 and 1952. Included is a retail price index for foods and finfish for December 15, 1952, with comparative data. Foreign fishery trade and available supply of certain fishery items are presented in this 20-page publication. A flow chart of the commercial fisheries for 1952 is also included.

Copies of Fishery Leaflet 393 are available free upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

Progress on Projects, June 1953

REFRIGERATION: Freezing Fish at Sea, Defrosting, Filleting, and Refreezing the Fillets: LABORATORY STUDIES: Tables 1 and 2 contain data on the effect of extended brine immersion periods on scrod haddock fillets.

Table 1 - Effect of Variation in Immersion Time on Scrod Haddock Fillets Dipped in Brine (10 percent salt, by weight)

Time Fillets Immersed in Brine	Characteristics of the Dipped Fillets				
	Weight Increase	Salt (NaCl) Content	Free Drip	Press Drip	Tenderometer Reading
Seconds	Percent	Percent	Percent	Percent	Pounds
5	2.8	0.73	4.6	24.1	15
10	3.0	0.85	3.0	28.9	22
20a/	3.8	0.91	1.7	24.2	25
30	4.2	1.21	2.2	31.8	26
60	6.1	1.44	2.8	31.0	19
120	7.3	1.62	2.1	36.0	21

a/DATA FROM A PREVIOUS TEST.

Table 2 - Effect of Variation in Immersion Time and Brine Concentration on Salt Content of Scrod Haddock Fillets

Salt (NaCl) in Brine, by weight	Time Fillets Immersed in Brine	Salt Content of Fillets
Percent	Seconds	Percent
5	5	0.42
	10	0.49
	30	0.59
	60	0.67
	120	0.98
10	5	0.73
	10	0.85
	30	1.21
	60	1.44
	120	1.62
15	5	0.99
	110	1.11
	30	1.56
	60	2.25
	120	2.41

Further data were obtained on the changes occurring in round scrod haddock immersed in refrigerated brine for extended periods. The effect on salt and moisture content of the surface layers of the fish are shown in table 3.

Table 3 - Moisture and Salt Content of the Surface Layers of Round Scrod Haddock Immersed in Cold Brine. (Brine temperature: 5° F.; salt content of brine: 23 percent sodium chloride, by weight.)

Time Whole Scrod Haddock Immersed in Brine	Characteristics of the Surface Layers of the Haddock Flesh			
	First 1/4 inch		Second 1/4 inch	
	Moisture	Salt (NaCl)	Moisture	Salt (NaCl)
Hours	Percent	Percent	Percent	Percent
48	76.8	4.48	80.6	1.39
96	74.5	5.81	77.7	3.57
144	73.6	7.51	75.5	5.64
240	71.8	10.3	70.8	8.98
288	69.4	12.3	69.7	10.7

VESSEL OPERATION: The research trawler Delaware was readied for fishing operations. The first cruise is under way, at which time the new brine-freezer mechanism will be tested.

(Boston)

* * * * *

Freezing, Glazing, and Thawing Salmon to be Canned: Analysis for salt content of the various experimental and commercial samples was completed. The data follow:

Salt Content of Canned Alaska Red Salmon Prepared from Brine-Frozen Fish

Species of Canned Salmon	Treatment of Raw Material	Can Size	Amount of Salt Added to Each Can	Number of Cans Sampled	Salt (NaCl) Content of the Canned Salmon (Average)
			Grams		Percent
Alaska Red (sockeye)	Brine-frozen; thawed in running tap water	½-lb. Flat	2.59	9	1.66
	Brine-frozen; thawed in still water	½-lb. Flat	1.94	9	1.64
	Brine-frozen; thawed in air	½-lb. Flat	1.94	9	1.71
	Brine-frozen; thawed in saturated brine (NaCl)	½-lb. Flat	0.65	9	1.40
	Brine-frozen; thawed in running tap water	½-lb. Flat	2.83 (dissolved in 18 ml. of water)	9	1.75
	Packed commercially from fresh (not frozen) fish	½-lb. Flat	a/	6	1.54
Chum	Brine-frozen; held in dry storage until packed commercially	4-lb.	b/	6	1.32
	Brine-frozen; held in the refrigerated brine for 2 weeks before packed commercially	1-lb. Tall	b/	9	1.06
	Brine-frozen; held in the refrigerated brine for 2 weeks before packed	½-lb. Flat	1.94	9	1.10
	Brine-frozen, held in the refrigerated brine for 2 weeks before packed	½-lb. Flat	None	6	0.47

A/COMMERCIAL PACKING INCLUDES ABOUT 1/8 OUNCE (3.54 GRAMS) OF SALT PER 1/2-LB. FLAT CAN.
B/AMOUNT OF SALT ADDED WAS NOT KNOWN.

PRESERVED WHALE WILL NOT BE EXHIBITED IN UNITED STATES

The famous "Mrs. Haroy," an embalmed 70-ton fin whale, which arrived in the United States in April for an extended tour, will not be exhibited as planned. The Danish owner has announced that since he was not successful in making arrangements to exhibit the whale in the United States, he has decided to return to Denmark with the whale.

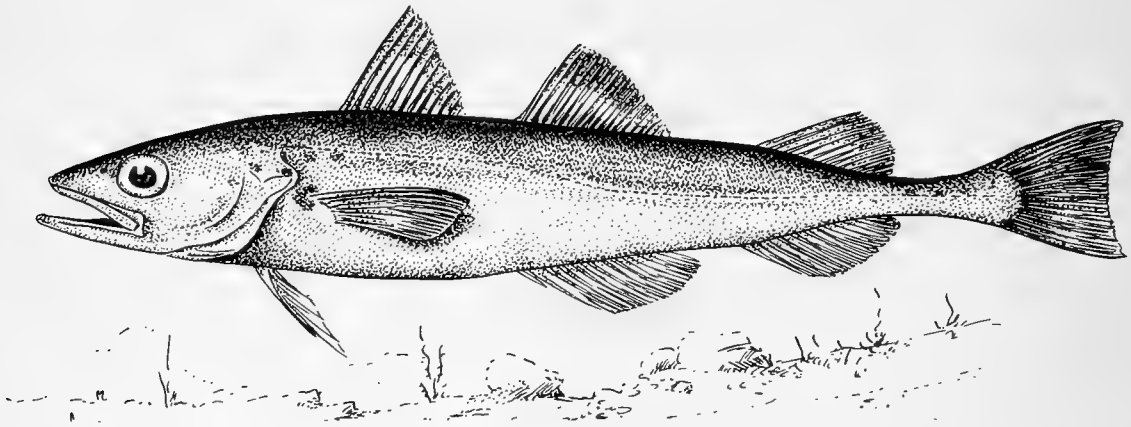
Loaded on a specially built railroad flatcar, the whale was waiting at Weehawkin, N. J., to start her tour. The owner states that the specially-preserved whale prior to its shipment to the United States had been shown to 3,500,000 Europeans.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, JUNE 1953, P. 40.

TECHNICAL NOTE NO. 27--ALASKA POLLOCK: PROXIMATE COMPOSITION; AMINO ACID, THIAMINE, AND RIBOFLAVIN CONTENT; USE AS MINK FEED

With the scarcity of flounder (Pleuronectidae) in the vicinity of Petersburg, Alaska, during the fall and spring of 1952, the commercial fur farmers of that area resorted to the use of Alaska pollock[1/] (Theragra chalcogramma) for mink feed. Since pollock had never been fed in large quantities previously in the Petersburg area, the Fishery Products Laboratory was requested to determine the composition of representative samples of this species of fish and of typical mink feeding rations prepared from this fish.

The proximate composition and "essential" amino acid, thiamine, and riboflavin content of Alaska pollock were determined. Data for flounder are given for com-



ALASKA POLLOCK (THERAGRA CHALCOGRAMMA)

parison since this species of fish is considered to be suitable for mink feed by most Alaska fur farmers. The proximate composition of various pollock mink rations and a typical flounder ration is also reported. Data on the "essential" amino acid content of beef liver, an accepted animal feed, and of salmon eggs are given as a comparative index to the quality of the fish protein.

EXPERIMENTAL PROCEDURES: Two 50-pound blocks of frozen whole (round) pollock, representative of that being fed at Petersburg during the spring and fall of 1952, were sent to the Laboratory for analysis. The fish were from 15 to 23 inches in over-all length and averaged 1-3/4 pounds in weight.

Samples of the frozen whole pollock were prepared as follows: Each whole fish was cut into 8 or 10 pieces. The pieces were passed twice through an electric grinder having a 3/16-inch plate. Representative samples of the ground material were sealed in 1/2-pound cans, frozen, and stored at 0° F. until needed for analysis. Samples of eviscerated pollock, pollock fillets, and pollock fillet-waste were prepared in a similar manner.

Analyses for ash, moisture, and protein were made according to modified Methods of Analysis of the Association of Official Agricultural Chemists.(1950). Oil content was determined by the acetone extraction method of Stansby and Lemon (1937) as

1/ALSO CALLED WALLEYE POLLOCK OR WHITING. LOCAL FISHERMEN OFTEN CALL THIS SPECIES HAKE.

modified by Voth (1946). Assays for the "essential" amino acids were made according to the microbiological procedure of Henderson and Snell (1948). Thiamine (vitamin B_1) and riboflavin (vitamin B_2) were determined by fluorometric methods given in Methods of Vitamin Assay (1947).

DISCUSSION OF RESULTS: The results are given in the following tables:

Table 1 - Proximate Composition of Alaska Pollock[1]

Sample Description	Moisture	Protein	Oil	Ash
	(Percent)			
Pollock, whole	79.1	15.3	2.9	3.3
Pollock, eviscerated	79.2	17.2	1.2	3.5
Pollock, fillets	82.5	16.8	0.7	1.1
Pollock, fillet waste	79.7	14.1	2.6	4.3
Flounder, eviscerated[2]	77.5	16.0	3.7	3.2

1/ THE PROXIMATE COMPOSITION DATA ARE TYPICAL FOR THE SIZES OF FISH CAUGHT DURING THE SPRING AND FALL OF 1952 AT PETERSBURG, ALASKA, AND MAY NOT BE APPLICABLE TO LARGER FISH OR FISH FROM OTHER AREAS.

2/ THE PROXIMATE COMPOSITION OF FLOUNDER IS GIVEN FOR COMPARISON. THE DATA ARE FROM THE ANALYSIS OF A REPRESENTATIVE SAMPLE OF FLOUNDER FED AT THE U. S. D. A. EXPERIMENTAL FUR STATION, PETERSBURG, ALASKA, DURING MAY 1951.

Table 2 - Proximate Composition of Pollock Mink Rations

Sample Description[1]	Moisture	Protein	Oil	Ash	Carbohydrate[2]
	(Percent)				
Pollock Mink Ration, A[3]	73.7	14.6	4.3	2.1	5.3
Pollock Mink Ration, B[3]	76.8	15.0	1.6	4.1	2.5
Pollock Mink Ration, C[3]	78.3	15.5	1.3	3.4	1.5
Pollock Mink Ration, D[3]	72.1	14.1	4.6	2.4	6.8
Flounder Mink Ration[4]	70.3	13.9	3.5	3.4	9.0

1/ ALL FISH WERE EVISCERATED FOR PREPARATION OF POLLOCK AND FLOUNDER RATIONS. THE SAMPLES WERE TAKEN BY THE FUR FARMER. A ONE-POUND SAMPLE WAS TAKEN EACH DAY FOR ONE WEEK AS THE FEED WAS MIXED. THE SEVEN SAMPLES OF EACH RATION RECEIVED BY THE LABORATORY WERE GROUND TOGETHER, REPRESENTATIVE SAMPLES WERE THEN TAKEN, SEALED IN 1/2-POUND CANS, FROZEN, STORED AT 0° F. UNTIL NEEDED FOR ANALYSIS.

2/ CARBOHYDRATE BY DIFFERENCE.

3/ POLLOCK RATIONS A, B, C, AND D ARE THE WHOLE RATIONS AS FED BY DIFFERENT FUR FARMERS IN THE PETERSBURG AREA AND SHOW THE VARIATION IN RATIONS FROM FARM TO FARM. THE DATA ARE TYPICAL FOR RATIONS IN WHICH POLLOCK OF THE SIZE CAUGHT DURING THE SPRING AND FALL OF 1952 AT PETERSBURG ARE FED.

4/ THE FLOUNDER RATION IS GIVEN FOR COMPARISON. IT WAS USED AT THE U. S. D. A. EXPERIMENTAL FUR STATION, PETERSBURG, ALASKA, DURING THE 1951 SPRING WHELPING EXPERIMENTS.

Table 3 - Amino Acid Content of Alaska Pollock, Flounder, Salmon Eggs, and Animal Liver

Material	Amino Acid Content of the Protein (N x 6.25)									
	Argi-nine	Histi-dine	Isoleu-cine	Leu-cine	Ly-sine	Methio-nine	Phenyl-alanine	Threo-nine	Trypto-phane	Va-line
	(Percent)									
Pollock[1] (eviscerated)	7.4	2.2	5.2	7.4	8.7	3.0	3.1	5.6	0.9	4.8
Flounder[1] (eviscerated)	7.6	2.0	4.8	7.0	8.1	2.9	3.0	5.4	0.8	4.6
Salmon eggs[2]	7.3	2.6	7.4	9.9	8.8	3.0	4.8	5.7	0.9	7.2
Animal liver[3]	6.6	2.5	4.8	8.4	7.0	3.2	6.1	5.3	1.5	6.0

1/ ANALYSES RUN ON SAMPLES OF ALASKA POLLOCK AND FLOUNDER CAUGHT NEAR PETERSBURG, ALASKA, DURING THE FALL OF 1952. DETERMINATIONS MADE BY H. L. SEAGRAN AND D. E. MOREY, FISHERY PRODUCTS LABORATORY, KETCHIKAN, ALASKA.

2/ AVERAGE VALUES OF THE AMINO ACID CONTENT OF MATURE ROES FROM THE FIVE SPECIES OF SALMON. (SEAGRAN, H. L. AMINO ACID CONTENT OF SALMON ROE, COMMERCIAL FISHERIES REVIEW, VOL. 15, NO. 3, MARCH 1953, PP. 31-34.)

3/ BLOCK, R. J. AND BOLLING, D.: THE AMINO ACID COMPOSITION OF PROTEINS AND FOODS, CHARLES C. THOMAS, SPRINGFIELD, ILLINOIS, 2ND ED. (1951).

Alaska pollock compares favorably with flounder in proximate composition and amino acid content (tables 1 and 3). The "essential" amino acid content of Alaska pollock (table 3) is quite similar to that of beef liver and salmon eggs, both of which are considered to contain good quality protein for animal-feeding purposes.

Comparison of the thiamine and riboflavin content of Alaska pollock (table 4) with data of Sautier (1946) for the edible portion of flounder (Pleuronectidae) and gray cod (Gadus macrocephalus) indicate that the pollock have a similar or slightly higher thiamine and riboflavin content than other bottom fish.

Table 4 - Thiamine and Riboflavin Content of Pollock, Flounder, and Gray Cod

Material	Thiamine	Riboflavin
	(Micrograms Per Gram)	
Whole pollock	1.8	2.4
Eviscerated pollock	1.7	1.7
Flounder, edible portion 1/.	0.4 to 0.7	0.4 to 0.6
Gray cod, edible portion 1/.	0.9	1.6

1/ SAUTIER, PHILIP M., "THIAMINE ASSAYS OF FISHERY PRODUCTS," COMMERCIAL FISHERIES REVIEW, VOL. 8, NO. 2 (FEBRUARY 1946), PP. 17-19. "RIBOFLAVIN ASSAYS OF FISHERY PRODUCTS," COMMERCIAL FISHERIES REVIEW, VOL. 8, NO. 3 (MARCH 1946), PP. 19-21.

The proximate composition of various pollock mink rations is given in table 2. In two of these rations the carbohydrate content was extremely low, which indicated that the pollock was fed at a very high level in the diet (in other words, very low percentages of cereal mixtures were used as a supplement).

On the basis of these data on composition alone, it appears that Alaska pollock can be successfully used as feed for mink. However, in determining the suitability of any animal feed, there are other factors involved that were not considered here. To determine the true suitability of Alaska pollock as a food source for mink, feeding tests should be made using high percentages of pollock in properly supplemented rations.

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U. S. Fish and Wildlife Service,
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1/ THE FISHERY PRODUCTS LABORATORY IS OPERATED JOINTLY BY THE ALASKA FISHERIES EXPERIMENTAL COMMISSION AND THE U. S. FISH AND WILDLIFE SERVICE.

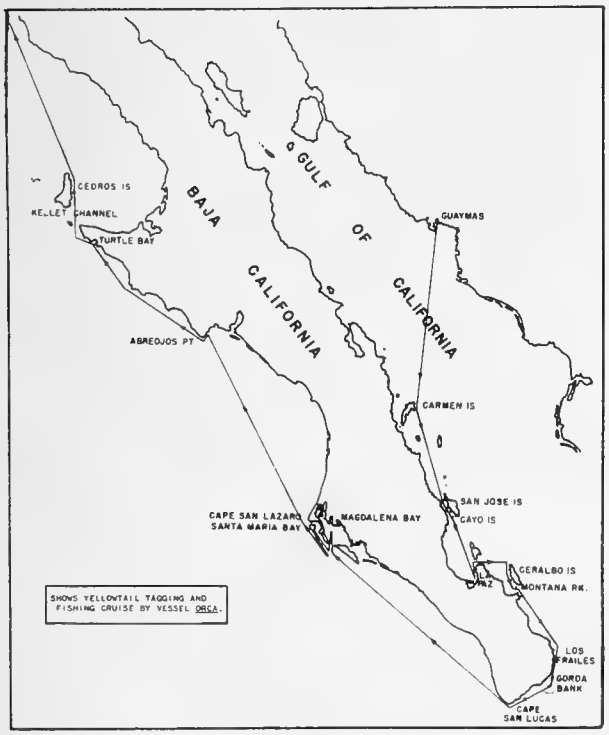
TRENDS AND DEVELOPMENTS

California

SARDINE DATA COLLECTED BY VESSEL "YELLOWFIN" (Cruise 53-Y-5): Various samples and data relating to the Pacific sardine (pilchard) were collected by California Department of Fish and Game personnel aboard the research vessel Yellowfin on a 14-day cruise completed at Los Angeles on May 19. This was a routine hydrographic cruise of the California Cooperative Oceanic Fisheries Investigations to the coastal and offshore area between Oceanside and Baja Head, Baja California. It was designed to collect data for determining the oceanographic factors responsible for the behavior, spawning success, and survival of Pacific sardine.

* * * * *

YELLOWTAIL FISHED AND TAGGED BY VESSEL "ORCA:" A total of 34 yellowtail (Seriola dorsalis) was tagged and released by California Department of Fish and Game biologists on the vessel Orca (owned by the J. S. Sefton Foundation of San Diego) in a recent cruise off Baja California. Other phases of the yellowtail study were also carried out during operations from Carmen Island to Cape San Lucas and along the west coast of Baja California, according to a June 1 release from the California Department of Fish and Game. The yellowtail study is financed with Dingell-Johnson funds.



All of the 34 yellowtail tagged were double-marked with Petersen disks and all-vinylite tubing tags. Scale samples were obtained from 13 of the fish. Three not suitable for tagging provided material for chromatographs, stomach, and ovary samples. Bathythermograph slides were made at six places.

Fishing was tried at Carmen Island, San Jose Island, Cayo Island, Ceralbo Island, Montana Rock, Los Frailes, Gorda Bank, and Cape San Lucas in the Gulf of California. Troll lines were pulled along almost the whole length of western Baja California with concentrated efforts made to catch yellowtail between Magdalena Bay and Cape San Lazaro, across Kellet Channel, and along the east side of Cedros Island. Inshore fishing was accomplished by using a small power boat. Offshore work was done from the vessel's stern. Both trolling and hook-and-line fishing with salted bait were tried. With one exception only the trolling was successful. One yellowtail was speared under the

night light at Cape San Lucas. Fourteen yellowtail were tagged at Carmen Island and 20 off Santa Maria Bay. At these two places all troll lures worked with apparently equal success. Bone jigs, feathers, and a salmon spoon all caught yellowtail.

Surface temperatures were high in the Gulf of California, ranging from 20.5° C. (68.9° F.) at Carmen Island to 24.5° C. (76.1° F.) on Gorda Bank, and dropped sharply on the western side of Baja California. Near Santa Maria Bay where yellowtail were taken the water temperature was 16.8° C. (62.2° F.).

* * * * *

TRAWLER "NAUTILUS" ADDED TO STATE'S MARINE RESEARCH FLEET: The 50-foot commercial fishing trawler Nautilus was recently added to the marine research fleet of the California Department of Fish and Game, according to a June 24 release from that Agency.

The Nautilus replaces the 35-foot Broadbill, which sank at its moorings in Sausalito harbor during a storm last winter. It will be used by marine biologists as a mothership in abalone-diving research off the north coast, in trawl investigations, and salmon and crab research out of San Francisco.

The State's new vessel carries two-way short-wave radio, loran, automatic pilot, and recording echo-sounder. It is equipped with two drag winches and 450 fathoms of cable.

Formerly the Sportfisher II, the 7-year-old Nautilus is a northern dragger, with a 14-foot beam, 8-foot draft, and 37-ton displacement.

Federal Purchases of Fishery Products

ARMY PURCHASES FROZEN FILLETS IN ICELAND FOR EUROPEAN TROOPS: The United States Army awarded its first contract in Iceland for the delivery of frozen fish for the U. S. Armed Forces in Europe. This contract, which was awarded during the first quarter of this year, called for the delivery of 400 tons of frozen cod and ocean perch fillets at a price of $153,200. Deliveries are to be made to European destinations in monthly installments through May.

Previously the Army Quartermaster Corps in commenting on the visit of an Army Veterinarian to Iceland to make sanitary inspections of that country's fish-freezing plants had indicated that the purchases of fishery products in Iceland would be for Armed Forces personnel stationed in Iceland only. However, it is now understood that since Iceland is traditionally considered as part of Europe, the U. S. Army may purchase fishery products in that country for feeding Armed Forces personnel stationed in Iceland and other European countries.

Gear Research and Development

UNDERWATER SOUND AND TELEVISION TESTED OFF BAHAMAS BY RESEARCH VESSEL "POMPANO:" Underwater sound recordings and tests with underwater television were made on a 10-day cruise of the M/V Pompano, a 57-foot exploratory fishing research vessel, oper-

ated by the Service's Branch of Commercial Fisheries. The cruise was completed at Miami, Florida, on June 16. Tests were conducted in the vicinity of Bimini Islands in the Western Bahamas.

Underwater sound recordings were obtained on schools of bluefin tuna which migrate northward along the western shore of the Bimini group from about May 15 to June 15 each year. Numerous schools containing from 10 to 20 large tuna (each 400 lbs. or over) were sighted to the west of Gun and Cat Cays during a 3-day period beginning on June 8. Twenty-one tape recordings were made while tuna were observed at distances from 5 feet to about 75 yards from the hydrophone. A small chartered float plane was helpful in spotting the schools and in guiding the boat into positions near the fish.

The recordings will be analyzed in the near future at the Service's gear research station at the University of Miami Marine Laboratory to determine if they contain any sounds attributable to the tuna. If the recordings are found to contain sounds characteristic of the fish, additional work will be undertaken to develop special devices which will help commercial fishermen locate schools of tuna (and possibly other fish) by the sounds which they produce in the water.

Preliminary tests were also carried out with industrial television equipment adapted for underwater use to determine its suitability for studying fishing gear in operation. The camera was lowered in a water-tight housing and trained on sections of the bottom, 15 to 20 feet away from the camera lens. Small fish, seaweed, and coral formations on the bottom in depths up to 40 feet were visible on the monitor screen in good detail. The tests indicate that the equipment, with certain improvements, such as a remote control for changing the iris opening, can be developed into a useful tool for studying otter trawls and other types of fishing gear in operation.

Gulf Exploratory Fishery Program

TUNA BAIT GROUNDS FOUND BY "OREGON" IN GULF (Cruise No. 19): Good catches of tuna bait fishes were made by the Service's exploratory fishing vessel Oregon on a 72-day cruise in the Gulf of Mexico. A few tuna schools were also sighted. The cruise, completed at Pascagoula on June 20, was plagued by unfavorable weather. Contact was made with several small schools of blackfin tuna (Parathunnus atlanticus) and white skipjack (Katsuwonus pelamis) in the Straits of Florida, and only a few small tuna were caught from each school. The poor catch was probably due chiefly to the small number of tuna encountered, but some minor modifications of gear and methods can be expected to give better results.

Good tuna-bait fishes of several species were found in the Florida Keys area and around the islands of the Louisiana, Mississippi, and Alabama coasts. Adequate quantities were taken at night with a new type of lift net designed especially for the purpose. Lift-net fishing has the advantages of requiring less labor, less expensive gear, and delivers the bait to the tanks in much better condition than methods requiring use of receivers.

The "Fischlupe" (electronic fish finder) was used to examine suitable bottom for snappers toward the end of the cruise. The results were promising.

Tuna Bait Fishing: During April the Oregon worked along the west coast of Florida as far as Key West, Florida, in search of suitable tuna bait. The lampara-type

bait seine tried by the Oregon crew proved unsatisfactory for species of Harengula (razorbellies) until a new floor of small mesh was put in. Subsequently both Harengula and Opisthonema (thread herrings or hairy backs) were tried on fish in the Straits of Florida and found unsatisfactory because of their tendency to rush away from the boat and to sound.

In May the Oregon worked in the Straits of Florida, made a brief run south of the Isle of Pines in the northwestern Caribbean, and fished for bait in the vicinity of the Florida Keys with a lift net. The lift net, a specially designed model, was very successful in getting bait. The bait taken with the lift net in the Florida Keys was chiefly the majua (Jenkinsia lamprotaenia). Good quantities were taken also of a species of anchovy not yet identified, and of small Sardinella anchovia. These appear to be good bait fish. Thread herrings and razorbellies were also taken but were discarded. After the middle of June bait was taken in adequate quantity with the lift net near the outside beaches of Chandeleur Island, Louisiana; Horn Island, Mississippi; and Petit Bois Island, Alabama. This bait was chiefly a species of anchovy not yet identified. It appeared to have excellent behavior characteristics as bait and lived well in the tanks. Anchovies of this or a similar species taken in the Florida Keys lived in the Oregon bait tank for 47 days before use.

Tuna Fishing: Relatively few schools of tuna were seen in the Florida Straits or south of Cuba during the few days of good fishing weather. Between 75 and 100 tuna were taken, all under 10 pounds--about evenly divided between blackfin and white skipjack. Only one blackfin was taken on trolling lines during the entire cruise although trolling lines were used at all times when under way. A relatively large number of little tuna (Euthynnus alletteratus) were taken while sailing over the continental shelf, but deep-water trolling catches, other than the single blackfin tuna, consisted of dolphin, wahoo, and barracuda. No porpoises were seen offshore or near the small tuna schools in the Straits of Florida or south of Cuba, but birds were working over most of them.

Most of the tuna were taken on May 9, 40 to 60 miles north of Havana. The ratio of fish caught to strikes was low indicating probably that the squids and poles were not right for the size fish present. Some larger fish were present, but were deep and would not rise to the squids. A number of other schools were fished with poor success. On May 16 mechanical difficulties forced a return to Key West. Bad weather prevented fishing during the first week of June. One school of tuna--about 30 fish and probably yellowfin weighing over 25 pounds--were found in company with a pair of whale sharks off Mobile over a depth of 600 fathoms on June 11. They were feeding on clouds of small bait fish accompanying the whale sharks and would not take the Oregon's bait except at too great a distance from the stern for fishing.

Snapper Fishing With Aid of "Fischlupe:" On several occasions the Oregon moved in from deep water after dark to anchor on the continental shelf, passing over rocky places or lumps suitable for red snappers. Good correlations of trial hand-line catches were found with indications of fish on the "Fischlupe." Conversely, no fish or few fish were hooked over good-appearing rocky bottom where the "Fischlupe" failed to show fish. One spectacular showing on the "Fischlupe" appeared during the night and was noted while the vessel was at anchor. Snapper hand lines were tried immediately and catches were always made before the leads hit bottom, and continued until the shoal of fish, as indicated by the "Fischlupe," moved away. Then catches stopped. Judging from the catches, the shoal of fish consisted of medium and small size snappers with white trout (Cynoscion arenarius) in a layer over the top of the shoal. The shoal extended from the bottom upward about 8 fathoms at a depth of 50 fathoms. It was not possible to predict the size of the fish from the "Fischlupe" readings, and the interpretation of some indications which may have resulted from bottom growth such as Alcyonarians were uncertain. More experience with the instrument under Gulf conditions might be expected to give better results.

Indications of fish in deep water were noted many times on the "Fischlupe," but in most cases fishing was not attempted because of gear limitations and positive correlation of indications with fish caught on hook and line were made only for red snappers. Readings that we were unable to interpret at all were fairly frequent. For example, a "false bottom" appeared at 180 fathoms where the depth was approximately 600 fathoms and above this "false bottom" (between 80 and 150 fathoms) were scattered indications with about half the intensity of usual fish showings.

Japanese Frozen-Cooked Tuna Shipped to U. S. in Unsealed Cans

On June 15 a shipment of 100 cases (48 No. ½ cans) of Japanese frozen-cooked tuna in unsealed cans was received by a broker in San Francisco, reports the Service's Fishery Marketing Specialist in California. Previously, small samples of this product were received by several canners and brokers for experimental purposes, the first shipment of which arrived in southern California late in 1952.

It is understood that in Japan the cans are filled with solid-pack tuna, frozen without lids, and packed 48 cans to a carton for shipment. A sheet of cardboard is placed between the layers of cans in the carton and the product is kept frozen in transit. The tariff rate for this import was 12½ percent ad valorum.

It is also understood that the experimental lots received earlier were handled in this country by simply adding oil and salt, sealing with a lid, and processing in a retort.

Metal Cans--Shipments for Fishery Products, January-April 1953

Total shipments of metal cans for fish and sea food in January-April 1953 amounted to 22,520 short tons of steel (based on the amount of steel consumed in the manufacture of cans), 10 percent more than the 20,483 short tons shipped in the similar period in 1952. This is based on a June 22 report issued by the Bureau of the Census.

NOTE: STATISTICS COVER ALL COMMERCIAL AND CAPTIVE PLANTS KNOWN TO BE PRODUCING METAL CANS. REPORTED IN BASE BOXES OF STEEL CONSUMED IN THE MANUFACTURE OF CANS, THE DATA FOR FISHERY PRODUCTS ARE CONVERTED TO TONS OF STEEL BY USING THE FACTOR: 23.0 BASE BOXES OF STEEL EQUAL ONE SHORT TON OF STEEL.

North Atlantic Fishery Investigations

MESH-SELECTIVITY EXPERIMENTS ON HADDOCK CONDUCTED BY "ALBATROSS III" (Cruise No. 51): Mesh-selectivity experiments on haddock, and special fishing for young ocean perch were the objectives of the Service's research vessel Albatross III on a 9-day cruise completed at Boston, Mass., on June 17. The areas investigated included the vicinity of Jeffries Ledge in the Gulf of Maine, and the southeast part of Georges Bank.

Six tows in the Gulf of Maine yielded several hundred young ocean perch of 5 to 10 cm. (2 to 4 inches). This was more than the number sought.

Fifty-three tows were completed on Georges Bank to test the effect of covers upon escapement of small haddock through the cod end. Covered and uncovered cod ends of 3-inch (inside measurement) mesh were fished alternately. Several tows with a partial cod end cover were made to determine the most important part of the cod end for releasing small haddock. An abundance of small haddock on Georges Bank provided an abundance of data on the effect of cod-end covers.

Pacific Coast Halibut Fishery

AREAS 3A AND 1A CLOSED JULY 7: The International Pacific Halibut Commission on June 18 announced that Pacific halibut Area 3A would be closed to halibut fishing at 11:59 p. m. (P. S. T.), July 7, 1953. The Commission estimated that by that date the quota of 28,000,000 pounds for Area 3A would have been attained. Area 1A, which had no established quota, would close at the same time as Area 3A. Pacific halibut fishing this year opened on May 17 instead of May 14 as in 1952.

Areas 3A and 1A this season were open to fishing for 52 days—the shortest season on record—compared to 60 days in 1952, 56 days in 1951, 66 days in 1950, 73 days in 1949, 72 days in 1948, and 109 days in 1947.

Areas 2A and 1B closed at 11:59 p. m. (P. S. T.), June 9, 1953. These areas were open to fishing this season for 24 days—also the shortest season on record for these areas—compared with 26 days in 1952, 28 days in 1951, 32 days in 1950, 34 days in 1949, 32 days in 1948, and 39 days in 1947.

Prior to 1951 the closure of Areas 3A and 1B would mean the end of all halibut fishing in the Pacific, except for halibut caught incidentally. However, 1953 regulations established subdivisions of certain areas to increase the production of halibut on some underfished banks. These subdivisions are: Areas 2B and 2C, scheduled to be opened to fishing for 10 days beginning July 31; and Areas 3B and 4 scheduled to be opened to fishing for 25 days beginning August 5. Areas 2B and 2C were first established in 1951, and Area 3B was first established in 1952.

Regulations for the retention of incidentally-caught halibut during the 1953 season are similar to those issued in 1952.

Pacific Oceanic Fishery Investigations

TUNA ATTRACTANTS TESTED BY "CHARLES H. GILBERT" (Cruise No. 8): Tests with liquid tuna extracts to attract skipjack schools and study their reaction were made by the Service's Pacific Oceanic Fishery Investigations research vessel Charles H. Gilbert on a 7-day cruise completed at Honolulu on March 3. Three skipjack tuna schools were chummed successfully to the stern of the boat and liquid tuna extract was cast among them by several different means. In one instance it appeared as though the individuals of the school were attracted, and in two instances the results were negative. In the instance that the individuals of the school appeared to be attracted, about six fish appeared to dart around for several seconds within the cloud of material breaking the surface and exhibiting the typical feeding reaction observed in the Coconut Island ponds at Hawaii. However, even in this instance the school itself disappeared and within 60 seconds the six fish observed within the cloud of extract also disappeared and only reappeared at the stern of the vessel when chumming was again resumed.

Experiments were carried out where the extract was cast in a straight line and also in a large circle hoping to attract schools of skipjack without the use of chum. In all cases where chum was not used, no skipjack were observed close to the material in the water nor could any feeding reaction be observed. It was found to be very difficult to keep contact with the fish without the use of live bait.

Attempts to chum 7 schools of skipjack were successful in bringing 3 schools to the stern of the boat and catching fish from all 3 schools. Many other schools were seen but since bait was scarce chumming was not attempted. It was concluded that schools were successfully chummed without any adverse reaction of the schools. In one instance fish appeared at the stern of the vessel apparently attracted by the turbulence from the propeller; no chum was thrown.

An attempt was made to capture viable tuna to return to the Coconut Island ponds, but only one little tuna (kawakawa) remained alive at the end of the trip. Three yellowfin placed in the live-bait wells died within 3 days after being placed in the wells.

A Navy noise-measuring set was used to detect sounds emanating from tuna. No unusual noises which could be attributed to tuna were heard when the sensitive element was lowered over the stern in the vicinity of a school of skipjack.

An attempt was made to study the deep scattering layer by the use of an Edgerton underwater camera. The camera was lowered on two separate nights for a total of 210 minutes off Waianae on leeward Oahu and off Port Allen on Kauai. No particularly important photographs were obtained from this attempt.

Surface trolling was carried on systematically using various boat speeds in an attempt to study trolling as an effective means of quantitative sampling for surface skipjack schools. Trolling was carried out for a total of 56 hours and 20 minutes and only 8 fish were caught—1 skipjack, 4 yellowfin, 1 little tuna (kawakawa), and 2 "mahimahi." Trolling as it is now being carried out is not an effective means of quantitatively sampling the surface skipjack schools.

An echo-sounder was used consistently when near bird flocks or other signs of surface skipjack schools. Excellent traces of surface schools were made by the use of the instrument.

* * * * *

SKIPJACK TUNA STUDIES IN HAWAIIAN WATERS CONTINUED BY "CHARLES H. GILBERT" (Cruise No. 12): In order to keep almost constant tabs on the abundance and the movements of skipjack tuna schools in Hawaiian waters during the fishing season, three series of weekly cruises were planned for the research vessel Charles H. Gilbert. The second series of cruises was completed on June 3 and lasted 25 days. The principal objectives of the cruise were: (1) to test fish attractant solutions at sea; (2) to continue the weekly two-day hydrographic section through Kaiwi Channel; (3) to secure viable skipjack and other tuna for the Coconut Island ponds; (4) to test new methods of tagging skipjack tuna; (5) to further test the Banner plankton trap inshore and offshore.

Three different fish attractant solutions were used during the cruise: Preserved yellowfin tuna flesh extract, preserved skipjack gut extract, and frozen skipjack flesh extract. Sea trials were attempted on six fish schools variously composed of skipjack, frigate mackerel, and dolphin. Results were inconclusive or negative.

The three 2-day hydrographic sections were a continuation of the series started on Cruise 11. The results of oceanographic observations from the cruises so far com-

pleted indicate a striking parallel between the warming of the water around the Hawaiian Islands in the spring and the seasonal increase in the abundance of the skipjack or aku. If further work bears out this relationship, the use of water temperature as an index of skipjack abundance may be of value for predicting the catch in local waters and for guiding the skipjack sampan fleet to new fishing grounds south of its present range of operation during the winter, when the tuna are scarce around the Hawaiian Islands.

A total of 30 active and apparently viable skipjack were captured and transferred to the Coconut Island pond. All were dead within a day. Fifteen of these fish were tagged with numbered hooks through the crest of the back just back of the second dorsal fin. These hooks remained in place without tearing out even when the fish swam at high speed in the pond.

The Banner plankton trap was set overnight at inshore anchorages on 3 occasions. Catches were good enough to justify further consideration of this type of trap.

Good radar observations on a few bird flocks were secured under calm sea conditions in the Waianae lee.

* * * * *

NEW TYPE LONG-LINE GEAR SUCCESSFULLY TRIED BY "JOHN R. MANNING" (Cruise No. 15): After a two-month exploratory fishing cruise across the equatorial yellowfin tuna grounds, the Service's Pacific Oceanic Fishery Investigations research vessel John R. Manning returned to its Pearl Harbor base on June 16. The expedition brought back valuable data on the seasonal and geographical fluctuations in abundance of tuna and also provided an opportunity to test a new and promising type of fishing gear. It was found that the new long-line gear, which has very short branch lines with a free-swiveling attachment to the mainline, were remarkably immune to tangling, and caught about 40 percent more yellowfin than the conventional gear.

The vessel went south along the meridian of 150° W. longitude, stopped at Canton Island, and returned along 170° W. longitude. The rich zone for yellowfin tuna fishing was found at 3° to 4° N. latitude on 150° W. and between 1°S. and 4°N. on 170°W. Catches reached a maximum in the rich zone of 10 yellowfin for every 100 hooks fished, approximately 4 times the average in local waters. Unusually large numbers of albacore, averaging about 40 pounds, were taken at all the more southerly stations on both longitudes.

The operation of a mid-water trawl to sample the forage fish in the same area was abandoned after two trials due to failure of the diving vane.

The modified long-line gear used worked exceptionally well. It caught fish at about three-fourths the rate of the standard gear and yet because of the special construction nearly eliminated the tangling; with the smaller amount of line per basket it was possible to haul it almost twice as fast as the standard gear, or at a rate of about 200 hooks per hour. Salted baits were found to be slightly superior to fresh baits.

Both surface and subsurface temperatures were quite unusual during this cruise because the current and countercurrent system was nearly at a standstill. The surface temperatures increased while crossing the equator from north to south instead of decreasing at the equator as they usually do. The only evidence of the easterly countercurrent was found close to the equator where the surface currents usually are westerly.

At several stations it was possible to obtain full stomachs of big-eyed, yellowfin, and albacore simultaneously for a study of the comparative food of the three species. Big-eyed tuna were found in spawning condition and ovaries collected for laboratory study. The albacore had evidently spawned some time previously. Excellent material for racial study of albacore was collected. Several specimens of the mako shark were found to be the Atlantic species Isurus oxyrhynchus rather than the Pacific species Isurus glaucus.

U. S. Foreign-Flag Fishing Vessel Regulations Do Not Apply to Guam and American Samoa

Foreign-flag vessels engaged in certain fishery operations are permitted to land their products at Guam and American Samoa. This opinion was issued by the Bureau of Customs, Treasury Department, as a guide to collectors of customs and in reply to an inquiry from a West Coast fishery association. The Bureau's reply to an inquiry which asked whether section 4311, Revised Statutes (46 U.S.C. 251), as amended by the Act of September 2, 1950 (64 Stat. 577), has application to Guam and American Samoa, follows:

"...You ask whether the Bureau has settled the question of the statute's application to Guam and American Samoa, and if so, under what authority of law the settlement was determined. The section of law cited prohibits, except as permitted by treaty or convention, a foreign-flag vessel, whether documented as a cargo vessel or otherwise, from landing in a port of the United States its catch of fish taken on board on the high seas or fish products processed therefrom, or any fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish products.

"The Act of August 1, 1950 (ch. 512, 64 Stat. 384-393; 48 U.S.C. Supp. V. 1421-1424b.), declaring Guam to be an unincorporated territory of the United States and setting forth its form of government, also states that no law of the United States thereafter enacted shall have any force or effect within Guam unless specifically made applicable by act of the Congress, either by reference to Guam by name or by reference to 'possessions.' The Act of September 2, 1950 (64 Stat. 577), being a 'law of the United States thereafter enacted,' has no force or effect within Guam because the act is not specifically made applicable, either by reference to Guam by name or by reference to 'possessions.'

"American Samoa is an unorganized, unincorporated territory appurtenant to the United States. As such neither American Samoa itself nor any port or place therein is a 'port of the United States' within the purview of section 4311 of the Revised Statutes, as amended, unless it can be made to appear that Congress intended otherwise. To this Bureau, it does not so appear.

"The Bureau therefore is of the opinion that a foreign-flag vessel is not prohibited by section 4311 of the Revised Statutes, as amended, from landing in Guam or American Samoa its catch of fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish or fish products."

The Bureau also was asked about the dutiable status of fish when landed at a port of the United States after the fish (products of a Japanese fishery) are discharged at Guam or American Samoa from a Japanese fishing vessel coming from the high seas. The Bureau states that "fish landed in Guam or American Samoa by a Japanese vessel and then transshipped to any port in the customs territory of the Unit-

ed States would be subject to customs treatment, including rates of duty, as though the importations were made directly from Japan. Such shipments would also be subject to applicable tariff quotas."

NOTE: SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, P. 26.

U. S. Pack of Pacific Coast Sea Herring, 1952

The United States pack of Pacific sea herring in 1952 totaled 40,333 standard cases, valued at $280,237 to the canners, or an average price of $6.95 per case (table 1). All the Pacific sea herring was canned in California; 9 plants packed in 1952. Of the total pack, 77 percent was put up natural style and the remaining 23 percent in tomato sauce.

Table 1 - U. S. Pacific Sea Herring Pack By Style of Pack, 1952[1]

State and Style of Pack	Quantity	Value to Canners	Avg. Price Per Std. Case[2]
	Std. Cases[2]	$	$
California:			
Natural[3]	30,941	208,733	6.75
In tomato sauce	9,392	71,504	7.61
Total	40,333	280,237	6.95

1/PRELIMINARY.
2/CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 NO. 1 TALL CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES NET.
3/INCLUDES A SMALL PACK IN OLIVE OIL.

Table 2 - U. S. Pacific Sea Herring Pack by Can and Case Size, 1952[1]

Can and Case Sizes	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	$	$
15 ounces net (48 cans)	30,245	199,929	6.61
5 ounces net (100 cans)	13,601	71,997	5.29
Other sizes (converted to standard cases)	643	8,311	12.92
Total	44,489	208,237	-

1/PRELIMINARY.

Table 3 - U. S. Canned Pacific Sea Herring Pack, 1947-52

Year	Quantity	Value to Canners	Avg. Price Per Std. Case[1]
	Std. Cases[1]	$	$
1952[2]	40,333	280,237	6.95
1951	3/	-	-
1950	-	-	-
1949	-	-	-
1948	46,060	386,806	8.40
1947	6,861	48,008	7.00

1/CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 NO. 1- TALL CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES NET.
2/PRELIMINARY.
3/ONLY A SMALL PRODUCTION WAS REPORTED IN 1951.

Wholesale Prices, May 1953

Wholesale prices for edible fishery products rose from April to May because of lighter-than-normal production and an increase in demand. The over-all edible fish and shellfish (fresh, frozen, and canned) wholesale index for May was 106.5 percent of the 1947-49 average (see table)--7.7 percent higher than in April and 8.7 percent higher than in May 1952, the Bureau of Labor Statistics of the Department of Labor reports.

Prices in May were higher for all varieties included in the drawn, dressed, or whole finfish subgroup except West Coast halibut and salmon. Lighter landings in May caused the ex-vessel price of large drawn offshore haddock at Boston to rise 78.1 percent above April. All fresh-water varieties in this subgroup were priced

higher in May due to lighter production on the Great Lakes. On the other hand, prices of West Coast halibut and salmon at New York City were down 4.1 and 3.2 percent, respectively, due to large inventories and weaker markets. Compared with May 1952, the over-all May price index for this subgroup was down 15.8 percent--each item in the subgroup was priced substantially lower than a year earlier.

Fresh processed fish and shellfish prices were 8.8 percent higher than in April and 35.3 percent above a year earlier. Shrimp prices continued to rise as stocks were further reduced and production continued light--from April to May fresh large shrimp prices at New York City rose 15.0 percent and they were 78.6 percent higher than in May 1952. Small haddock fillet prices at Boston in May were up 12.5 percent from the previous month because production was light, but 8.5 percent lower than a year earlier. Shucked oyster prices remained the same as in April, but were 5.6 percent above May 1952.

Table 1 - Wholesale Average Prices and Revised Indexes for Edible Fish and Shellfish, May 1953 and Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49 = 100)			
			May 1953	April 1953	May 1953	April 1953	March 1953	May 1952
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)					106.5	98.9	102.8	105.8
Fresh and Frozen Fishery Products:					112.2	99.4	105.7	108.2
Drawn, Dressed, or Whole Finfish:					96.7	81.8	94.8	114.8
Haddock, large, offshore, drawn, fresh	Boston	lb.	.09	.05	90.1	50.6	73.4	108.6
Halibut, Western, 20/80 lbs., dressed, fresh or frozen	N.Y.C.	"	.29	.31	90.5	94.4	102.1	106.8
Salmon, king, lge. & med., dressed, fresh or frozen	"	"	.47	.48	104.5	107.9	109.6	125.9
Whitefish, mostly Lake Superior, drawn (dressed), fresh	Chicago	"	.50	.43	122.7	105.3	100.4	130.1
Whitefish, mostly Lake Erie pound or gill net, round, fresh	N.Y.C.	"	.60	.50	121.3	101.1	73.8	131.4
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.48	.39	98.4	79.9	129.1	101.4
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	N.Y.C.	"	.31	.22	72.7	51.0	129.0	102.0
Processed, Fresh (Fish and Shellfish):					134.2	123.3	122.1	99.2
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.27	.24	91.9	81.7	102.1	100.4
Shrimp, lge. (26-30 count), headless, fresh or frozen	N.Y.C.	"	1.00	.87	158.1	137.5	130.4	88.5
Oysters, shucked, standards	Norfolk area	gal.	4.75	4.75	117.5	117.5	117.5	111.3
Processed, Frozen (Fish and Shellfish):					124.3	115.3	112.7	102.3
Fillets: Flounder (yellowtail), skinless, 10-lb. pkg.	Boston	lb.	.31	.33	108.7	115.7	115.7	129.7
Haddock, sml., skins on, 10-lb. cello-pack	"	"	.19	.21	70.7	78.1	76.2	89.3
Ocean perch, skins on, 10-lb. cello-pack	Gloucester	"	.23	.23	108.3	112.0	114.4	110.7
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	"	1.06	.87	163.5	134.2	127.3	94.1
Canned Fishery Products:					98.0	98.2	98.5	102.2
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case	Seattle	case	19.70	19.71	104.4	104.4	104.4	109.5
Tuna, light meat, solid pack, No. ½ tuna (7 oz.), 48 cans per case	Los Angeles	"	14.80	14.80	92.4	92.4	92.4	80.6
Sardines (pilchards), Calif., tomato pack, No. 1 oval (15 oz.), 48 cans per case	"	"	9.25	9.25	108.0	108.0	108.0	109.4
Sardines, Maine, keyless oil, No. ¼ drawn (3¾ oz.), 100 cans per case	N.Y.C.	"	7.20	7.45	76.6	79.3	81.9	102.7

1/REPRESENT AVERAGE PRICES FOR ONE DAY (MONDAY OR TUESDAY) DURING THE WEEK IN WHICH THE 15TH OF THE MONTH OCCURS.

Continued rising shrimp prices caused the over-all frozen processed fish and shellfish index for May to increase 7.8 percent. However, the 21.8 percent rise in shrimp prices from April to May was the only increase among the items in this subgroup. Prices of frozen fillets of flounder, haddock, and ocean perch were all down in May because inventories continued fairly heavy and the market was somewhat weak. Compared with May 1952, the index for frozen processed fish and shellfish was up 21.5 percent due entirely to the large increase in shrimp prices, while frozen fillet prices dropped substantially.

Canned Maine sardine prices dropped 3.4 percent from April to May--the only canned fishery product to show a price change. Canned salmon, tuna, and California sardine prices remained at the April level. Compared with May 1952, canned fish prices were down 4.1 percent: lower prices (25.4 percent) for Maine sardines were offset somewhat by higher prices for pink salmon and tuna.

Fishery Products Marketing Prospects for July-September 1953

Consumption and Retail Prices: United States civilian per-capita consumption of fishery products during January-June was somewhat smaller than a year earlier. The decline occurred almost entirely in fresh fish; the movement of both the canned and the frozen products into civilian markets was about as large as in the first half of 1952. Retail prices of fishery products through midyear averaged moderately lower than a year earlier. Prospects for the next few months are that civilians may take about as much fresh and processed fishery commodities per person as in the same period of last year. Retail prices for these products are not expected to average as high as those of a year earlier.

Civilian consumption of canned fishery products through mid-1953 was about as large per person as a year earlier, according to trade information. Some seasonal increase will occur this summer, but the consumption rates are not expected to be much different from those of last summer.

Catch: The total commercial catch of fish and shellfish through midyear was moderately smaller than for the same months of 1952. This reduction was the combination of several factors: unfavorable weather in both the New England and Gulf areas hampered commercial fishing operations, and the relatively small catch of tuna from the usual fishing grounds. During the third quarter of 1953, commercial fishing operations and landings of fish and shellfish will reach seasonal peaks.

Freezings and Holdings: Freezings of fish and shellfish in the United States and Alaska from January to June totaled 101.2 million pounds, 27 percent smaller than for the comparable months of last year. Probably one of the most important factors which discouraged freezing activity was the fear of declining prices due to the large stocks of frozen fishery products early in the year and anticipated competition from imported frozen fish fillets.

Frozen fishery products (edible and inedible) in storage on July 1 totaled 142.7 million pounds, 6 percent less than a year earlier. The net movement of fishery products out of cold storage was unusually large during the first 5 months of 1953 in response to some price cuts at the wholesale level. The seasonal build-up of frozen fish and shellfish stocks which began in June will continue well into the fourth quarter of the year.

Foreign Trade: Imports of fishery products this year will be large, but are not expected to reach the 1952 total. Receipts of major fishery products from abroad during the first four months of 1953 were about as large as a year earlier, with a sharp reduction in frozen groundfish (including ocean perch) fillets not quite offset by increased imports of canned fishery products. Exports of canned fish are expected to be much smaller in total this year than in 1952 principally because of the short supplies of California sardines.

This analysis appeared in a report prepared by the Bureau of Agricultural Economics, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's July-September 1953 issue of the National Food Situation.

International

NORTH PACIFIC FISHERIES TREATY RATIFIED: The formal exchange of ratifications of the tripartite North Pacific Fisheries Treaty took place on June 12 in Tokyo, according to word received by the Department of State. The treaty entered into force on the date of the exchange of ratifications.

The International Convention for the High Seas Fisheries of the North Pacific Ocean was signed May 9, 1952, at Tokyo by representatives of the United States, Canada, and Japan. The Convention, which was negotiated at the Tripartite Fisheries Conference held at Tokyo in late 1951, marks a further step in the conservation of international fisheries in the North Pacific Ocean. Japan now becomes a joint partner with the United States and Canada in cooperative measures to preserve and perpetuate the fish stocks of the North Pacific.

* * * * *

ANTARCTIC 1953 WHALE-OIL PRODUCTION ALMOST SOLD OUT: Only about 81,200 short tons of Antarctic baleen whale oil, including a small carryover of the 1952 output, remained unsold as of mid-May 1953, reports the June 15 Foreign Crops and Markets of the U. S. Department of Agriculture. Of this quantity, Panama held 44,800 tons,

Disposition of 1953 Antarctic Whale Oil (including small carryover from 1952) by Country, as of May 14, 1953

Producing Country	Buyer	Quantity Purchased	Avg. Price Per Short Ton
		Short Tons	US$
United Kingdom	Br. Ministry of Food	81,000	190.00
South Africa	Br. Ministry of Food	25,760	190.00
Norway	Br. Ministry of Food	28,000	170.00
	Germany	23,800	175.00-180.00
	Sweden	5,600	175.00
	France	9,520	175.00-180.00
	Denmark	11,200	175.00
	Belgium	4,200	175.00-181.25
	Netherlands	15,680	175.00-181.25
	Norwegian Hardeners	25,760	175.00
	Norwegian Dealers	22,400	193.75
	Norwegian Dealers	2,800	206.25
Netherlands	Netherlands Government	18,800	193.75
Russia	Domestic	27,800	Not Available
Argentina	Argentine Dealers	2,240	177.50
	Argentine Dealers	4,480	207.50
Japan	Germany	12,656	186.25
	Germany	11,334	186.25

Argentina 7,280 tons, and Japan 29,120 tons. However, the bulk of the Japanese holdings probably have been disposed of; negotiations for the sale of 23,500 tons were in process at the time this report was written.

Unsold quantities were being offered at £78 to £80 per long ton (US$195-$200 per short ton) but buyers were scarce and willing to pay only £70 to £72 (US$175-$180).

The British Ministry of Food purchased the entire British and South African production before the 1953 season started at £76 per long ton (US$190 per short ton), compared with £90 to £110 (US$225-$275) paid in 1952. Whale-oil prices are related to the general fats and oils market which has been weak, at least compared with the previous year. The range of whale-oil prices this year, from £68 to £83 (US$170-$207.50), is somewhat less than last year and is disappointing to whaling companies in view of higher operating costs.

* * * * *

WORLD MARINE-OIL PRODUCTION, 1952: Preliminary data indicate that world production of marine oils in 1952 is estimated at 950,000 short tons, a decline of about 5 percent from 1951. The decrease in 1952 occurred in fish and sperm whale oils--in contrast to 1951 when production of both these oils was up. The 1952 decline was due to generally lower prices and reduced fish landings. Whale-oil output, however, increased moderately. Since baleen whaling largely is restricted by international regulations, whale-oil output has remained fairly constant in recent years. In 1952 world trade in fish oils declined about 11 percent. United States exports fell 12 percent while European trade is believed to have dropped by about a fourth. Indications point to a further decline in marine-oil exports in 1953.

Whale Oil: World production of baleen whale oil in 1952 is estimated at 460,000 short tons as compared with 435,000 tons in 1951 and 545,000 tons in 1935-39 (table 1). Antarctic pelagic (open sea) production of whale oil, although restricted by international agreement, amounted to about 385,000 tons in 1952 or 85 percent of the world's production. Another 25,000 tons was produced from South Georgia shore-station operations. Most of the remaining 1952 whale-oil output resulted mainly from minor shore-station activities in scattered parts of the world, including Australia, Norway, South Africa, Japan, Canada, and Iceland.

Table 1 - World Whale-Oil Production by Major Producing Countries, 1952 with Comparisons

Country	1952 1/	1951	Average 1935-39
	.....(1,000 short tons).....		
Norway	192	186	2/ 545
United Kingdom	80	79	
Japan	40	29	
Netherlands	17	17	
Panama	18	23	
Union of South Africa	41	35	
Soviet Union	27	21	
Others	45	45	
World total	460	435	545

1/ PRELIMINARY.
2/ BREAKDOWN NOT AVAILABLE.

Norway continued as the leading producer of whale oil in 1952 with some 192,000 short tons, 43 percent of the world total and slightly less than in 1951. The United Kingdom's output of nearly 80,000 tons was the second largest, followed by Japan, the Union of South Africa, the Soviet Union, Panama, and the Netherlands. The same number of expeditions (19) operated in the Antarctic in 1952 as in the preceding season.

A moderate drop in whale-oil production is in prospect for 1953, as Antarctic output dropped to 350,800 tons. The pelagic catch of baleen whales in the 1953 season amounted to 14,855 blue-whale units, or more than 1,000 units under the 16,000-unit quota established by international agreement. Norway accounted for about 5,000 units, as compared with 7,151 units in 1952. The yield of whale oil from Norway's catch was reported at 137,800 tons, a drop of almost one-fourth from the preceding season.

A total of 16 expeditions participated in the 1953 Antarctic pelagic season, 3 fewer than last year; and included 7 Norwegian, 3 British, 2 Japanese, and 1 each from South Africa, the Soviet Union, the Netherlands, and Panama. The three expeditions withdrawn from service this year were Norwegian.

Sperm Oil: Sperm-oil production in 1952 is estimated roughly at 80,000 short tons, a drop of one-third from 1951 but still more than twice the average quantity produced in the 1945-49 period (table 2). The large output in the past two years as compared with preceding years is a reflection of increased demand stemming from the Korean conflict. Sperm oil has a strategic military value due to its non-gumming characteristic under high temperatures. Sperm whaling is not subject to the same strict international regulations that govern the catching of baleen whales, although some limitations have been introduced.

Table 2 - World Sperm-Oil Production by Major Producing Countries, 1952 with Comparisons

Country	1952 1/	1951	Average 1935-39
	.....(1,000 short tons).....		
Norway	23	29	
United Kingdom	13	10	
Japan	13	9	
Netherlands	3	2	3/ 30
Union of South Africa	8	10	
Soviet Union.....	2/ 10	13	
Others	10	47	
World total	80	120	30

1/PRELIMINARY.
2/UNOFFICIAL ESTIMATE.
3/BREAKDOWN NOT AVAILABLE.

Nearly 65 percent of the estimated 1952 sperm-oil output, or 51,200 tons, came from the Antarctic. South Georgia shore stations produced only 1,200 tons. Complete data are not available regarding production in other areas in 1952. However, the large production of sperm oil in 1951 and early 1952 proved more than sufficient to restore depleted stocks and to meet the increased demand. Thus, the subsequent slump in prices is believed to have reduced production in areas outside the Antarctic to less than half the 71,000 tons produced in 1951.

Norway, as in 1951, was the largest producer of sperm oil with about 25,000 tons or almost 30 percent of the world total. Other principal producers in 1952 were the United Kingdom, Japan, and the Soviet Union.

In 1953 production of sperm oil again is expected to decrease. Returns from expeditions operating during the recent season in the Antarctic indicate a sharp reduction in sperm-oil production in that area.

Fish Oils: World output of fish oils in 1952, including liver oils, amounted to approximately 410,000 short tons (table 3). This is a decrease of 35,000 tons from the 1951 record postwar output, but almost 50 percent above the 1945-49 average. Most of the 1952 reduction occurred in Iceland, Norway, Canada, and the United States.

Output of Norway—the largest of any country in the past two years—dropped about 7 percent in 1952 to 116,000 tons. The sharpest drop in 1952, however, was in Iceland where production fell to about one-fifth of the 26,000 tons produced in the previous year. Fish-oil output in the United States, excluding liver oils, was 59,600 tons against 69,200 tons in the previous year. The 1952 decline was primarily due to the continued small catches of sardines off California and herring off Alaska. Canada produced only 12,100 tons of fish oils in 1952 as compared with 23,700 tons in 1951. Landings of sea fish in Canada were 10 percent lower than in the previous year, a reflection of lower prices paid for fish by processing firms.

South African production of fish oils has been increasing markedly in recent years with output in 1952 reaching almost 24,000 tons. Japan, the United Kingdom, and the Soviet Union also produce substantial quantities of fish oil.

Table 3 - World Fish-Oil 1/ Production by Major Producing Countries, 1952 with Comparisons

Country	1952 2/	1951	Average 1935-39
	.....(1,000 short tons).....		
United States	62	71	120
Norway	116	123	40
Iceland	5	26	3/ 32
Japan	24	23	4/138
Union of South Africa	24	19	-
United Kingdom.....	20	22	20
Canada	12	24	17
Others	147	137	113
World total	410	445	480

1/INCLUDES FISH-LIVER OILS.
2/PRELIMINARY.
3/AVERAGE 1939-43.
4/AVERAGE 1936-39; INCLUDES IMPORTS FROM JAPANESE TERRITORIES.

World trade in fish oils (including liver oils) in 1952 is estimated at 120,000 tons, a decrease of 15,000 tons from 1951 and 11 percent below the prewar average. Exports from the United States of 22,000 tons were 12 percent less than in 1951 and 42 percent less than in 1950, partly because of decreased production. Canadian shipments of fish oils in 1952 increased to 13,400 tons from 12,000 tons in 1951. European trade in fish oils last year was around 60,000 tons, or 24 percent below exports in the preceding year.

The major exporting countries in Europe are Norway and normally Iceland with smaller quantities being exported by the United Kingdom, the Netherlands, and Belgium. Sizable quantities of fish oils also are exported by Japan, Angola, and the Union of South Africa. Exports of fish oils in 1953 may decline some from 1952 because fish landings in the North Sea area were reduced by extensive storms.

NOTE: ABSTRACTED FROM FOREIGN AGRICULTURAL CIRCULAR FFO 18-53 (JUNE 5, 1953) ISSUED BY THE FOREIGN AGRICULTURAL SERVICE, WASHINGTON, D. C.

NORTHWEST ATLANTIC FISHERIES COMMISSION

REPORT OF THIRD ANNUAL MEETING: The Third Annual Meeting of the International Commission for the Northwest Atlantic Fisheries convened at New Haven, Conn., on May 25, 1953. The meeting continued through May 30. A three-day meeting of the Special Committee on the Commission's research program preceded the Commission meeting.

Excerpts from the report of the United States Commissioners follow:

At this third meeting, the Commission (1) selected Halifax, Nova Scotia, as the site for its permanent headquarters, (2) adopted and provided for the initiation of a comprehensive research program for the Convention Area, (3) amended a proposal, adopted at its second meeting, for the regulation of the haddock fishery in Subarea 5, (4) considered and acted upon a number of technical and procedural matters, (5) adopted a budget for the fiscal year 1954, (6) decided that its next annual meeting should be held at Commission headquarters beginning on the second Monday in June 1954, and (7) elected a Chairman and Vice-chairman for the next two years.

All ten signatory nations were represented by Commissioners. All of the delegations, except the Italian, consisted of Commissioners and Advisors. The Food and Agriculture Organization of the United Nations and the International Council for the Exploration of the Sea were represented by Observers.

The Officers of the Commission were Dr. John L. Kask, of the United States, Chairman, and Mr. A. T. A. Dobson, of the United Kingdom, Vice-chairman.

Since the bulk of the business before the Commission was conducted during meetings of the two Standing Committees, the more important items of the Agenda are treated in two groups: those referred to the Committee on Research and Statistics, and those referred to the Committee on Finance and Administration.

The Committee on Research and Statistics: Possibly the most important work of the Third Annual Meeting was done during four sessions of this Committee. In addition to Items 10 and 11 of the Agenda, which were referred to it at the first plenary session of the Commission, the Committee had before it a number of problems dealing with the collection of statistics and several miscellaneous items of a technical nature.

Item 10 - Report of the Special Committee on the Commission's Research Program. A report containing a draft research program was prepared and circulated to all Commissioners after the Copenhagen meeting of the Committee on September 26-27, 1952. This program was refined and supplemented during a meeting at New Haven on May 21-23, 1953, and submitted to the Commission for its consideration at the first plenary session of the Third Annual Meeting.

Briefly, the program designates cod, haddock, redfish (ocean perch), and halibut as the four species of most importance in the Convention Area and poses three fundamental questions with respect to these species which must be answered if the Commission is to achieve its objectives. The questions are:

a. What principal fish stocks are there, where, how divided, and how now used?

b. How do intensity and method of fishing affect the stocks and the long-term yield?

c. How are the stocks affected by natural factors?

The program then outlines the work to be done in answering these questions, specifying (1) essential records on all fisheries which must be collected by all countries, i.e. statistics on catch and effort, and samples of catch for analysis of length composition; (2) essential records to be obtained cooperatively, not necessarily by every country, i.e., data defining the stocks and their movements, data making possible the assessment of the sizes of stocks and rates of mortality and recruitment, and data making possible a determination of the effects of natural factors on abundance and distributions; and (3) contributory information to be obtained as opportunity permits, e.g., measures of basic productivity which will give the rate of production of the organic material on which fish ultimately depend. The program then describes how the work should be coordinated. It is contemplated that the work will be carried out by national research agencies in centers far removed one from another. If it is to be effective, with no duplication of effort, special provision must be made for pooling the varied knowledge and experience, for the coordination of the work, and for the development of sound, agreed conclusions and recommendations.

The program proposes four measures to accomplish this coordination, i.e., (1) the establishment of three working parties on cod and haddock, redfish (ocean perch) and halibut, and hydrography, respectively, to consist of active research workers and to be responsible to the Standing Committee on Research and Statistics; (2) provision of opportunity for working scientists to make visits to the research stations and ships of other countries to observe and practice techniques and develop ideas; (3) maintenance at Commission headquarters of an up-to-date register of scientists engaged in the various branches of the Commission's work; and (4) exchange, through the Executive Secretary, each December or as soon thereafter as possible, of programs for the ensuing year. The program also contains a schedule of field activities in the Convention Area, an inventory of the research facilities available for the Commission's work, and a list of scientists presently engaged in research in the Convention Area.

The Standing Committee on Research and Statistics considered this report at its second session on May 27 and agreed to transmit it without amendment to the Commission for approval. The Committee also recommended that the Commission approve the appointment by the Committee of three working parties, as suggested in the Comprehensive Research Program. At its second plenary session on May 27, the Commission approved both the Research Program and the supplementary recommendation of the Committee.

Item 11 - Report on Haddock Regulations in Subarea 5 including Revised Research Program and Proposals for Amendments to Mesh Regulations: At its Second Annual Meeting, the Commission adopted and transmitted to the Member Governments for their approval, a proposal for regulation of the haddock fishery in Subarea 5. Essentially, the proposal would prohibit the taking of haddock in Subarea 5 with trawling nets having an average mesh size less than 4½ inches when measured wet. The proposal was accepted by the Member Governments and entered into force on June 13, 1953. During the past year, Canadian and United States scientists have been testing the effect of the 4½-inch mesh and have, as a result of these tests, concluded that the proposal should be amended insofar as it specifies methods of measuring mesh size. The suggested amendment and a report on research in Subarea 5 to be conducted by the United States were considered by the Committee at its first session on May 25 and it was agreed to recommend adoption of the amendment to the Commission. At its second plenary session on May 27, the Commission adopted the amendment with a minor change in wording proposed by the United States. The amendment adopted by the Commission follows:

.....Delete Paragraph 1 of the Commission's proposal and substitute the following:

"That the Contracting Governments take appropriate action to prohibit the taking of haddock (Melanogrammus aeglefinus) in Sub-area 5 by persons under their jurisdiction with a trawl net having a mesh size less than four and one-half inches when measured wet after use, or having a mesh size when measured dry before use less than the equivalent of four and one-half inches wet measurement after use. For the purposes of this proposal, the four and one-half inch mesh size when measured wet after use shall be taken to be:

a. In the cod end of the net, the average of the measurements of each mesh in any series of fifty consecutive meshes running parallel to the long axis of the cod end and beginning at the after end of the cod end, such series to be at least ten meshes from the lacings and to be measured with a flat, wedge-shaped gauge having a taper of two inches in nine inches and a thickness of three thirty-seconds of an inch, inserted into the meshes under a pressure of not less than ten nor more than fifteen pounds, and;

b. In any part of the net other than the cod end, the average of the measurements of each mesh in any series of twenty consecutive meshes, such series to be at least ten meshes from the lacings and to be measured with a flat, wedge-shaped gauge having a taper of two inches in nine inch-

es and a thickness of three thirty-seconds of an inch, inserted into the meshes under a pressure of not less than ten nor more than fifteen pounds.

Consideration of Statistics: The Committee had before it several papers prepared by the Secretariat dealing with the collection of statistics from Contracting Governments. Generally speaking, these papers reviewed the several aspects of the system for the collection of statistics established at previous meetings of the Commission, pointed out deficiencies, and suggested means of improving the system. The Committee studied the recommendations of the Secretariat and adopted certain of them for transmittal to the Commission, deferring action on others to the future. At its second and third plenary sessions on May 27 and 29, the Commission accepted the recommendations of the Committee.

Publications: The Committee agreed to recommend to the Commission through the Committee on Finance and Administration, that the Commission's publications be established in two series, one a statistical bulletin and the other annual proceedings to contain the report of the Commission together with scientific papers specially prepared for the annual meeting.

The Committee on Finance and Administration: A number of items on the Agenda were referred to this Committee, but the most significant were:

Item 5 - Review of Panel Membership: The Committee was presented with a paper reviewing panel membership as accepted at the Second Annual Meeting and indicating the desires of France and Italy for membership on Panels I, II, III, and IV, and Portugal's desire for membership on Panels I, III, and IV. The Committee was informed verbally by the Commissioner from Portugal that his government desired membership on Panel II also. After reviewing these requests in accordance with Article IV, 2 of the Convention, the Committee agreed to recommend to the Commission that it approve Panel memberships as listed. The Commission accepted this recommendation at the third plenary session.

Publications: The Committee received a report from the Committee on Research and Statistics recommending that the Commission's publications be in two series and, after hearing the opinions of the Chairman of the latter Committee, agreed to recommend its acceptance to the Commission with the understanding that special papers might be separately published on the recommendation of the Chairman of the Committee on Research and Statistics and the Executive Secretary and the approval of the Commission. This recommendation was adopted by the Commission at its third plenary session.

The Panels: The International Convention for the Northwest Atlantic Fisheries provides for the establishment of Panels for each of the Subareas of the Convention Area, which Panels shall be responsible for keeping under review the fisheries of the Subareas and the scientific and other information relating thereto. Prior to the Third Annual Meeting, four Panels had been organized. France and Italy, having ratified the Convention during the past year, the fifth Panel, Panel II, was organized at the Third Annual Meeting. Each of the Panels met at least once during the current meeting. With the exception of Panel II, each heard reports on the status of the fisheries in its Subarea and explanations of the research to be conducted during the coming year. The meeting of Panel II was organizational only. In Panels IV and V alone did the condition of the fisheries warrant any action other than the coordination of research. Panel IV heard a report presented by Canadian scientists which indicated a decrease in the abundance of cod in the Subarea and a considerable destruction of small haddock at sea. Concerned with this evidence of depletion, the Panel appointed a committee of scientists, similar to that previously organized by Panel V, to maintain a close watch over these fisheries and report to the Panel at future meetings. Panel V considered and adopted for recommendation to the Commission the amendments to the haddock regulation proposed by the United States.

Election of Chairman and Vice-Chairman: At its final plenary session on May 30, the Commission elected Mr. Stewart Bates, Commissioner from Canada, Chairman to succeed Dr. J. L. Kask, and Commander Tavares de Almeida, Commissioner from Portugal, Vice-Chairman to succeed Mr. A. T. A. Dobson.

Recommendations of Committee on Research and Statistics Adopted by the Commission: Some of the more pertinent recommendations which the Commission adopted in accepting the Final Report of the Committee on Research and Statistics follow:

Statistics

1. That all Contracting Governments be requested to make those observations on the changes in weight of fish from the fresh round state to the various processed states which seem, in consultation with the Commission's Statistician, to be necessary to obtain accurate statistics.

2. That the Contracting Governments be requested to submit statistics in terms of fish in the state in which they are first weighed and to provide the Commission with the conversion factors necessary to calculate the fresh round weights.

3. That, in view of the usefulness of such information, the participating Governments report statistics of landings to the Commission according to commercial size categories already in use by the industry and report annually the definition of such categories of fish sizes.

4. That the participating Governments be requested to report in summary form information on the numbers of vessels of various types and sizes fishing in the Convention Area during each year and that, to provide the basis for classification of fishing vessels, each Government report the name, gross tonnage, horsepower, and type of fishing gear for each vessel fishing in the Convention Area in 1953....

6. That, in order to provide indices of relative abundance, the Commission Secretariat be requested to arrange for the collection of more refined fishing effort data for representative types of vessels and methods of fishing.

7. That the participating Governments be requested to compile their statistics of catches and fishing effort on a monthly basis....

Research Reports

1. That the present practice of obtaining summaries of research by countries for publication in the Annual Report be continued for the time being, but that there also be included in the Annual Report a brief summary of research by subareas, prepared by the Executive Secretary....

Sampling, Tagging, and Planning of Hydrographic and Biological Research

1. That the Commission approve of the instructions for sampling incorporated in the First Report of the Subcommittee on Cod and Haddock for the guidance of research personnel in this field.

2. That the Commission request participating Governments to take responsibility for the collection of tags taken by their fishermen, with information concerning the recaptures; for the payment of rewards for these tags; and for the exchange of full information concerning each tagging.

3. That the Commission instruct the Executive Secretary to prepare and distribute posters, in each language used by the member nations, with illustrations of the types of marks used, a statement concerning the purpose of tagging, a request for specific information about each recapture, and details of the reward.

4. That further research on cod in Subarea 1 proceed mainly on three lines: (a) the relation to temperature, (b) the identity of stocks, and (c) the correct measurement of mortality.

5. That the Commission approve the recommendations regarding redfish research set forth in the Report of the Subcommittee on Redfish and Halibut.

6. That the Commission adopt the draft program of hydrographic research drawn up by the Hydrographic Subcommittee at the Second Annual Meeting of the Commission as a satisfactory minimum for the present and request participating Governments to make available to the Commission, as soon as possible, the appropriate temperature salinity sections with brief reports on them.

7. That, since the Commission's hydrographic problems are not circumscribed by the Commission's area boundaries, consideration must be given in the Commission's research programs to the water movements (a) to the east of Greenland, (b) to the west of Ireland, and (c) through the Florida Straits.

8. That the European countries, and the United Kingdom in particular, be requested to undertake a section approximately from the southwest of Ireland to a position about 51° N. lat., 31° W. long., to a depth of 500 m. and in some stations to at least 1,000 m.

9. That during their travels members of the Secretariat be asked to discuss with the various countries how best to avoid unnecessary duplication of hydrographic effort.

Ratifications: The Executive Secretary announced ratification of the Convention since the Second Annual Meeting by Portugal on July 19, 1952, Italy on August 19, 1952, and France on January 27, 1953. All ten signatory Governments (Canada, Denmark, France, Iceland, Italy, Norway, Portugal, Spain, United Kingdom, United States) have now ratified the Convention and have become members of the Commission.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, JUNE 1953, PP. 42-43; APRIL 1953, P. 37.

NORTH EUROPEAN OVERFISHING COMMISSION

PERMANENT COMMISSION HOLDS FIRST MEETING: At the first meeting of the Permanent Commission of the Overfishing Convention held in London on May 5, 1953, delegates attended from all the signatory countries--Belgium, Denmark, France, Iceland, Irish Republic, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, and the United Kingdom. An observer from Western Germany was also present, a May 22 U. S. Embassy dispatch from London states.

The meeting lasted a week and the emphasis was largely upon organizational and financial arrangements whereby the Commission could be put upon a working basis. It was decided to establish the office of the Commission in London.

Among other matters considered during the meetings: rules of procedure were adopted; arrangements were approved for submitting a budget to the various governments concerned; agreement was reached on the need to collaborate with other international fisheries organizations; the scope of the Commission's field of work was discussed; some statements were put forward by several delegations dealing with various problems of conservation, and arrangements were made for the further study of the problems in consultation with the International Council for the Exploration of the Sea, in preparation for the next meeting of the Commission which is to be held in London next November.

The Icelandic-British dispute on Iceland's territorial waters was brought up. The British Minister of State when answering a question in the House of Commons on May 20, stated: "...Her Majesty's Government have themselves taken the initiative in raising in the Permanent Commission under the Overfishing Convention the question of conservation of fish stocks in the neighbourhood of Iceland. At the first meeting of the Commission early this month all member countries, including, of course, Iceland, agreed that the International Council for the Exploration of the Sea should be asked to study the fisheries in northern waters generally, including those in the neighbourhood of Iceland, and to give the Commission their advice. While this action does not bear directly upon the dispute, I hope, nonetheless, that it will prove a useful and helpful step in this unfortunate situation."

The next meeting of the Permanent Commission of the Overfishing Convention will take place in November.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, PP. 35-36.

FOOD AND AGRICULTURE ORGANIZATION

FISHERIES DEVELOPMENT PROBLEMS IN LATIN AMERICA: A review of the fisheries development problems in Latin America is included in a study prepared by the Food and Agriculture Organization of the United Nations at the request of the UN Economic Commission for Latin America. The review points out that Latin America as a whole has shown steady progress in the development of its fisheries since the end of World War II. A summary of the salient points of the report follows:

The report shows that certain limited areas of Chile, Brazil, Peru, Venezuela, and Mexico already have the nuclei of large fishery industries, including secondary processing industries like freezing and canning. In general, however, it states, the industry is still at an elementary stage of economic development where primitive techniques and small-scale production prevail.

The study, "Present Status and Prospectives of the Fishery Industry in Latin America," was prepared by Jorge d'Alarcao, an FAO fisheries economist. It is based largely on unpublished reports of FAO technical assistance experts working in the region and on the reports of the FAO Fisheries Regional Office for Latin America.

Statistical tables appended to the report represent an initial effort to correlate the data available in national publications in a simpler form for interpretation of the region's problem, FAO points out.

The report states: "Developing the fisheries industry to its full capacity is a process that calls for well-developed business management in handling and trade, and technological standards which only a highly developed economic structure can normally support." Per capita income has to be high enough to provide a consumers' market, and the economic structure has to be able to permit a higher labor productivity than is customarily found in underdeveloped countries.

As large-scale mechanization is very expensive, FAO experts feel that it should not take place in Latin America before mass demand has been secured. But sound policies of small-scale mechanization on the basis of existing types of craft and gear, particularly when combined with social and credit schemes for the benefit of small producers in the region, can result in a substantial rise in labor productivity.

Cooperatives have proved very effective in this respect in Brazil, Mexico, British Guiana, and certain Caribbean countries. The Brazilian law, for example, requires that fishermen belong to societies which must have a minimum of 150 members. These societies levy a 3-percent tax on the catch, out of which certain services are provided. These include education, medical care, and loans for financing the purchase of boats and gear.

Advanced methods of fish processing have comparatively minor importance in the economy of the industry, except in a few industrial centers in Chile, Mexico, Peru, and Venezuela.

A freezing industry has developed in Mexico and Peru largely because of a steady demand for shrimp, tuna, and tuna-like products in the United States market. But in Mexico, where almost all frozen shrimp is exported to the United States, the plants do not normally work at full capacity owing to lack of raw material; but the resources could be more intensively exploited. In Peru, where vessels with refrigeration facilities and shore freezing plants can freeze 460 metric tons and store 6,600 metric tons of fish a day, the domestic consumption is only about 200 metric tons a year. Total annual landings were 105,550 metric tons in 1951. Ten percent of this was frozen, mostly for export, well below the freezing capacity.

The author comments: "This situation illustrates how far the freezing industry still is from its main role of stabilizing the volume of supplies in the domestic fresh fish market with the result of increased demand for fish on the basis of a price structure much less sensitive to seasonal fluctuation than that of fresh fish."

Curing is the most important form of fish processing in Latin America, and sales of cured fish are second only to those of fresh fish on the domestic markets. However, in general, except in Argentina,

Chile, and Peru, the technological methods are primitive, and the product low in grade.

Canning is one of the most industrialized sectors of the fishing industry in the entire region, particularly in Argentina, Brazil, Chile, Mexico, Peru, and Venezuela where local products have been competing successfully with foreign products since the War. Mexico, Peru, and Venezuela have even succeeded in entering the international trade in canned fish products which before the War was monopolized by such traditional world suppliers as Norway, Portugal, Spain, Japan, and the United States.

However, effective production for canning in Peru in 1951 was less than 17 percent of the capacity of the present industrial setup. Swift establishment of such a capacity is an impressive achievement, but the author suggests that it needs to be backed up on a regional basis. Internationally-recognized quality standards for the product and the can must be established, and a cheaper and more reliable supply of tin plate must be found before possible domestic and foreign markets can be fully exploited.

Food production in Latin America has not kept up with population growth since the War, but the increase in fisheries production has been well ahead of the birth rate. The value of the increase is, however, lessened by the fact that it is so unevenly spread geographically. Chile, southern Brazil, Peru, Venezuela, and Mexico contribute more than 80 percent of the total landings in the region, while 15 other countries with analogous marine resources contribute less than 20 percent.

The findings of FAO's experts indicate: "Among the many factors which are hampering the growth of fisheries production in these underdeveloped areas, the limitations imposed by the peculiar economic and social structure predominate. Lack of reasonable marketing organization and an efficient transport system to handle perishable foodstuffs, high costs of distribution, and deficiency in purchasing power in the lower-income brackets of the population undoubtedly are the main reason for the low levels of productivity observed."

Governments and the fishery industries now realize that expanded domestic market outlets are needed for rational economic development of fisheries, and are taking steps to build up such outlets.

Annual per-capita consumption of fish for the region ranges from 0.1 kilogram (¼ pound) in British Honduras to 15.8 kilograms (35 pounds) in Venezuela, and most of this consumption takes place in the coastal areas and in the large urban centers near the coast. This is a very low per-capita consumption compared with that in fish-producing countries in Europe. It becomes lower when figures are broken down to show consumption of processed fish.

The author reports that this is "a very significant indication of the fact that the many possibilities observed in industrialized countries for diversifying and improving preserved fish products in order to attract consumer preference and raise the general level of consumption have so far remained unfulfilled in the region."

Such improvements as more hygienic handling and storage of fish on board, wider use of ice at sea and during transportation and retailing, and more attractive presentation of fishery products could eliminate most of the checks on consumer demand, although one very important check would still remain. That check is the high retail price. Better marketing and storage organization and the elimination of unproductive links between fishermen and consumers would help drive down prices and permit low-income groups to buy fish.

An illustration of the growth of the Latin American fisheries is provided by foreign trade statistics. The total value of exports for the region (21 countries) rose from approximately US$5 million in 1938 to US$55 million in 1950, an increase in nominal value of 1,000 percent. This figure, while representing only 0.8 percent of the total exports from the region, still exceeds that of many other primary and secondary industries, and is a definite contribution to the regional trade balance.

However, the study indicates that trade restrictions, particularly in the United States, have meant that post-1950 export figures are substantially lower, and prospects of any significant expansion of foreign markets are not very bright. The more industrialized countries--Mexico, Chile, and Peru, for example--built up industries with a capacity beyond that of their domestic markets in reply to steady foreign demand during the hungry postwar years. Investment rose from insignificant prewar levels to nearly US$40 million. As early as 1951 these countries had reached a very critical situation with regard to the disposal of their surpluses. Expansion of the domestic market seems to be the only rational approach to the problem of rescuing the industry from its present situation.

In spite of problems of local surpluses, the great need over the whole area, including those countries which have already developed productive nuclei of industrialized fisheries, is for increased supplies of cheap, good-quality fish for human consumption. The FAO Second World Food Survey, published in November 1952, says that a 26 percent increase in the gross supplies of fish over recent Latin American levels is necessary to meet immediate targets of improvements of nutritional standards in the region.

The spectacular expansion in a few centers in Brazil, Chile, Mexico, Peru, and Venezuela compares favorably with the highest rates of increase of production anywhere in the world. The author states: "This may indicate that, given the right social and industrial structure for a well-balanced fisheries development, the region has large possibilities for the economic exploitation of marine and inland resources which, although capable of yielding four or five times the actual production of the area, are at present largely unproductive."

The main economic causes of the low level of fish production in the region are (1) low productivity per fisherman, (2) defective techniques in marketing and transportation, (3) consumer preference for other foodstuffs, (4) the availability of other sources of food supplies competitive in price and nutritional value with fishery products and, (5) principally, the inadequate purchasing power of the lower-income groups of the population. Wartime food shortages at home and abroad provided incentives for the capital investment which led to large and successful industrial exploitation of fisheries

resources in a few areas of Latin America. There is still an incentive to much greater capital investment, by the governments, private sections of the economy, or by foreign investment in all 21 Latin American countries. That incentive is the large potential domestic market, which will become an active consumers' market with steady fish supplies at stable prices and, above all, with improvements in processing, transport, and sanitary distribution.

Australia

Australian Canned Fish Pack, 1951-52		
Species	1952	1951
	Lbs.	Lbs.
Australian salmon	3,608,452	2,839,721
Barracouta	2,430,543	3,110,453
Tuna	244,384	198,087
Whitebait	70,730	50,577
Other	600,619	312,618
Total	6,954,728	6,511,456

CANNED FISH PACK, 1952: Australian canned fish production in 1952 totaled 6,954,728 pounds, a 6.8 percent increase from the 1951 production of 6,511,456 pounds, reports the April 1953 Fisheries Newsletter, an Australian trade magazine. Australian salmon (Arripis trutta) was the leading species canned and comprised 52 percent of the total; followed by barracouta (Leionura atun), 35 percent.

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PROGRESS ON FISHERIES NEGOTIATIONS WITH JAPAN: The Australian Minister of Commerce and Agriculture on May 13 issued a statement on the progress of negotiations with Japan for an agreement on fisheries, a May 15 U. S. Consular dispatch from Canberra states. Excerpts of the statement follow:

"Negotiations which began in Canberra on April 13 with representatives of the Japanese Government have now reached a stage where broad agreement has been reached on the necessity for control and conservation of pearl-shell fisheries in waters adjacent to Australia. Detailed discussions are now proceeding on the methods by which such control and conservation should be carried out.

"Questions under discussion include sizes and quantities of products to be taken, the designation of closed or open seasons, the designation of prohibited areas, and the prohibition of specific catching methods or gear.

"...In view of the stage which discussions have now reached, and the assurance of the Japanese Government that the operations of the (pearl-shell) fleet will be managed in such a way as not to prejudice a successful conclusion to the negotiations now in progress, the Australian Government has not sought a further postponement."

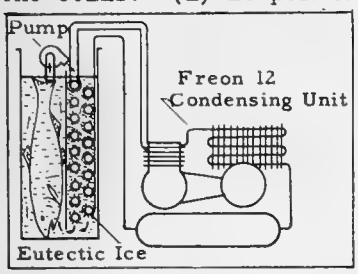
Canada

BRINE-FREEZING OF FISH AT SEA: Investigations of brine-freezing of fish at sea are being conducted at the Pacific Fisheries Experimental Station (of the Fisheries Research Board of Canada) at Vancouver, B. C., reports the April 1953 Trade News, a Canadian Department of Fisheries publication.

Brine freezing fish at sea has not previously been investigated in Canada, although it is the oldest known method of artificially freezing fish and is used to

a considerable extent in fish freezing. The aim of the present investigations is to find a method of applying brine freezing suitable for conditions on the British Columbia coast with regard to species, type of vessel, and the form in which the fish are marketed.

The work accomplished to date has been with the apparatus illustrated in figure 1. The brine used is an eutectic solution of sodium chloride (common salt)--one containing 23.3 percent sodium chloride by weight--which freezes at -6° F. to a homogeneous material (eutectic ice) without preliminary separation of either water ice (as from a weaker brine) or solid salt (as from a stronger brine). The operating sequence consists of first cooling the brine to its freezing point, then freezing a considerable quantity of eutectic ice onto the evaporator. The fish is then immersed in the brine and frozen. The circulating pump operates throughout and maintains the brine temperature at -6° F. except for a few minutes when the fish is first introduced. There are several reasons for freezing brine on the coils: (1) it permits cooling the brine to its freezing point, whereas in conventional brine coolers some margin of safety must be left to avoid freezing and plugging the heat exchanger; (2) it provides a reserve of refrigeration which prevents the rise of brine temperature when the fish is first introduced and gives up heat at a rate exceeding the capacity of the small condensing unit; and (3) it allows the condensing unit to operate in periods of no load or part load, providing refrigeration in the form of eutectic ice, for future use.



APPARATUS USED IN BRINE FREEZING FISH AT SEA EXPERIMENTS.

Considerable work has been done to examine the extent of salt penetration into the fish to determine if it is a serious detriment to brine freezing species likely to be frozen in British Columbia. Three possible adverse effects are: (1) acquirement of too salty a taste; (2) impairment of a glaze that may be applied after freezing; and (3) promotion of rancidity. Table 1 shows typical analyses for salt in different species of fish.

The variation in skin salt content recorded is probably due to the fact that the fish were all rinsed in fresh water immediately after freezing to remove adhering brine. However, it can be seen that the salt content of even the first layer under the skin is well below the generally accepted level for palatability, which is usually taken at 1 percent. Glazes on brine-frozen fish which had been rinsed after freezing appeared to be as good as those on air-frozen control samples. This is being examined further in storage tests since it has been reported to be a most serious drawback to brine freezing of fish. Possibly this belief was a result of the high storage temperatures prevalent in the days when brine freezing was commercially tried in the British Columbia coastal area. Storage tests are now being carried out on brine-frozen samples in an effort to determine if there is any acceleration in the effects of rancidity.

Table 1 - Typical Analyses for Salt in Brine-Frozen British Columbia Fish

Species	Salt Content			
	In Skin	First 1/8 in. Under Skin	Second 1/8 in. Under Skin	Central Portion
	.....	(Percentage of Total Weight)		.....
Spring salmon	1.29	0.15	0.15	0.15
Chum salmon .	6.29	0.27	0.28	0.28
Gray Cod	3.37	0.66	0.38	0.23

Attempts are being made to find if freezing at close to the eutectic-freezing point has an effect on reducing salt penetration beyond that reduction which can

be accounted for by the speed of freezing. A theory has been offered that if fish is immersed in a brine and the brine held at its freezing point, no salt penetration can occur since the removal of salt from the brine would reduce its concentration and hence raise its freezing point. This would in turn freeze the brine and stop the action. Freezing at the exact eutectic-freezing point cannot be accomplished, but it may be that freezing in close proximity to the eutectic-freezing point will retard salt penetration. Results of tests indicate this is true, but they are not as yet conclusive.

If brine freezing proves practical, it could provide a very compact and efficient freezing system for small craft. For example, a tank 16 by 30 by 36 inches operated by a 5-hp. condensing unit could freeze 100 pounds of fish per hour. Little structural alteration would be needed and the condensing unit would require few automatic controls and would operate with a minimum of attention.

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GOVERNMENT ADOPTS INSURANCE PLAN FOR FISHERMEN: A plan to assist fishermen against abnormal capital losses was agreed upon by the Canadian Parliament on May 14, reports a May 15 U. S. Embassy dispatch from Ottawa. An item covering this plan was approved in the expenditure estimates for the Canadian Department of Fisheries for the fiscal year beginning April 1, 1952. The item reads....

"To authorize and provide for the establishment of one or more special accounts in the consolidated revenue fund for the purposes of a plan to be known as the fishermen's indemnity and loan plan, to be administered in accordance with regulations of the governor in council, for the purpose of assisting fishermen to meet abnormal capital losses; and to authorize payment from the accounts in the current and subsequent fiscal years, in accordance with the regulations of indemnities, loans and administrative expenses, the accounts to be credited with all amounts received by way of premiums, recoveries and repayments, and with advances to the said accounts in accordance with the regulations, such advances not at any time to exceed, C$250,000."

The Minister of Fisheries stated that the protection scheme will cover the five Atlantic Provinces and British Columbia, but will not be extended to the Prairie fishermen for the first year. He stated further: "We propose to offer to the fisherman, by July 1 of this year, or as soon as the administrative details can be worked out, the opportunity to insure his boat and its fixed equipment--that is the engine--up to a maximum value of C$7,500 for a premium of one percent of the appraised value. In cases of total loss, there will be an indemnity of 60 percent of the appraised value. In cases of serious damage--damage of over 30 percent of the appraised value--there will be an indemnity of 85 percent of the amount by which the repair bills are in excess of the 30 percent minimum. We are having to include in this scheme the same deductible amount, to cover minor damage, as is common with automobile insurance."

In addition to this plan, the Canadian Government will also instigate a plan to insure lobster traps on an experimental basis. This will be the start of a far-reaching gear-insurance program if such a plan is found feasible. The Government proposes to offer to the lobster fishermen, commencing with the opening of the fall season on August 10 in the Northumberland Strait area, the opportunity of securing partial coverage for lobster traps at a premium of C$7.50 per 100 traps for the legal fishing season. The premium will be C$15.00 each for two seasons or a single season of six months. Some areas have only a single two-months' season, and will have a premium rate of C$7.50 per 100 traps. In areas with 2 two-months' seasons or a six-months' season, the premium will be C$15.00 per 100 traps.

The normal annual loss on lobster traps through wear and tear is about 25 percent. The fishermen will have to take responsibility for the first 25 percent loss and there will be an indemnity of C$1.50 for each trap lost in excess of 25 percent. For example, a fisherman with 200 traps will pay a premium of C$15.00 for the regular two-months' season, and he will receive C$1.50 for each trap lost in excess of 50, which would be his normal wear and tear on 200 traps for a short season.

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NEWFOUNDLAND FISHERY SUBSIDIES AND ASSISTANCE: The Province of Newfoundland this fiscal year will receive C$2,631,000 from Canada as fishery assistance money, a May 18 U. S. consular dispatch from St. John's reports. Of this sum, C$1,250,000 is a special grant for Newfoundland's "take-over" of the Island's bait services. The Premier stated that the operation of the Island's bait centers has resulted in an average loss of C$177,000 a year for the past 3 years. Newfoundland will also receive from Canada a supplementary C$1,000,000 for technical services to fishermen and the fisheries. In turn, Newfoundland will provide C$1,400,000 for the current fiscal year.

Also, the Newfoundland Assembly early in May voted C$40,000 to be paid to fishermen for equipment damaged by storms in the fall of 1952.

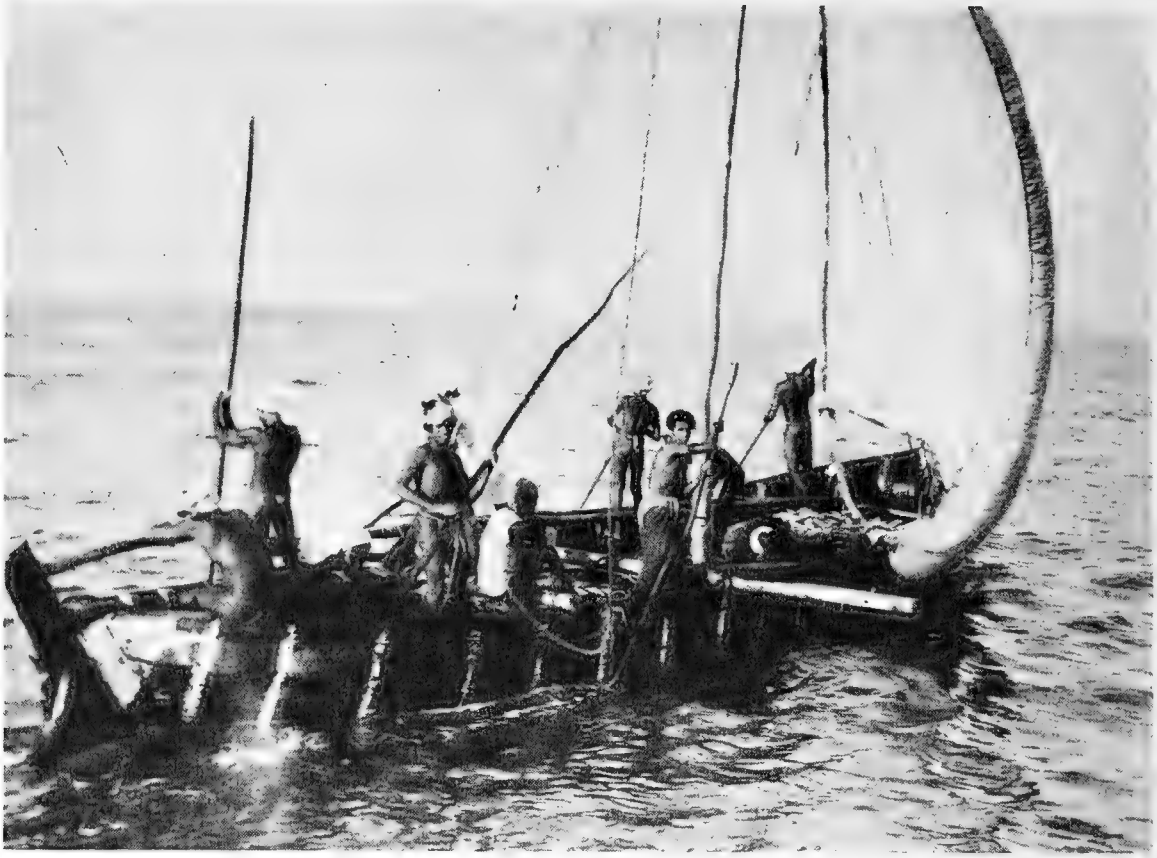
It is reported that C$50 million might be spent by the Federal and Provincial Governments in modernizing the Island's fisheries. The program has not been fully revealed. A St. John's newspaper (The Daily News) reports that the Provincial Government proposes to use the facilities of a large St. John's fishery firm in the evolution of its new policy.

NEWFOUNDLAND TAKES OVER BAIT DEPOTS: The Premier of Canada announced in April that the Province would take over all bait depots from the Federal Government, and these depots will be made centers for integrated fishing operations. It is believed there are 21 such depots in Newfoundland. A St. John's fishery firm will operate these centers and the bait service under a 20-year lease. They will supply facilities for fish driers, natural flakes, refrigeration, and processors of fresh and salted fish. Operations will expand progressively and will eventually result in a centralized fishery operating around mechanized plants, handling fresh, frozen, and salted fish.

Ceylon

CANADA TO SUPPLY FISHING TRAWLERS: Under the Colombo Plan, Canada will supply Ceylon with two 44-foot British Columbia-type trawlers and also will recondition for Ceylon a 145-foot trawler purchased in the United Kingdom. Canadians will train Ceylonese in the use of the vessels and gear, reports the February 1953 Indo-Pacific Fisheries Council Current Affairs Bulletin issued by the FAO Regional Office at Bangkok, Thailand. Specially designed for service in waters off the coast of Ceylon, the British Columbia vessels will be powered with 80-hp. Diesel engines and provided with equipment including fathometer, radio, and fishing gear.

Arrangements are also being made to supply Ceylon with a modern fish refrigeration plant with fish-freezing, fish- and ice-storage, and mechanical-drying facilities. A pilot fish-canning plant for experimental processing of different species and a mechanical salt-fish drier will also be provided.



CEYLONESE HAND-POWERED FISHING BOAT.

Colombia

IMPORT RESTRICTIONS LIFTED FROM CERTAIN FISHERY PRODUCTS: An additional list of fishery products have been exempted from Colombian import restrictions, states a May 7 U. S. Embassy dispatch from Bogota. Decree 988 of April 16, 1953, adds the following fishery products items to the list of imports permitted with export certificates under Decree 1830:

Tariff Item	Description
20	Fish: salted, dried, or smoked only. (May not be packed in tins, jars, crocks, or other hermetically sealed containers. Includes dried codfish.)
21[1/]	Crustaceans and molluscs, fresh, even though boiled or salted. a) Lobsters, spiny lobsters, sea or river crabs, shrimps and other crustaceans. b) Oysters, mussels, snails, and other molluscs.

1/WHERE SUBCLASSIFICATIONS ARE SPECIFIED ONLY THE SPECIFIC SUBCLASSIFICATIONS ARE INCLUDED WITHIN THE SCOPE OF THIS DECREE.

Tariff Item	Description
119	Caviar and other prepared or preserved fish eggs similar to caviar.
121	Crustaceans or molluscs, prepared or preserved, different from those included in Item 21. (Includes those prepared other than by simple salting or boiling and those in hermetically sealed containers.)

Egypt

UNITED STATES-EGYPTIAN TECHNICAL COOPERATION AGREEMENT INCLUDES FISHERIES PROGRAM: The governments of the United States and Egypt on May 21 signed an agreement for a cooperative technical program in Egypt in the fields of agriculture, forestry, and fisheries, reports a May 29 U. S. Embassy dispatch from Cairo. The program will be financed equally by both governments--the U. S. through June 30, 1953, will contribute US$769,000, plus funds to pay salaries and other expenses of the technical mission. The U. S. Technical Cooperation Administration will furnish a group of technicians and specialists to collaborate in carrying out the program. Funds needed for subsequent years to carry out the program from June 30, 1953, through December 31, 1960, will be determined or agreed upon later. This agreement was made under the General Agreement for Technical Cooperation signed by the two governments on May 5, 1951.

The objectives of this program are: (1) to facilitate the development of the economy of Egypt in the fields of agriculture, forestry, and fisheries through cooperative action on the part of the two governments; (2) to stimulate and increase the interchange between the two countries of knowledge, skills, and techniques in these fields; and (3) to promote and strengthen understanding and good will between the people of Egypt and the United States of America.

This cooperative program will include, to the extent that the parties from time to time agree upon in specific project agreements, activities of the following types: (1) studies of the needs of Egypt in the fields of agriculture, forestry, and fisheries and the resources available to meet such needs; (2) the formulation and continuous adaptation of a program to help meet such needs; and (3) the initiation and administration of activities in the fields of agriculture, forestry and fisheries, such as research and experimentation, and extension service to maximize adoption by the people of Egypt of the proven results of research and demonstration, the maximizing of production, and the best utilization of products; (4) related training activities both inside and outside Egypt; and other projects within the scope of the agreement.

In the field of fisheries this program may consist of projects which shall bring about the fuller exploitation of existing and the development of new marine and fresh-water fishery resources, propagation of fish, and improved utilization practices.

Iceland

STOCKFISH: A Reykjavik exporter of stockfish recently returned from a survey trip to West Africa, reports a May 15 U. S. Legation dispatch from Reykjavik. The exporter reported good marketing prospects for Icelandic stockfish in Nigeria with a possibility for developing a market in the Gold Coast, which now imports its stockfish from Portugal.

The 1952 production of stockfish in Iceland was 41,720 bales, or 1,857 metric tons, which was sold for 16.3 million Icelandic kronur (US$1 million).

TRAWLERS TO LAND AT BRITISH PORTS AGAIN: Representatives of the Union of Icelandic Trawler Owners visited London in May and signed an agreement with a British businessman covering the sale of iced fish. The resumption of fish landings by Icelandic trawlers at British ports is to begin in August, and the trips will be sold to this man at a fixed price not yet announced. The number of trawler catches to be purchased has not yet been agreed upon, but it was stated in the press that it was likely to be between 2 and 5 trips per week. Unconfirmed reports in the Danish press were quoted by an Icelandic paper to the effect that some of this fish will be re-exported to North America, India, and Africa.

Japan

NEW CANNED TUNA EXPORT PRICES: New and higher prices for Japanese canned tuna for export were recently announced by the Tokyo Canned Tuna Sales Company, the principal firm selling canned tuna to Japanese exporters for shipment to United States importers, reports a May 12 U. S. Embassy dispatch from Tokyo. The new prices as compared with Japanese Government check prices (floor prices) are listed in the following table.

Japanese Canned Tuna Export Prices to U. S. Importers

Product	Cans Per Case	Net Contents Per Can	New Prices 1/ In Brine	New Prices 1/ In Oil	Govt. Prices 2/ In Brine	Govt. Prices 2/ In Oil
			... (Price Per Case US$) ...			
Light-meat tuna (Skipjack of yellowfin):						
	48	3.5 oz.	5.35	5.45	3/	4.80
	48	7 oz.	8.60	8.70	3/	7.90
Fancy	48	13 oz.	15.70	15.90	3/	14.00
	12	4.4 lbs.	18.50	18.70	3/	15.80
Flake	48	7 oz.	6.90	7.00	6.90	7.00
White-meat tuna (Albacore):	48	3.5 oz.	5.70	5.80	3/	5.30
	48	7 oz.	9.60	9.70	3/	8.80
Fancy A	48	13 oz.	17.40	17.60	3/	15.60
	12	4.4 lbs.	20.40	20.60	3/	17.60
Flake	48	7 oz.	7.70	7.80	7.70	7.80

1/ F.O.B. JAPAN: 2-PERCENT COMMISSION FOR BROKERS INCLUDED.
2/ F.O.B. JAPAN.
3/ NO GOVERNMENT CHECK PRICES FOR BETTER GRADES CANNED IN BRINE. CHECK PRICES ON "FANCY A" AND "FANCY B" CANNED IN BRINE WERE ELIMINATED IN APRIL 1953.

The new prices represent an increase of 30 to 60 U. S. cents per case on some items as compared to the company's previous price. The decision to raise prices may have been influenced by increased competition between exporters and canners for the round tuna landed by the fishermen. Ex-vessel prices for round tuna have been gradually increasing for the past several months. United States packers have maintained a brisk demand for frozen tuna from Japan. Also according to some Japanese sources, United States importers of Japanese canned tuna have shown steady interest for some time.

During the Japanese 1952 fiscal year (April 1, 1952, to March 31, 1953), the Japanese Government limited exports to canned tuna to the United States to a quota of 1,120,000 cases. The Government has not yet announced its policy on the exportation of tuna (canned or frozen) for the fiscal year 1953.

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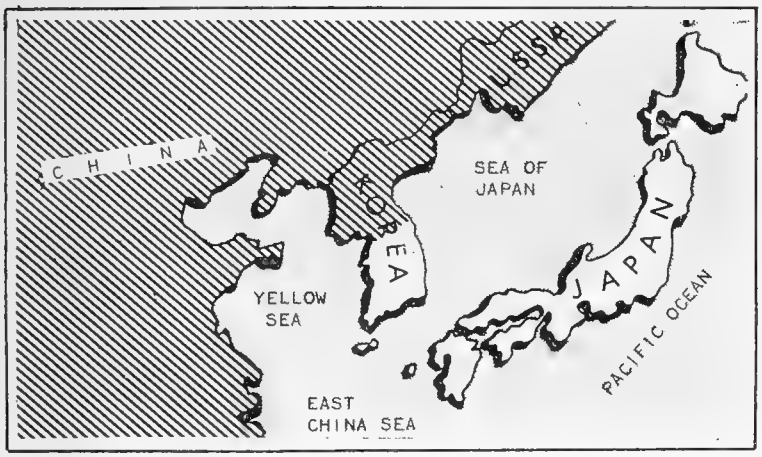
TUNA EXPORTERS COMPETE FOR RAW PRODUCT: Japanese exporters of canned tuna and exporters of frozen tuna are in keen competition for the purchase of tuna from the fishing vessels, an April 27 U. S. Embassy dispatch from Tokyo reveals. The canners are buying tuna at more ports; previously they bought tuna mostly at the main ports such as Yaizu and Misaki. Ex-vessel prices for albacore, the leading export item, averaged ¥480 per kan (16 U. S. cents per pound) in April as compared with ¥450 per kan (15 U. S. cents per pound) in January and February. The canners recently announced an increase in the price of canned tuna, f.o.b. Japan, claiming it was necessary to help offset the increased ex-vessel prices.



Yellowfin, the second leading tuna export item, is scarce with seasonal production depending on the mothership operations in equatorial waters that got under way in May. Some producers and exporters of frozen tuna are urging the Japanese Government to either set a separate quota for yellowfin or no quota at all. They point out that yellowfin tuna is produced only in the summer months. Under present demand for tuna, the yearly quota could be filled, or largely so, even before the yellowfin fleet lands its first fish in late summer.

In general, the Japanese tuna industry expects a continued brisk demand for frozen tuna and to a relatively lesser extent for canned tuna for United States buyers. Japanese producers will thus benefit from relatively high ex-vessel prices.

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CANNERS MEET: A convention of Japanese canners was held at Shimizu, the center of the canning industry, on May 8, according to a recent State Department report. Attendance included canners and bottlers of all types of products (fish, fruit, vegetables). Resolutions included:

(1) that efforts be made to attain an annual production goal of 15,000,000 cases of all products, of which 8,000,000 cases are intended for export and 7,000,000 cases for domestic consumption;

(2) that efforts be made to acquire tin plate for cans at a lower cost;

(3) that better coordination be achieved between production and sales activities;

(4) that study be made of the financial problems of the industry and means for their solution;

(5) that efforts be made to secure a reduction in the United States tariff on canned tuna;

(6) that import duties on materials for canning be abolished;

(7) that campaigns be undertaken to promote greater sales at home and abroad; and

(8) that the Food Sanitation Law be revised for more practical adaptability to the canning and bottling industry.

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MOTHERSHIP-TUNA EXPEDITIONS TO PACIFIC EQUATORIAL WATERS IN 1953: One of the largest Japanese fishing firms will send a mothership-tuna fleet to Pacific equatorial waters in the near future, a May 29 U. S. Embassy dispatch from Tokyo reports. This company has engaged in mothership-tuna expeditions each year since 1950.

Comparison of the proposed 1953 fleet with the same company's operations in 1952 is as follows:

Item	1953	1952
Mothership	1 - Tenyo Maru (11,224 gross tons)	Same vessel
Catcher boats	30 - (ranging from 60 to 240 gross tons--averaging 130 gross tons each)	29 (averaging 135 gross tons)
Carriers	2 - Banshu Maru No. 35 (1,000 gross tons), and Banshu Maru No. 37 (1,000 gross tons)	2 - Taiyo Maru No. 2 (499 gross tons) and Taiyo Maru No. 38
Period of Operation .	Estimated early June to mid-September	June 22 to August 25
Fishing grounds	Easterly of Solomon Islands	Same
Catch:	Estimated Lbs.	Actual Lbs.
Yellowfin tuna	-	6,514,084
Other tuna	-	862,774
Other fish	-	2,810,597
Total	12,400,000	10,187,455

A second large Japanese fishing company, which has also participated in previous operations, has not announced if it will operate a fleet in equatorial waters in 1953; one of its mothership-type vessels, Settsu Maru, was lost in Antarctic whaling last winter.

One other Japanese fleet is definitely scheduled to engage in mothership tuna fishing this summer. This fleet will be headed by the mothership Saipan, recently purchased from a U. S. firm. Operators will be a newly organized firm. Make up of the Saipan fleet is not yet fully known. It is expected to sail for the fishing grounds in July and will fish primarily for yellowfin tuna.

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U. S. FREEZERSHIP BOUGHT FOR TUNA MOTHERSHIP: The freezership Saipan, purchased by a Japanese firm in October 1952 from a United States firm, is expected to make three expeditions to southern waters as a tuna-fleet mothership, starting July 1. All of the yellowfin tuna taken in these operations are scheduled for delivery to the former owner in the United States, according to a Japanese news report (Nippon Suisan, June 4). The Saipan will carry six 10-ton catcher boats which are expected to make 81 trips and produce 1,300 metric tons of tuna. The three cruises will be completed by the spring of 1954.

The Japanese firm purchased the Saipan for US$430,000. The firm obtained US$210,000 in foreign exchange from the American Bank, US$170,000 from its own funds, and the US$50,000 balance with a 6-months' note.

Plans call for using the Saipan in the North Pacific salmon fishery in 1954.

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GOVERNMENT TO FINANCE TUNA VESSEL CONSTRUCTION: Plans for the financing of fishery development in 1953 by the Japanese Fisheries Agency and the Development Bank include the construction of 15 large tuna boats, reports the Japanese press (Nippon Suisan Shimbun, June 11). Included are 1 vessel in the 200-ton class, 8 in the 300-ton class, 1 in the 320-ton class, and 1 in the 350-ton class. The total cost will be US$3,257,000 of which US$1,548,600 will be sought from the Development Bank.

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FISHERIES COLLEGE USES DEEP-SEA TRAINING SHIP: The vessel Umitaka Maru (750 tons), attached to the Tokyo Fisheries College, sailed from Tokyo on June 6 for the first deep-sea training cruise in 14 years. The cruise will take 3 months, and 32 students of the College's Department of Fishing are aboard, according to the Japanese press (Nippon Suisan Shimbun, June 11).

The voyage will take in Bristol Bay and Dutch Harbor in the Aleutians for crab and salmon; and Hawaii, the Solomons, and New Guinea for tuna fishing. The students will train with Loran, radar, and sonic fish detectors.

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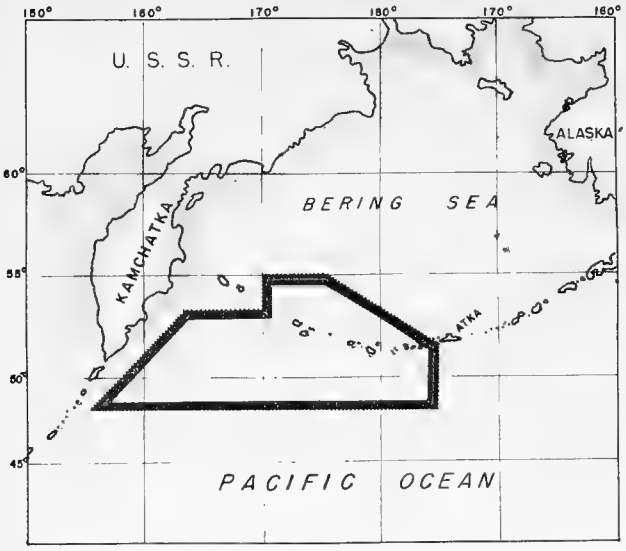
NORTH PACIFIC SALMON EXPEDITION PLANS FOR 1953: Plans for the Japanese North Pacific salmon expedition call for three fleets. The expedition includes 3 factory-

Catch Goal by Species for Japanese 1953 Salmon Expedition to the North Pacific

Fleet	Sockeye or Red Salmon	Chum (keta) Salmon	Pink Salmon	Total
	.....	(Number of Fish)	.....	
Tenyo	698,400	369,600	776,000	2,044,000
Meisei	662,400	625,600	736,000	2,024,000
Kaike	464,400	438,600	516,000	1,419,000
Total	1,825,200	1,633,800	2,028,000	5,487,000

ships (Kaiko Maru, Meisei Maru, and Tenyo Maru No. 3), 85 drift-net catchers of 50 to 70 gross tons each, and 13 attached carrier boats. In addition, 8 chartered fishing boats will be used by the Government for research purposes. These research ships will engage in exploratory fishing in addition to other assignments. The expedition was scheduled to sail on April 30, reports a U. S. Embassy dispatch from Tokyo. The expedition is expected to return to Japan in late August.



APPROXIMATE AREA (AREA ENCLOSED WITH DIAGONAL-LINED STIPPLING) OF OPERATIONS FOR PLANNED 1953 JAPANESE MOTHERSHIP-TYPE SALMON FISHING IN THE NORTH PACIFIC.

The catch target for 1953 is approximately 5,500,000 salmon, compared with a catch of 2,102,787 fish in 1952. An estimated 40,000 cases of canned salmon will be processed aboard the mothership Meisei Maru from its catch target of 2,024,000 fish, while the remainder of the catch will be frozen. While the number (three) of mothership is the same as in 1952, two are considerably larger. Only 50 catcher boats were used by the 1952 expedition.

Area of operations: (lat. 48° N. long. 156° E.), (lat. 48° N. longitudinal line passing the west point of Atka Island), (lat. 55° N. long. 175° E.), (lat. 55° N. long. 170° E.), (lat. 53°30' N. long. 170° E.), (lat. 53°30' N. long. 163° E.), and (lat. 48° N. long. 156° E.).

The position of the factoryships in their operations will be more than 50 miles from the above stated lines and the coast lines of islands lying within the fishing area.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, PP. 50-51.

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NORTH PACIFIC SALMON FLEETS REPORT GOOD CATCHES: The three Japanese North Pacific salmon fleets reached their destination (100 miles south of Kiska, 50°30' N., 178° E.) on May 10, reports the May 14 Nippon Suisan Shimbun, a Japanese trade journal.

Trial operations by the motherships Umisachi Maru and Tenyo Maru No. 3 the previous night had produced catch rates of 2.5 fish per shackle. The order was then passed to begin fishing, and by 7:00 a.m. on May 10 more than 100 vessels had their nets in the water. Hauling of the nets began on May 11, and catches were good. The highest take by any one boat was about 750 fish.

As of May 15 the three North Pacific salmon fleets were operating successfully in the vicinity of 50° N., 177° E., the May 21 Nippon Suisan Shimbun reported. The over-all average catch rate was 1.66 fish per shackle of gear, with signs that the catch rates were improving. One fleet, with 39 catcher boats operating, had taken a total of 36,599 salmon; the second fleet, with 36 catchers, had a total of 30,118 fish; and the catch of the third fleet with 27 boats, was 29,275 salmon. The first carrier of the year, the Taiyo Maru No. 18, left the fishing grounds for Tokyo on May 14 with 148,860 pounds of fish. The weather was reported to be worsening, with north winds and snow flurries.

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NORTH PACIFIC CRAB EXPEDITION REPORTS FISHING BELOW EXPECTATIONS: The first Japanese North Pacific crab fishing operation since World War II began fishing on April 20, reports the Nippon Suisan Shimbun of May 14, a Japanese trade journal. On May 5 the mothership Tokei Maru was at 55° N., 163° W. in the Bering Sea. A total of 277 trawl hauls had been made and 12,520 crabs were caught. Tangle nets set totaled 19,391 shackles, with 11,734 shackles hauled, for a total catch of 39,338 crabs. The pack was 2,528 cases of first-grade and 579 cases of third-grade crab meat.

The fishing grounds seem to have suffered a change since former times; results have not been up to expectations because over a wide area tanner crabs are preventing the increase of the king crabs. Despite all efforts, trawling success has been below expectations. The southern part of the fishing area, which formerly was good grounds, now gives catches of around 100 tanner crabs per shackle of net. The expedition reported that it was scouting for better grounds.

As of May 15 the mothership was at 56°23' N., 161°47' W., and had packed an additional 1,830 cases. A total of 30,097 crabs was taken with tangle nets and 2,486 by trawling, reports the May 21 Nippon Suisan Shimbun.

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NORTH PACIFIC WHALING EXPEDITION, 1953: The Japanese whaling expedition to the North Pacific departed Japan on May 10, states a May 19 U. S. Embassy dispatch from Tokyo. It will be the second such expedition in the postwar period; the first was in 1952. A comparison of the 1952 and 1953 expeditions follows:

	1953	1952
Fleet:		
Factoryships	(Baikal Maru, 4,744 gross tons)	1
Catcher boats	4	4
Carriers	13	8
Tankers	2	1
Period on whaling grounds	May 20-Sept. 30	July 20-Sept. 20
	Target	Actual
Catch:	(No.)	(No.)
Blue	70	55
Fin	420	213
Humpback	70	37
Sei	40	14
Total	600	319
	Estimate	Actual
Products:	..... (Metric Tons)	
Whale oil	4,091	2,313
Blubber and meat	8,898	5,118
Other	211	104
Total	13,200	7,535
Area of Operation	High seas north of lat. 46° N. in the North Pacific, including the Bering Sea.	Same as in 1953 Especially in vicinity of 53°30' N. lat., 158°0' E. long.

Operation of the expedition in 1953 will be jointly by the same two companies as in 1952.

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TRAWLER FLEET REDUCED TO CURTAIL COASTAL OVERFISHING: As part of the program to curtail overfishing in the coastal waters of Japan, the Japanese Fisheries Agency is continuing its effort to reduce the number of small and medium trawlers. The coastal waters account for approximately 85 percent of Japan's total annual fish production of about 4.5 million metric tons, reports an April 30 dispatch from the U. S. Embassy at Tokyo. This is a 5-year plan that commenced in November 1951, to reduce the fleet from 35,000 boats of 98,000 gross tons to 28,000 boats of 68,000 gross tons.

Boats already withdrawn from service have been sunk or converted to less-crowded fisheries, fish carriers, or common cargo transports. Owners of the fishing boats are compensated by the Japanese Government in accordance with a fixed formula. Financial assistance is extended to help these operators convert to other fisheries or activities.

Reductions to date have been: 233 boats in 1951 and 2,127 in 1952. The planned reduction in 1953 is for an additional 1,224 boats. This will bring the total reduction by the end of this year to 3,584 boats or 51 percent of the 7,000 boats to be withdrawn during the 5-year period.

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INTEREST IN NEGOTIATING INTERNATIONAL FISHERIES AGREEMENTS: Inasmuch as fisheries in overseas areas furnish a significant source of export income, there is considerable interest in negotiating international fisheries agreements, a May 22 U. S. Embassy report from Tokyo states.

The Tripartite Fisheries Treaty with Canada and the United States has been consummated. Attention now is being directed to negotiations with the Republic of Korea concerning the controversial issue of fishing grounds in the East China Sea; and with Australia with regard to pearl-shell fishing in the Arafura Sea, and tuna fishing in equatorial and South Pacific waters.

Favorable reception is being accorded requests from Southeast Asian countries for technical assistance in the development of their fisheries, on condition that mutually advantageous agreements can be concluded.

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SARDINE INDUSTRY, 1951-52 AND OUTLOOK FOR 1953: Canning: The production of canned sardines (seasoned) in Japan during 1951 amounted to 213,893 actual cases (see table), states a May 8 U. S. Embassy dispatch from Tokyo. The total 1951 sardine catch was about 1.5 billion pounds, of which 60 million pounds (or 4 percent) were used for canning. The total sardine catch in 1952 was about 1.4 billion pounds, but data on the amount used for canning are not yet available.

Japanese Canned Sardine Pack, 1951

Type of Can	Net Contents	No. of Cans to Case	Total Actual Cases
Seasoned:		No.	No.
No. 4	12-7/8 oz.	48	28,805
No. 6	6-1/6 oz.	96	40,192
Oval No. 1,	12-1/3 oz.	48	53,969
Oval No. 3,	5-5/6 oz.	96	53,088
Oval No. 3,	5-5/6 oz.	48	18,985
Other types and sizes	-	-	18,854
Total ..	-	-	213,893

The principal sardine-canning season is from October to March.

The production goal for canned sardines in 1953 planned by the Japanese Fisheries Agency is as follows: in tomato sauce 750,000; in oil 30,000; and seasoned 40,000; a total of 820,000 cases.

Meal and Oil: The Japanese meal and oil industry utilized 78.1 million pounds of sardines in 1951--5.3 percent of the total catch.

Exports: A total of 601,469 actual cases of canned sardines were exported from Japan in 1952--544,062 cases in tomato sauce and 57,407 cases natural and seasoned. Hong Kong was the largest receiver of Japanese sardines (135,290 cases), followed by Africa (129,592 cases), Singapore (123,586 cases), and Burma (107,024 cases). The oval No. 1 can, packed 48 to the carton, comprised 65 percent of the total sardine exports.

The latest price of canned sardines for a case of 48 No. 1 oval cans (12-1/3 oz. net weight) is US$8.50-9.00 per case, f.o.b. Japan.

No sardines were exported to the United States in 1952, but 100 cases were shipped to Hawaii. However, about 20,000 cases have been exported to the United States during the first four months of 1953.

The Japanese Ministry of International Trade and Industry is planning on canned sardine exports in 1953 of 700,000 actual cases--600,000 cases in tomato sauce and 100,000 cases of other style packs.

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PEARL-SHELL EXPEDITION SAILS FOR ARAFURA SEA: The postponed Japanese pearl-shell expedition to the Arafura Sea sailed from Kushimoto on May 14, reports a May 29 U. S. Embassy dispatch from Tokyo. Also on May 14, the Japanese Government announced publicly that the expedition had been authorized to depart Japan following a broad agreement with Australia on pearl fishing in waters adjacent to that country. Sailing was originally scheduled for early March, but held up by the Japanese Government during the fishery talks with Australia which began on April 13. The problem of pearl-shell fishing in 1953 was given special consideration. Japanese news items (Nippon Times and Mainichi, May 15), indicate the talks at Canberra have been centered mainly on "control and conservation of pearl fisheries." No definite agreement has been reported on other considerations, such as open or closed seasons, prohibited areas, or bans on certain methods or gear for pearl fishing.

Details on the Japanese expedition are as follows:

1 mothership, Ebisu Maru (196 gross tons)
1 carrier (not yet selected)
25 diver boats (45 to 80 gross tons)
2 patrol boats to supervise fishing; Taiyo Maru No. 5 (197 gross tons), Shinyo Maru No. 10 (145 gross tons)
Sailing date, May 14, 1953
Return date, December 23, 1953
Catch target, 1,250 metric tons
Fishing grounds "on the high seas" within the area bounded by the following coordinates:

125° E. longitude - 50° S. latitude
125° E. longitude - 13° S. latitude
137° E. longitude - 13° S. latitude
137° E. longitude - 5° S. latitude

Mexico

GUAYMAS SHRIMP FISHERY, APRIL 1953: The most interesting development in the shrimp industry at Guaymas in April was a new plan discussed by producers, U. S. importers, and the Mexican Government. This project would eventually have most of the Mexican west coast shrimp production handled through a single distributor in the United States, providing that such an operation would not violate United States anti-trust laws.

Most of the Guaymas shrimp-boat operators operating out of Salina Cruz, Oaxaca, have returned to Guaymas, and the boats will head northward. The catch was quite good for most operators at Salina Cruz, and is reported to have saved several from going out of business. The high price of shrimp in the United States aided these producers.

Another plan reportedly under discussion to assist the boat operators would have the U. S. importers advance 80 percent of the agreed price on landing of the catch, and the remaining 20 percent on delivery. However, of the remaining 20 percent, more than half would be absorbed by handling, freight, and distribution costs, so that the Mexican shrimp operators would only have to wait for 7 or 8 percent of the price.

Shrimp men are reported optimistic about the prospects of the coming season's fishing out of Guaymas. Fishing has been good in the estuaries this season, and based on past experience that means good fishing in open waters the following season, a May 5 U. S. consular dispatch from Guaymas reports.

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MAZATLAN SHRIMP FISHERY TRENDS, APRIL 1953: The Mazatlan shrimp industry was bolstered considerably during April by the discovery of shrimp beds close by, a May 10 U. S. consular dispatch from Mazatlan reports. Boats fishing near the Creston breakwater brought in from 3 to 4 metric tons on each trip. Shrimp is also reported to have appeared in fairly good quantities in the Altata and El Castillo Bays in northern Sinaloa. The shrimp from this area was the brown variety with a green vein. It sells for a lower price than the lighter colored shrimp.

Another factor which favorably influenced the industry was the recent U. S. price increase.

Mazatlan shrimp exports for March and April were as follows:

Month	1953 Lbs.	1952 Lbs.
April	680,933	291,766
March	454,198	550,491

Netherlands

WHALE-OIL PRODUCTION, 1953: The Netherlands' only 1953 Antarctic whaling expedition produced 16,965 tons of whale oil during the 74-day season which ended on March 16, compared with 15,500 tons in 64 days during 1952. The total output had been sold in advance to the Netherlands Government at Fl. 817 (US$215) per long ton, reports the May 23 Foreign Trade, a Canadian Department of Trade and Commerce publication.

New Zealand

SPINY-LOBSTER FISHING REGULATIONS CHANGED: The minimum size at which spiny lobster (crayfish) can be legally taken has been increased from 9 inches to 10 inches by the New Zealand Government's revised regulations, states the March 1953 Australian Fisheries Newsletter. In addition, the taking of female spiny lobster showing external eggs is prohibited; the practice of de-tailing spiny lobsters at sea and throwing the remainder overboard has been restricted to the more inaccessible grounds in the southern part of the South Island.

Because of the phenomenal increase in spiny-lobster fishing, the Minister of Marine stated that it was necessary to adopt measures which would insure that stocks would not be unduly depleted.

New Zealand exports of spiny lobsters (mostly tails) have increased from 263,760 pounds in 1947 to 1,837,584 pounds in 1951.

Nicaragua

GOVERNMENT SIGNS FISHERIES CONTRACT WITH U. S. FIRM: The Nicaraguan Government and a Chicago, Ill., fishery firm signed a 10-year fisheries contract allowing the U. S. firm to operate in Nicaragua's jurisdictional waters, a June 2 U. S. Embassy dispatch from Managua points out. The contract was published in the official gazette (La Gaceta) of May 28, and was the first contract of its kind to be so published. The contract was signed for Nicaragua by the Minister of Public Works and Development, but final decisions on fisheries concessions still must be rendered by the President of Nicaragua. The Minister stated that this contract can serve as a pattern for future parties interested in the fisheries in Nicaragua's jurisdictional waters.

Highlights of the contract, reflecting Nicaraguan policy on foreign private investment, are set forth in the following provisions:

(a) During the first six years of its ten-year contract, the U. S. company is authorized to import duty-free and exempt of customs surcharges, its trawlers, engines, machinery, replacement parts, tools, and miscellaneous equipment needed for the operation, on sea and land, in the country; no exemption is granted for payment of other taxes or levies.

(b) Paragraph II, Item (f) provides that in accordance with Article 14 of the Basic Foreign Exchange Law of November 9, 1950, the U. S. investor report to the Issue Department of the National Bank the amount of its foreign capital investment so that the bank can authorize remittances in the same currency and amount.

(c) The U. S. company is required to sell 5 percent of its production in Nicaragua at a price not to exceed 25 percent over production cost.

(d) Skilled workers brought to Nicaragua by the foreign investor must have political views that concord with those of nations with which Nicaragua enjoys friendly international relations.

(e) The U. S. company agrees to pay the government of Nicaragua US$25 per short ton (20 quintals) of shrimp, shellfish, or fish exported, payment to be made bimonthly. In return, the U. S. company is exempted from the foreign exchange regulation requiring the sale of its foreign exchange to the National Bank.

(f) Commercial arbitration is the means prescribed for the adjustment of trade differences. The U. S. company specifically is enjoined from recourse to diplomatic missions for settlement of any difficulties. The latter action constitutes grounds for cancellation of the concession.

(g) The contract may be transferred to any other person subject to approval by the Ministry of Public Works and Development, provided it is not a foreign government or an agency of such a government.

(h) Paragraph III, Item (g) states that a minimum of 75 percent of the workers employed by the company be Nicaraguan nationals, subject to exceptions set forth in the country's labor code. The 75-percent clause does not apply to managers, directors, superintendents, and technical employees.

Another U. S. concern of Ft. Meyer, Florida, is conducting some exploratory shrimp fishing on the Pacific Coast of Nicaragua. Although this firm is operating on the basis of a direct contract with the President, it is presumed that, should it desire to continue, a similar contract will be signed and published in La Gaceta.

Norway

COD FISHING OFF GREENLAND REPORTED GOOD: Preliminary reports from the 50-odd Norwegian vessels fishing off western Greenland indicate good catches of cod. The first catch was landed on April 29, about three weeks earlier than normal, the Norwegian Information Service reported in a May 21 bulletin. In view of reports of ice-free waters, the vessels left Norway a month earlier than usual.

A substantial number of the fishing vessels are for the first time equipped with dragging gear, while the Terten of Bergen features modern refrigeration facilities. On its first trip the Terten will try filleting ocean catfish (steinbit), which has found a ready market in the United States. If the experiment proves successful, other Norwegian fishing vessels are expected to follow suit.

The bulk of the fish caught off western Greenland is cod, which is salted in barrels. Smaller catches of halibut are frozen fresh and shipped to European ports in refrigerated transports. Many fishing vessels have special equipment for extracting cod-liver oil.

Under an agreement recently signed by Faroese, Danish, and Norwegian chandleries, fishermen of the three nations now have equal access to harbor and shore facilities in the Greenland port of Faringehavn. Well over half of the Norwegian vessels work under contract with the new company formed by the cooperating chandleries. Operation of the facilities in Faringehavn are jointly managed by a Faroese, a Dane, and a Norwegian.

The new company is planning substantial investments to develop facilities in the Greenland port. A refrigerated warehouse, now under construction, is expected to be finished this summer. Another project, due to be started in 1954, calls for construction of a much needed salt silo.

Panama

NEW BAIT-FISHING REGULATIONS PROPOSED: A projected decree to alter the Panamanian bait-fishing regulations has been announced, reports a June 11 U. S. Embassy dispatch from Panama. The new decree would provide for a 3-months' closed season from November 1 until February 1 of each year for bait fishing in place of the present 4-months' closed season, provided in Article 4 of Decree No. 30 of December 22, 1952. The projected decree would also reduce the fee for bait-fishing licenses from US$15 for each net ton of the vessel's weight to a fee of US$11 per ton. Also, the licenses would be valid for a period of one year from the date purchased instead of merely for the duration of the season in which purchased.

It was believed that the new decree would be issued by the Panamanian Government shortly.

Union of South Africa

SOUTH-WEST AFRICA'S EXPORTS OF FISHERY PRODUCTS, 1952: South-West Africa's exports of fishery products in 1952 amounted to 112,490,638 pounds, valued at £2,442,931 (US$6,840,208), reports a May 5 U. S. Consular dispatch from Cape Town (see table). This is an increase of 75 percent in quantity and 89 percent in value as compared with 1951 exports.

South-West Africa's Exports of Fishery Products, 1951 and 1952

Item	1952			1951		
	Quantity	Value		Quantity	Value	
	Lbs.	£	US$	Lbs.	£	US$
Fish, fresh	7,520,211	332,092	929,858	8,170,899	205,411	575,151
Fish, preserved .	8,945,070	776,397	2,173,912	6,375,864	372,529	1,043,081
Fish Meal	96,025,357	1,334,442	3,736,438	49,755,553	717,226	2,008,233
Total	112,490,638	2,442,931	6,840,208	64,302,316	1,295,166	3,626,465

Fish meal was the principal fishery item exported from South-West Africa and comprised 85 percent of the total. Compared with 1951, exports were up for fish meal by 93 percent and for preserved fish by 40 percent, but fresh fish exports were down 8 percent.

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FISH OIL AND MEAL OUTPUT SETS NEW RECORD IN 1952: A record output of 21,970 short tons of fish body oil was produced in the Union of South Africa and South-West Africa during the year ending September 30, 1952, reports the May 18 Foreign Crops and Markets, a U. S. Department of Agriculture publication. Production in 1951 totaled 17,420 tons, and 1950 output was 11,340 tons. Of the 1952 production, 13,290 tons were produced in the Union and 8,680 tons in South-West Africa. Production of fish oil in 1953 is expected to be at least as large as last year.

The supply of fish oil in 1952 exceeded local requirements and substantial quantities were exported. January-September 1952 fish-oil exports were approximately 5,870 tons, as compared with about 2,078 tons, mainly refined oil, in the corresponding period of 1951. The great bulk of the domestically-consumed fish oil was used in industrial oils for the paint and varnish industry, although some was refined for edible purposes. Stocks of fish oil on hand as of September 30, 1952, amounted to 1,240 tons.

Fish-meal production during the year ending September 30, 1952, reached a record 85,704 short tons, as compared with 60,000 tons in the previous year. Total fish-meal exports amounted to 50,024 tons, and 31,200 tons (or over 60 percent) was exported to the United States. Stocks on September 30, 1952, were about 3,780 tons.

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PILCHARD CATCH LIMIT ESTABLISHED: To prevent overfishing, the South African fishing industry has agreed to limit its annual catch of pilchards to 500,000 metric tons--250,000 tons for the Cape and 250,000 tons for Walvis Bay (South-West Africa), reports a May 5 U. S. consular dispatch from Cape Town. The pilchard fishing fleet (about 150 boats in St. Helena Bay and 100 boats in Walvis Bay) is to be limited to the number of boats operating or on order as of January 31, 1953.

The South Africa Division of Fisheries, which controls the industry, is anxious to avoid imposing quotas on factory production and is consequently increasing the present 2-month closed fishing season to 4 months--September 1 to December 31.

It is believed that the new restrictions will prevent further rapid expansion, but will not seriously affect the prosperity of the industry. The industry will now be able to concentrate on more efficient and economical catching and processing methods.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, MARCH 1953, P. 66.

United Kingdom

FISHING PORTS PLAN TO RESTRICT LANDINGS: The two main British fishing ports, Hull and Grimsby, are faced with what approaches a crisis due to financial losses from unsold heavy fish landings, a May 1 U. S. Embassy dispatch from London reports. Apparently consumers in Great Britain are not buying normal amounts of fish. A committee of the Humber Distant Waters Development Scheme has taken steps to introduce a system of "planned production" in an effort to balance the supply of fish with the demand. Landings would be restricted in a manner similar to the schemes of 1937 and 1938.

To avoid the glut which threatens during the coming summer (1953), when consumption of fish is at its lowest, the plan provides for a tie-up of 20 percent of the deep-water fleet during May and June; and those vessels which do fish will be limited to 70 percent of their capacity--30 percent of this to be salted. Many vessels are due to be laid up for their annual overhaul during the summer months so this is not as drastic as it may seem. To some extent German vessels have been replacing the Icelandic vessels with 7 or 8 trips a week at Grimsby--Hull has banned such landings. Under the plan these landings are to be restricted to three trips a week at Grimsby.

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BUSINESSMAN GETS EXCLUSIVE CONCESSION FOR LANDINGS OF ICELANDIC TRAWLERS IN BRITAIN: An agreement, signed in London on May 10, gives a British businessman an exclusive concession for a number of years to handle the catches of Icelandic trawlers landing in Britain, reports The Fishing News of May 16, a British trade magazine. Signing for Iceland were the president of the Icelandic Trawler Owners' Federation, the Icelandic Vice-Consul at Grimsby, and the Federation's Grimsby representative.

The British businessman revealed that he hoped to bring 5 Icelandic trawlers each week into Grimsby (the main base) and Liverpool. Each trip will have about 200 to 300 metric tons of fish, making a weekly total of about 1,200 to 1,500 metric tons. "We are starting at the end of August," he said. He hoped to provide Icelandic fish--at the cheapest possible prices, "much lower than those prevailing." "I am now trying to fix the marketing arrangements. This is the first time that one man has contracted to buy up the entire exportable catch of the Icelandic fishermen."

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WHITE FISH SUBSIDY EXTENDED: The subsidy (due to end on March 31) to vessels fishing for white fish in the inshore, near, and middle waters was extended to July 31, 1953, reports the April 11 issue of The Fishing News, a British trade periodical. As before, the subsidy was not payable to vessels of 140 feet and over.

There was no change in the rates or conditions of payment for trips by vessels between 70 and 140 feet in length, but in addition, a flat-rate payment was to be made on all landings for human consumption from trips entirely within near and middle waters by these vessels. The rate: 4d. per stone (US$0.33 per hundredweigh) for white fish sold otherwise than by retail; 3d. per stone (US$0.25 per hundredweight) for most varieties if landed round. No flat rate was to be paid for fish sold other than for human consumption.

The rates to inshore boats less than 70 feet remained at 10d. per stone (US$0.83 per hundredweight) for white fish sold other than by retail; 8d. per stone (US$0.67 per hundredweight) for most varieties if landed round.

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WHITE FISH AUTHORITY TO REDUCE EX-VESSEL FISH TAX: A reduction in the general levy on ex-vessel sales of white fish from ½d. to ¼d. per stone (from 4 to 2 U. S. cents per hundredweight) was announced recently by the White Fish Authority. The reduction will probably go into effect about June 1, reports the April 11 issue of The Fishing News, a British trade magazine.

The Authority reviewed the levy arrangements at the close of the 1952/53 financial year. One of the objectives during the 16 months since the levy came into force was to create an adequate financial reserve. The authority now estimates that after providing for increased expenditures, mainly on publicity, experiments, and research, and despite the proposed reduction in the rate of levy, its finances will meet its short-term requirements. Loans and other capital expenditures are financed by other means. The Authority emphasizes however, that plans for reorganization and development of the industry may require the reintroduction of a higher rate of levy at some future date.

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FISH CANNERIES FACE CRISIS: The British fish-canning industry is facing a crisis which is attributed to the Government's efforts to clean out its stocks of foreign-canned fish, and the temporary loss of the Australian and New Zealand export markets. The manager of a fish-canning firm claims that because the Ministry of Food flooded the market with foreign-canned fish at half price, it was impossible to compete, reports the April 11 issue of The Fishing News, a British fishery magazine. Canneries at Dundee, Fraserburgh, and Looe, have been forced to release most of their workers.

Importation of South African pilchards and competition from canned herring thrown on the British market because of overseas restrictions are blamed for a falling-off in the demand for Cornish pilchards. Owing to the slump, thousands of cans of pilchards have piled up at the Looe plant.

The price paid to the fishermen for pilchards fell from 4s. to 2s. per stone (from 4 to 2 U. S. cents per pound). Even at the lower price no more fish were wanted, and many fishermen have stopped fishing.

The Looe Fishermen's Protection Association has drawn up a petition calling attention to the serious position of the pilchard industry, which is in the throes of its worst depression for years. Copies of the petition have been sent to St. Ives, Newlyn, Porthleven, Par, Mevagissey, Polperro, and Plymouth with a request that they should be signed by the fishermen of these ports and returned to Looe for submission to Government departments.

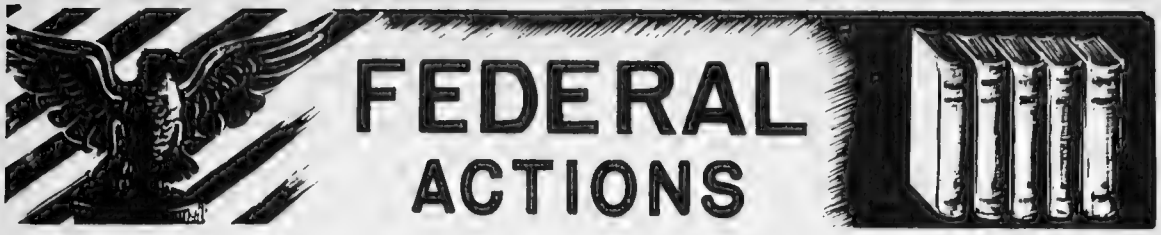
The Cornwall Sea Fisheries Committee is seeking either a guaranteed market for home-canned pilchards or a restriction in imports, especially from South Africa. "Although the present plight of the fishermen is bad," said the committee's clerk, "their future prospects are even worse unless something can be done at the highest level to insure that on the domestic market canned Cornish pilchards shall be given priority over imported canned fish."

BRITISH TRAWLER ALMOST SETS NEW TIME RECORD

The British trawler St. Leonard recently approached the all-time record for a fishing trip from the port of Fleetwood (England) to the Icelandic fishing grounds and back, some 1,400 miles. The trawler completed the trip in 10 days, 4 hours--shorter by 2 or 3 days than a normal fishing trip to that area. The St. Leonard landed at Fleetwood the last week in May with a total catch of 9,000 stones (126,000 pounds) of cod and haddock valued at £2,250 (US$6,300) ex-vessel.

The all-time record was established a year earlier by the Fleetwood trawler Woolton. In July 1952 the Woolton made a fishing trip to grounds off Iceland under 10 days. The catch landed totaled 12,000 stones (168,000 pounds), valued at £5,004 (US$14,000) ex-vessel. However, there are those who contend that "in the good old days this record was beaten," too.

--The Fishing News,
May 30, 1953, and June 6, 1953



Department of the Interior

FISH AND WILDLIFE SERVICE

NOTICE OF INTENTION TO ADOPT AMENDMENTS TO ALASKA COMMERCIAL FISHERIES REGULATIONS: The Secretary of the Interior gave notice in the Federal Register of June 18 that he intends to adopt amended regulations permitting and governing the time, means, and methods for the taking of commercial fish in the waters of Alaska, and related matters.

The regulations are to be effective beginning about February 1, 1954, and to continue in effect thereafter until further notice.

Interested persons are hereby given an opportunity to participate in considering changes in the regulations by submitting their views, data, or arguments in writing to the Director of the Fish and Wildlife Service, Department of the Interior, Washington 25, D. C., on or before November 20, 1953, or by presenting their views at a series of open discussions scheduled to be held as follows:

Alaska:
- Dillingham - August 1
- Kodiak - September 18
- Anchorage - September 21
- Cordova - September 23
- Ketchikan - October 12

Alaska (Contd.):
- Wrangell - October 14
- Petersburg - October 15
- Sitka - October 19
- Juneau - October 21

Seattle, Wash. - November 4, 5, and 6

The hour and place of each meeting will be announced by the local representative of the Fish and Wildlife Service at the places indicated above.

Mutual Security Agency

GREECE AUTHORIZED TO PURCHASE CANNED FISH: Greece has been authorized by the Mutual Security Agency to spend $400,000 for the purchase of canned sardines, herring, pilchards, mackerel, and/or squid; packed natural style. Greece is authorized to make this MSA-financed purchase in the United States and Possessions, a June 17 news release from that Agency reports. The contract period covering these purchases is from June 15, 1953, to October 31, 1953. The terminal delivery date is December 31, 1953.

* * * * *

THAILAND AUTHORIZED TO PURCHASE FISH CARRIERS: Thailand has been authorized by the Mutual Security Agency to spend $19,000 for the purchase of fish carriers for a fisheries project. Thailand is authorized to make this MSA-financed purchase in the United States and Possessions, a June 23 news release from that Agen-

cy reports. Procurement will be carried out through another U. S. Government agency. Firms wishing to receive further details should write to the Office of Small Business, Mutual Security Agency, 806 Connecticut Ave., NW., Washington 25, D. C.

Eighty-Third Congress (First Session)

JUNE 1953

Listed below are public bills and resolutions introduced and referred to committees or passed by the Eighty-Third Congress (First Session) and signed by the President that directly or indirectly affect the fisheries and allied industries. Public bills and resolutions are shown in this section only when introduced and, if passed, when signed by the President; but also shown are the more pertinent reports, hearings, or chamber actions on some of the bills shown in this section from month to month.

BILLS INTRODUCED:

Distribution of Fishery Products: H. R. 5829 (Bates) - A bill to further encourage the distribution of fishery products, and for other purposes; to the Committee on Merchant Marine and Fisheries. This bill provides that from funds available to the Secretary of Agriculture to carry out the provisions of section 32 of the Act of August 24, 1935, 49 Stat. 774, as amended, $1,000,000 a year shall be transferred to the Secretary of the Interior. Of this, $750,000 shall be used to promote the free flow of domestically-produced fishery products in commerce by conducting a fishery educational service and fishery technological and related research programs; and $250,000 to develop and increase markets for domestic fishery products. Similar to S. 1731 (Saltonstall).

Food and Drug Factory Inspection Authority: H. R. 5740 (Wolverton) - A bill to amend the Federal Food, Drug, and Cosmetic Act, so as to protect the public health and welfare by providing certain authority for factory inspection, and for other purposes; to the Committee on Interstate Commerce.

Labeling of Foreign-Produced Trout: S. 2033 (Dworshak) - A bill relating to the labeling of packages containing foreign-produced trout sold in the United States, and requiring certain information to appear on the menus of public eating places serving such trout; to the Committee on Interstate and Foreign Commerce. This bill defines the species covered as including all species of trout, except Salvelinus namaycush (lake trout), belonging to the following genera: Salmo, Salvelinus, Cristivomer, Hucho, and Brachymystax.

Social Security Coverage for all Fishermen: H. R. 5480 (Mack) - A bill to extend coverage under the Federal old-age and survivors insurance system to employees performing services in the catching, taking, harvesting, cultivating, or farming of any kind of fish, shellfish, or other aquatic forms of animal or vegetable life; to the Committee on Ways and Means. Expand coverage to include fishermen not included under present Social Security regulations.

Trade Agreement Authority: S. 2138 (Kefauver for himself and 10 other Senators) - A bill to extend the authority of the President under section 350 of the Tariff Act of 1930, as amended, to repeal certain provisions of the Trade Agreements Extension Act of 1951, and for other purposes; to the Committee on Finance.

Also H. R. 5495 (Simpson)....(Same as S. 2138.)

Trade Agreement Extension Act: H. R. 5496 (Simpson of Penn.) - A bill to amend the Trade Agreements Extension Act of 1951 and certain other provisions of law to provide adequate protection for American workers, miners, farmers, and producers; to the Committee on Ways and Means.

Also H. R. 5894 (Simpson of Penn.)....(Same as H. R. 5496.)

Water Pollution Control: H. R. 5623 (Radwan) - A bill to amend the Water Pollution Control Act, so as to confer authority upon the Surgeon General to assist in the elimination, control, and abatement of pollution in certain international waters; to the Committee on Public Works.

BILLS REPORTED:

Alaska Statehood: H. R. 2982 was reported to the House by the Committee on Interior and Insular Affairs. Bill provides for the admission of Alaska into the Union, amended (H. Rept. No. 675).

Collisions at Sea: Senate Committee on Interstate and Foreign Commerce ordered favorably reported H. R. 2456, making certain technical changes in Rules and Regulations for the Prevention of Collisions at Sea.

Continental Shelf Submerged Lands: Committee on Interior and Insular Affairs reported to the Senate S. 1901 to provide for the jurisdiction of the United States over the submerged lands of the outer Continental Shelf, and to authorize the Secretary of the Interior to lease such lands for certain purposes; with amendments (S. Rept. No. 411).

Defense Production Act: House Committee on Banking and Currency on June 6 reported S. 1081 with amendment to the Committee on the Whole House on the State of the Union (H. Rept. No. 516). Bill provides authority for temporary economic controls. The measure was ordered reported with amendment as follows: Strike out all of the Senate bill after the enacting clause and substitute the House amendment. The amendment in effect eliminates the wage, price, and services freeze provisions, as well as all credit control provisions passed by the Senate; approved section 104 (fats and oils control provisions) as contained in the 1952 act; extends for 1 year instead of 2. Other minor amendments were made for clarification and to make the act as a whole conform with the changes made.

Interior Department Appropriations: Senate Committee on Appropriations in executive session completed the markup of H. R. 4828, Interior appropriations for 1954, and ordered the bill favorably reported to the Senate with amendments (S. Rept. No. 445).

Labeling of Foreign-Produced Trout: Senate Committee on Interstate and Foreign Commerce favorably reported without amendment S. 2033, relating to the labeling of foreign-produced trout sold in the U. S. (S. Rept. No. 395).

Trade-Agreements Authority: The House Committee on Ways and Means ordered reported to the full House, H. R. 5495, extending the trade agreements program for an additional year and establishing a study commission as requested by the President (H. Rept. No. 521).

The Committee on Finance favorably reported to the Senate with amendments H. R. 5495, to extend the authority of the President to enter into trade agreements under section 350 of the Tariff Act of 1932 (S. Rept. No. 472).

BILLS PASSED:

Collisions at Sea: H. R. 2456, making certain technical changes in Rules and Regulations for the Prevention of Collisions at Sea, was passed without amendment by the Senate and cleared for the President.

Continental Shelf: Senate passed, with amendment, H. R. 5134, to provide for the jurisdiction of the U. S. over the submerged lands of the outer Continental Shelf, which was first amended by substituting for the text therof the language of S. 1901, a similar bill, on which some of the actions taken on amendments were: Adopted: Long amendment respecting submission to Congress each fiscal year of report on moneys received and expended in administration of this act; Daniel amendment authorizing Secretary of Interior to utilize State conservation facilities available to him in administration of act; and Long amendment of a technical clarifying nature; Rejected: Ellender amendment permitting States adjacent to Contintental Shelf to extend their jurisdiction and laws to the seabed of the shelf and to artificial islands and fixed structures thereon; on division, Long amendment giving congressional consent to any coastal State to extend its seaward boundaries to end of Continental Shelf; and Long amendment providing for reimbursement to States of expense of services furnished to persons engaged in operations connected with development of Continental Shelf. Clarifying sentence in bill states: "this Act shall be construed in such manner that the character as high seas of the water above the Outer Continental Shelf and the right to navigation and fishing therein shall not be affected." Senate requested conference on the bill and appointed conferees.

Defense Production Act: The House passed by a voice vote S. 1081, to provide authority for temporary economic controls, after adopting a committee substitute amendment that supplied new text for the Senate-passed provisions. The committee amendment provides for a 1-year extension of the allocation and priorities provisions of title I and the production expansion and procurement provisions of title III of the Defense Production Act of 1950. No authority is included for the 90-day standby wage, price, and rent freeze. Adopted amendments to the committee amendment designed to--prevent extension of section 104 of title I relating to the authority for exercise of import controls; to insure equal treatment of industries in the allocation of materials; supply a new definition of "national defense" as regards priorities and allocations. Also adopted an amendment relative to disclosure of information by the Office of Price Stabilization. The committee substitute amendment deleted provisions dealing with Small Defense Plants Administration; and an amendment was adopted providing for the insertion of the text of H. R. 5141 (Small Business Administration) as passed by the House on June 5. Rejected amendments that sought to--enlarge the functions of the Joint Committee on Defense Production. Restored title VIII of the Senate bill dealing with temporary price, wage, and rent ceilings.

House adopted the conference report on S. 1081 Defense Production Act amendments of 1953, and sent the measure to the Senate. The conference report on the differences between the House- and Senate-passed versions of S. 1081 was filed on June 17. Agreements reached by the conferees are as follows: (1) adopted House declaration of policy (title I, sec. 2), and the House title; (2) adopted House amendments to eliminate from the bill titles VI (consumer and real-estate credit), and VIII (90-day freeze provisions); (3) adopted Senate definition of national defense; (4) adopted House provisions providing for establishment of an Independent Small Business Administration (SDPA to expire June 30, 1953); (5) accepted Senate provision to extend the bill for 2 years; and (6) approved House provisions stipulating that confidential information received by the OPS may not be disclosed except to the Justice Department, to Congress, or other agencies designated by the President.

By 42 yeas to 47 nays, Senate rejected conference report on S. 1081. Defense Production Act amendments of 1953, following which Senate asked for a new conference and instructed its conferees to strike out title II of the bill, as amended by the House, comprising the Small Business Act of 1953, and to substitute therefor provisions in the original Senate bill providing for a Small Defense Plants Administration.

Both House and Senate adopted conference report on S. 1081, Defense Production Act amendments of 1953, clearing this bill for the President.

Interior Appropriations: Senate passed, with amendments, H. R. 4848, Interior appropriations for 1953 (includes funds for the Fish and Wildlife Service). Amendments include Dirksen-Potter amendment providing additional $200,000 to Fish and Wildlife Service for eradication of sea lampreys in Great Lakes area.

Labeling of Foreign-Produced Trout: S. 2033, relating to the labeling of foreign-produced trout sold in the U. S., was passed without amendment by the Senate and cleared for the House.

Trade Agreement Authority: House passed, by a rollcall vote of 363 yeas to 35 nays, H. R. 5495, to extend the authority of the President to enter into trade agreements under section 350 of the Tariff Act of 1930. This bill seeks to—extend for 1 year to June 12, 1954, the authority of the President to enter into reciprocal trade agreements; reduce from 1 year to 9 months the period within which the Tariff Commission must make its investigation and report on applications for relief under the escape clause; increase the membership of the U. S. Tariff Commission from 6 to 7; establish a Commission on Foreign Economic Policy which will provide for a thorough examination of our foreign economic policy.

BILL SIGNED BY THE PRESIDENT:

Collisions at Sea: H. R. 2456, making certain technical changes in Rules and Regulations for the Prevention of Collisions at Sea. Signed June 26, 1953 (P. L. 82).

COMMITTEE MEETINGS:

Defense Production Act: Joint Committee conferees agreed to file a conference report on the differences between the Senate- and House-passed versions of S. 1081, Defense Production Act amendments of 1953. Results of the conferees' actions are as follows: (1) Accepted the House provisions to extend for 2 years, until June 30, 1955, title I (allocation and priorities), title III (expansion of productive capacity and supply), and necessary sections of title VII (so-called housekeeping provisions) of the Defense Production Act; and (2) Extended until July 31, 1953, section 714 of the Defense Production Act (continuation of the Small Defense Plants Administration), so that during the month of July further consideration may be given to H. R. 5141 (and other similar bills now pending before the Senate Banking Committee) to create a Small Business Administration.

CONGRESSIONAL REPORTS:

Committee reports on bills reported in this section of interest to the fishery and allied industries available only from the committee submitting the report.

Authorizing the President to Proclaim Regulations for Preventing Collisions at Sea, Senate Report No. 385 (June 10, 1953, 83d Congress, 1st Session), 2 p., printed. The Committee on Interstate and Foreign Commerce reported favorably on H. R. 2456, without amendment, and recommended passage of the bill. The bill provides for slight technical changes in Rules and Regulations for the Prevention of Collisions at Sea. Committee adopted House Rept. No. 357 on this same bill. Report indicates changes in existing law.

Defense Production Act Amendments of 1953, House Report No. 516 (June 6, 1953, 83d Congress, 1st Session), 29 p., printed. This is a report from the Committee on Banking and Currency to accompany S. 1081, to provide authority for temporary economic controls, and for other purposes, with an amendment. Committee recommended passage of the bill as amended. The report discusses the provisions of the Senate bill and the Committee amendment; background of the legislation; priorities and allocations; import controls; expansion of production capacity and supply; the general provisions of Title VII (administrative provisions necessary to carry into effect the substantive provisions provided in the other titles of the act) of the act; authority to requisition and condemn; credit controls; and standby economic freeze controls. A section-by-section analysis of the bill as amended, the changes in existing law and minority views are also included.

Interior Department Appropriation Bill, 1954, Senate Report No. 445 (June 18, 1953, 83d Congress, 1st Session), 39 p., printed. This is a report from the Committee on Appropriations, making appropriations for the Department of the Interior for the fiscal year ending June 30, 1954, and for other purposes, with amendments. As reported, the bill would provide for a total of $451,256,940, an increase over the House-passed figure of $406,130,343. Included in this total is $4,260,000 for the Fish and Wildlife Service's Investigation of Resources (including the Branch of Commercial Fisheries)—an increase over the House-passed figure of $3,000,000.

Labeling of Foreign-Produced Trout, Senate Report No. 395 (June 11, 1953, 83d Congress, 1st Session), 5 p., printed, to accompany S. 2033, relating to the labeling of packages containing foreign-produced trout sold in the United States, and requiring certain information to appear on the menus of public eating places serving such trout. Committee on Interstate and Foreign Commerce reported the bill to the Senate without amendment and recommended passage. The report discusses the purpose and need for the legislation, and contains a section-by-section analysis. The bill includes all species of trout belonging to the following genera: Salmo, Salvelinus, Cristivomer, Hucho, and Brachymystax. However, it specifically excepts lake trout (Salvelinus namycush).

Outer Continental Shelf Lands Act, Senate Report No. 411 (June 15, 1953, 83d Congress, 1st Session), 68 p., printed. This is a report from the Committee on Interior and Insular Affairs, together with minority views, to accompany S. 1901, to provide for the jurisdiction of the United States over the submerged lands of the outer continental shelf, and to authorize the Secretary of the Interior to lease such lands for certain purposes. An amendment to the wording of section 3 (b) of the bill makes abundantly clear the unequivocal legislative intent of the committee that the jurisdiction asserted is a "horizontal jurisdiction," extending only to the seabed and subsoil, and does not in anywise affect the character as high seas of the waters above that seabed and subsoil nor their use with respect to navigation and fishing.

Providing for the Admission of Alaska into the Union, House Report No. 675 (June 26, 1953, 83d Congress, 1st Session), 25 p., printed. This is a report from the Committee on Interior and Insular Affairs to accompany H. R. 2982, to provide for the admission of Alaska into the Union, with amendments. The report explains the purpose of the Bill, gives historical background on Alaska, discusses the national interest, and presents reports and comments of the Executive Departments, conclusions, and an analysis of the provisions of the bill as introduced together with the proposed amendments: In this report the Committee on Interior and Insular Affairs recommends the admission of Alaska into the Union as

a State in the belief that statehood is in the best interests of the Nation and the Territory. The Committee felt that Alaska has met the traditional requirements for statehood, and the enactment of the bill was recommended.

Trade Agreements Extension Act of 1953: House Report No. 521 (June 9, 1953, 83d Congress, 1st Session), 12 p., printed, to accompany H. R. 5495. This is a report from the Committee on Ways and Means to extend the authority of the President to enter into trade agreement under section 350 of the Tariff Act of 1930, as amended. The purposes of the bill are to—(1) Extend until June 12, 1954, the authority of the President under section 350 of the Tariff Act of 1930, as amended, to enter into trade agreements as requested by the President; (2) reduce from 1 year to 9 months the period within which the Tariff Commission must make its investigation and report on applications for relief under the escape clause; (3) increase the membership of the Tariff Commission from 6 to 7; and (4) establish a temporary bipartisan commission to be known as the "Commission on Foreign Economic Policy" which will provide the mechanism for a thorough examination of our foreign economic policy as recommended by the President. Discussed in the report are the organization, compensation of members, duties, and powers of the Commission. Changes in existing law, supplemental views, and views of the minority members of the Commission are also presented.

Senate Report No. 472 (June 26, 1953, 83d Congress, 1st Session), 7 p., printed, to accompany H. R. 5495, from the Committee on Finance. Points out the purposes of the bill, discusses the amendments, presents a general statement on the legislation, and lists the changes in existing law.

PACIFIC COAST STATES FISHERIES, 1951

Pacific Coast States Fisheries--1951, C. F. S. No. 876, is an annual summary of the fisheries in the states of Washington, Oregon, and California. The report includes tables summarizing the number of fishermen, vessels, and gear by districts; and the catch by species by states.

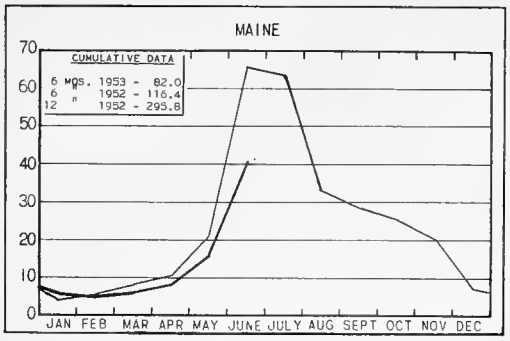
During 1951, the production of fish and shellfish in the Pacific Coast states of Washington, Oregon, and California amounted to 1,067,135,800 pounds, valued at $97,403,492 ex-vessel. This represented a decrease of 30 percent in quantity and 10 percent in value as compared with the landings of the previous year. Pilchard landings (328,894,400 pounds) were down 54 percent. Tuna receipts (317,210,200 pounds) dropped 19 percent; while the salmon catch (97,634,700 pounds) was up 53 percent.

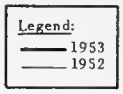
The number of fishermen operating in the Pacific Coast states decreased from 31,691 in 1950 to 28,528 in 1951. There were 3,308 fishing vessels of 5 net tons and over operating in this area during 1951; 17 less than the number operating in 1950.

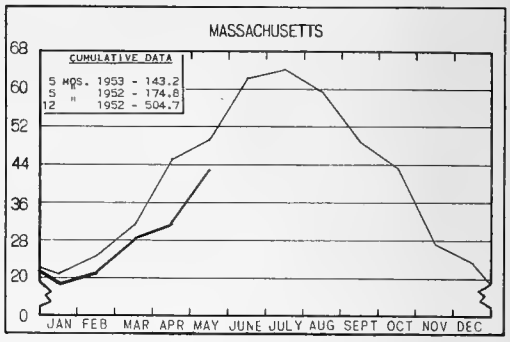
Copies of C. F. S. No. 876 are available free upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

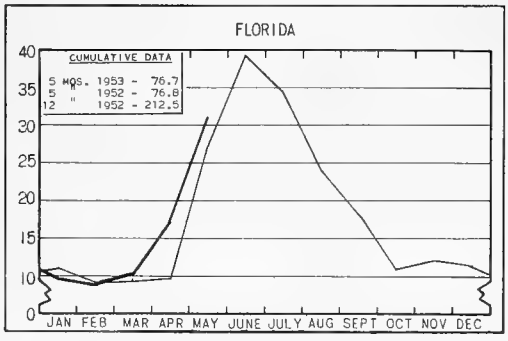
CHART 1 - FISHERY LANDINGS for SELECTED STATES

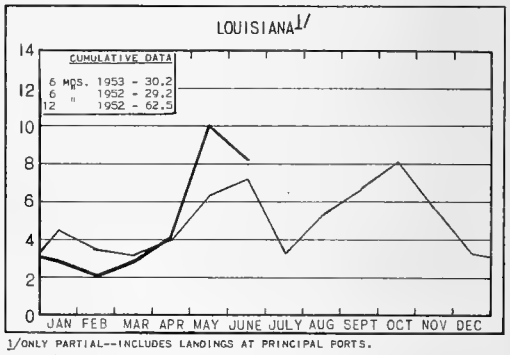
In Millions of Pounds



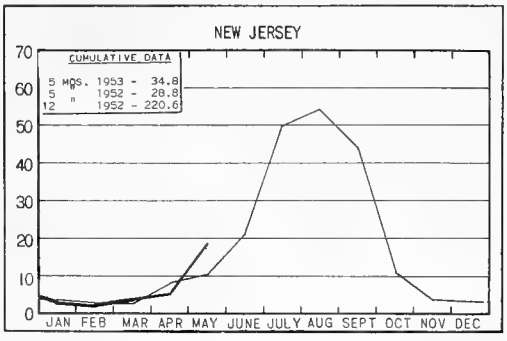


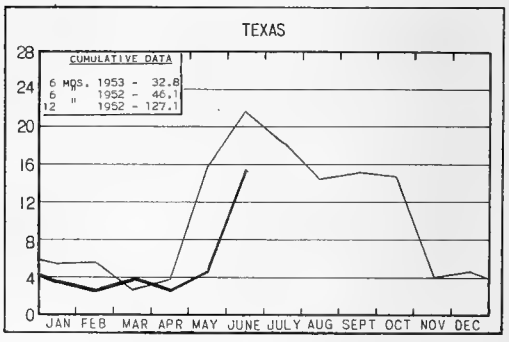


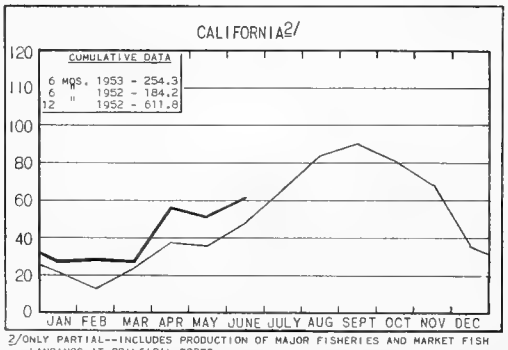




1/ONLY PARTIAL--INCLUDES LANDINGS AT PRINCIPAL PORTS.







2/ONLY PARTIAL--INCLUDES PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

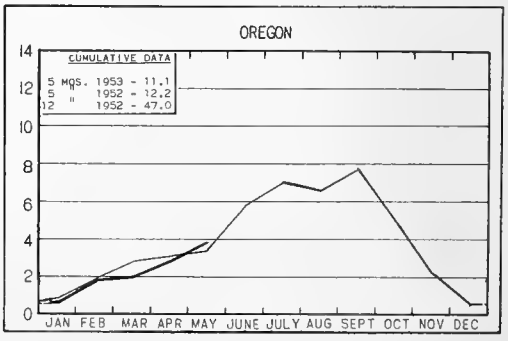
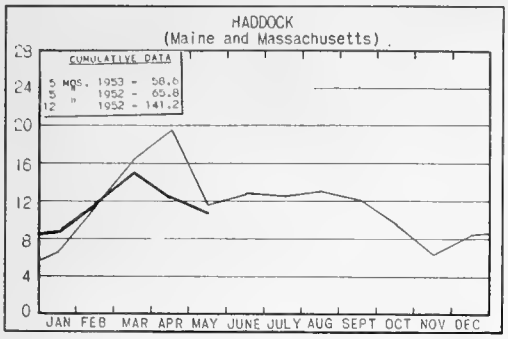
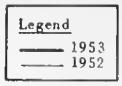
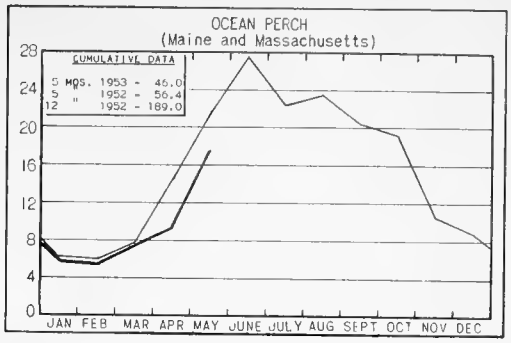


CHART 2 - LANDINGS for SELECTED FISHERIES

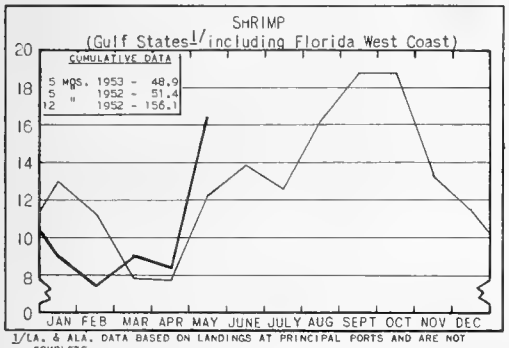
In Millions of Pounds



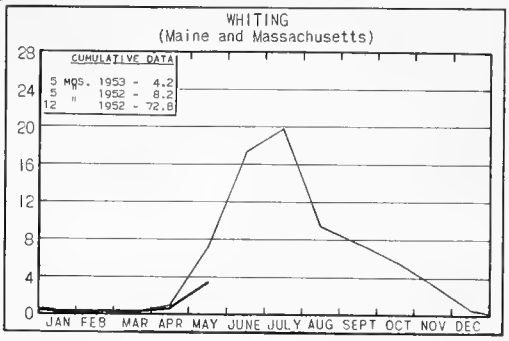




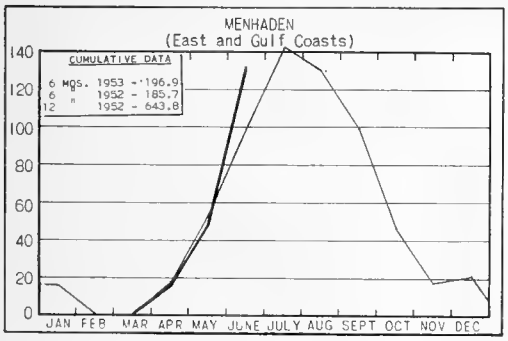
In Millions of Pounds

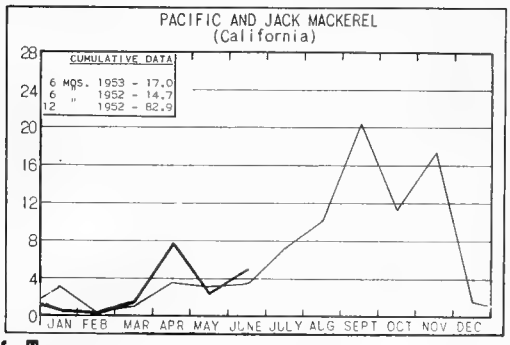


1/ LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

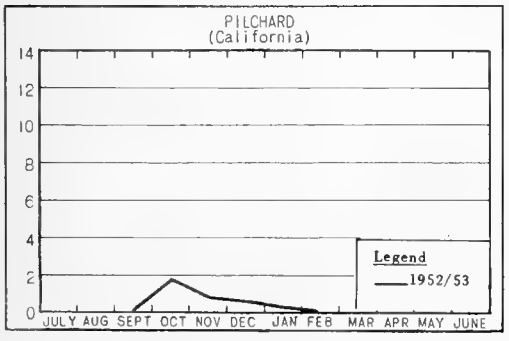


In Thousands of Tons





In Thousands of Tons



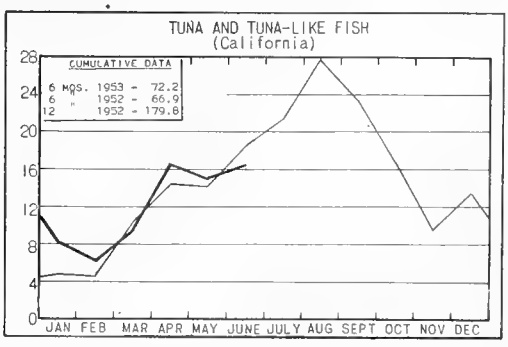
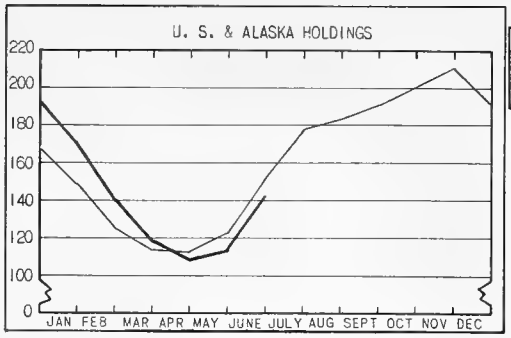
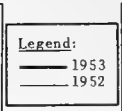
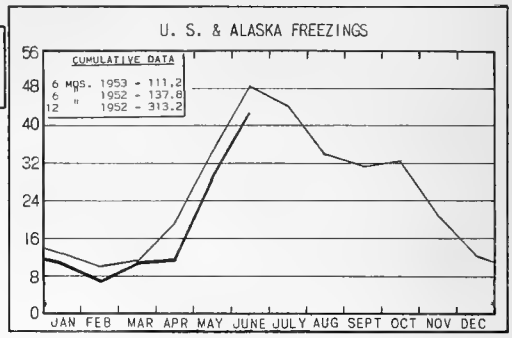


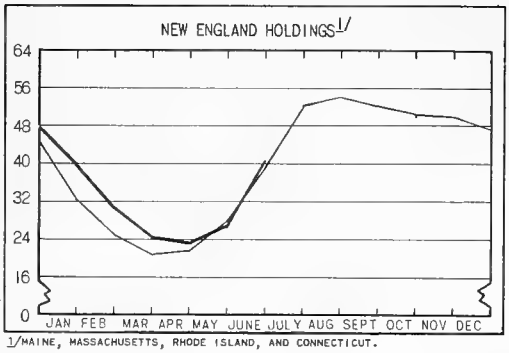
CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds

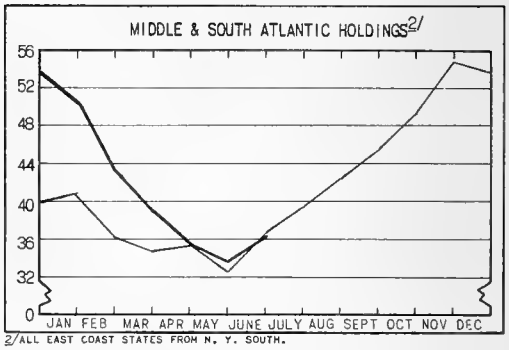




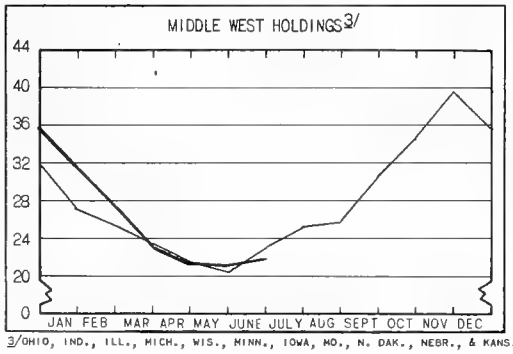




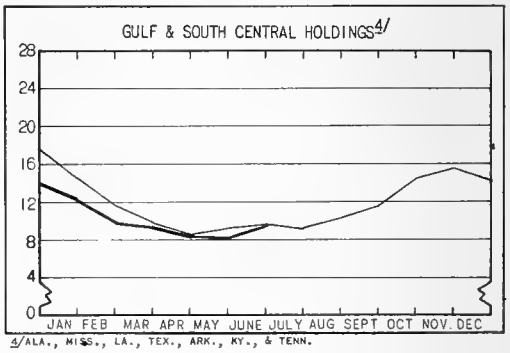
1/MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT.



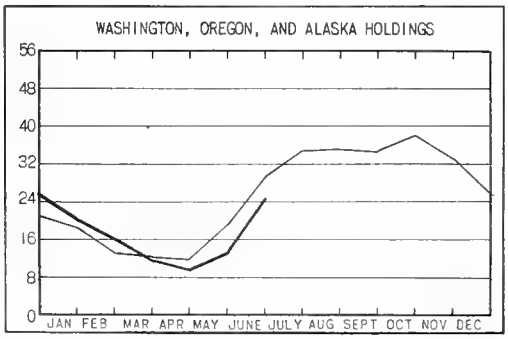
2/ALL EAST COAST STATES FROM N. Y. SOUTH.

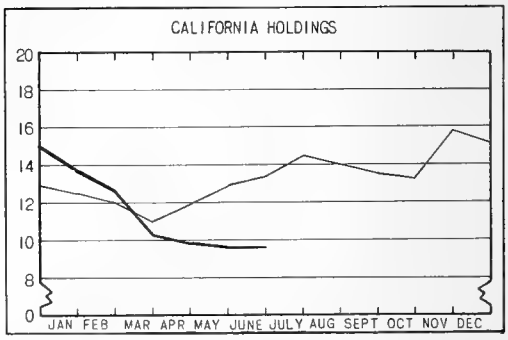


3/OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR., & KANS.



4/ALA., MISS., LA., TEX., ARK., KY., & TENN.

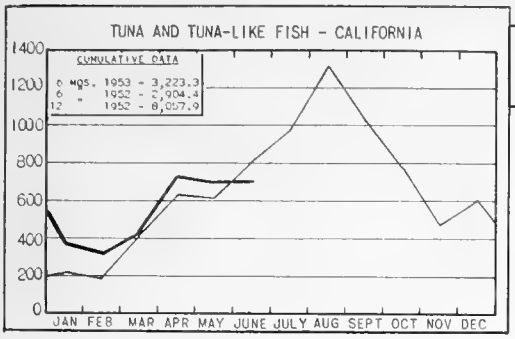


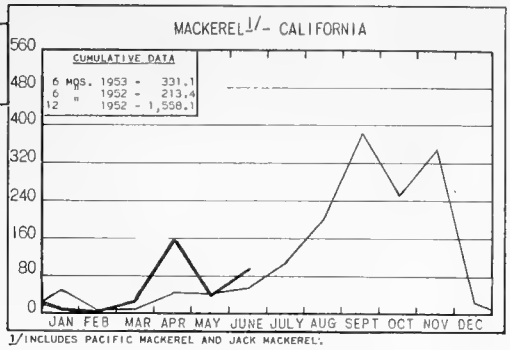


*Excludes salted, cured, and smoked products.

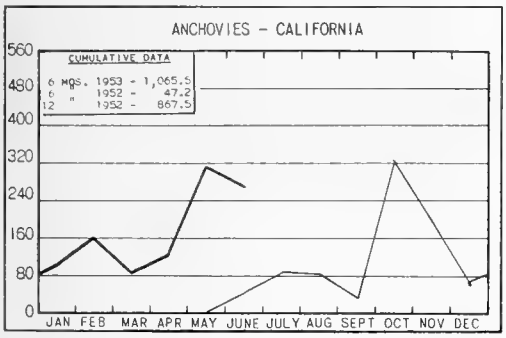
CHART 4 - CANNED PACKS of SELECTED FISHERY PRODUCTS

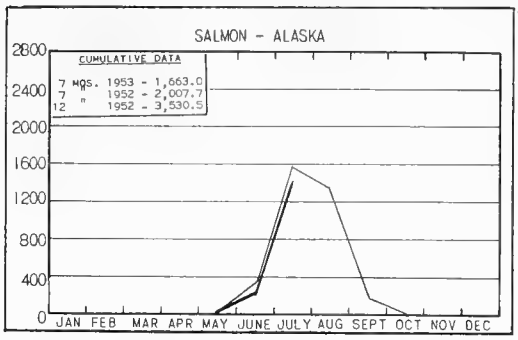
In Thousands of Standard Cases

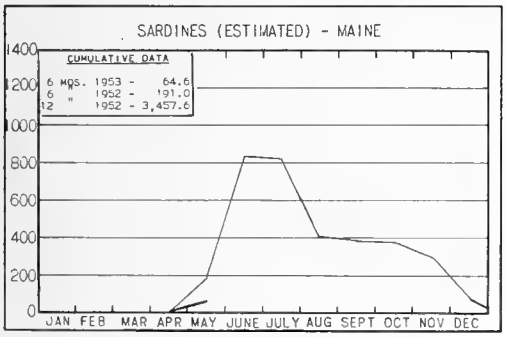




1/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.

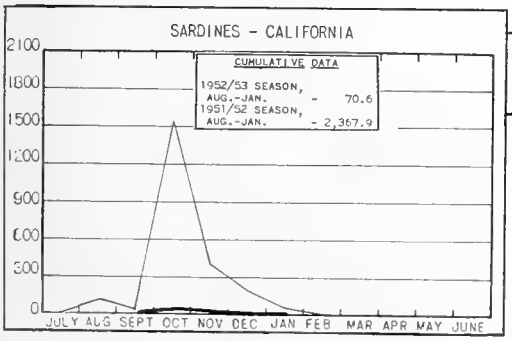


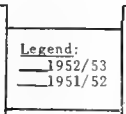




STANDARD CASES

Variety	No. Cans	Can Designation	Net Wgt.
SARDINES	100	¼ drawn	3¼ oz.
SHRIMP	48	—	5 oz.
TUNA	48	No. ½ tuna	6 & 7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
SALMON	48	1-pound tall	16 oz.
ANCHOVIES	48	½ lb.	8 oz.





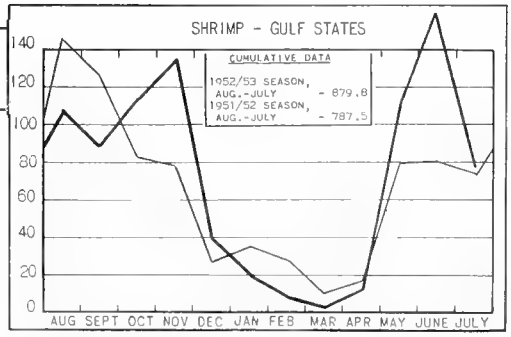
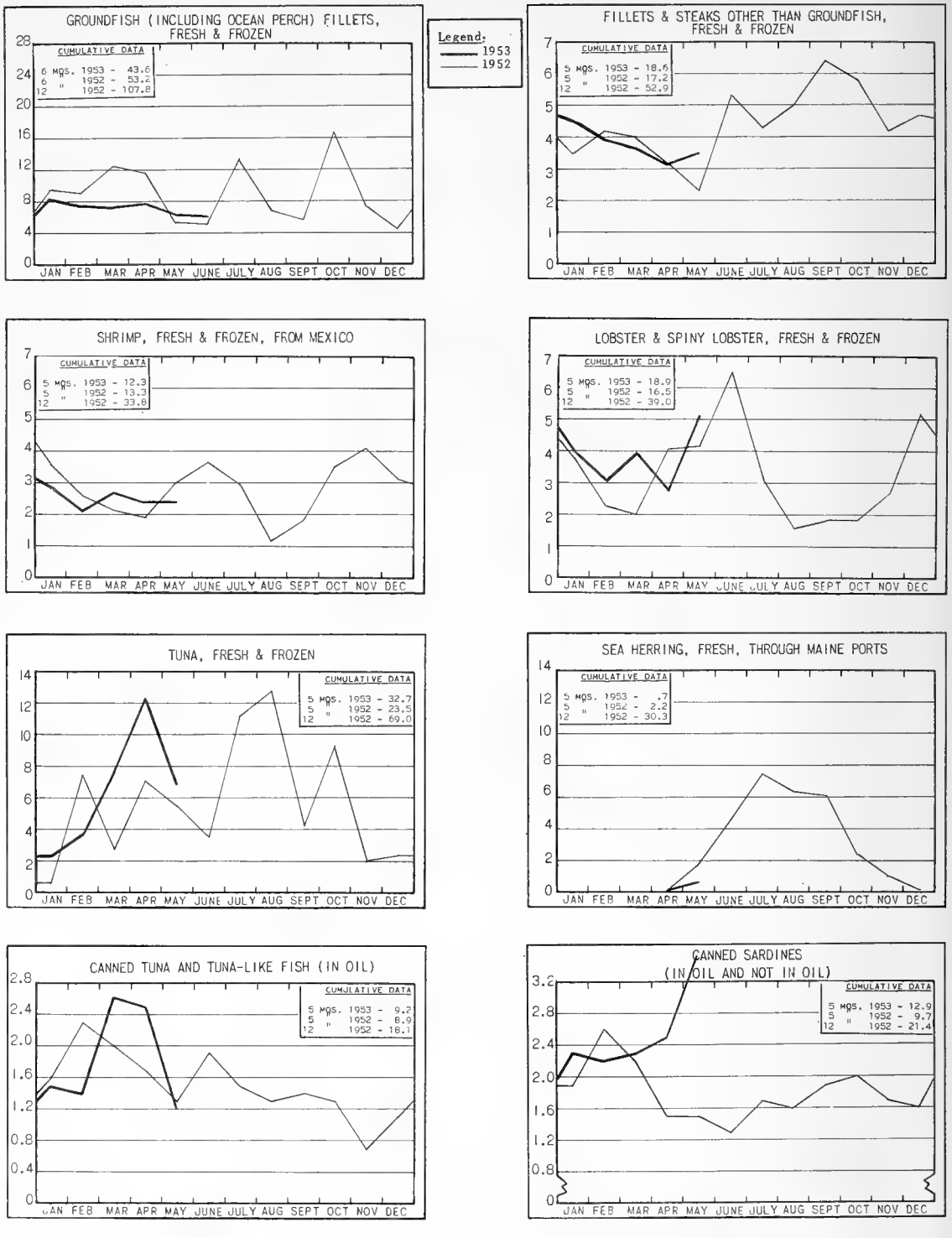


CHART 5 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds



Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
FL - FISHERY LEAFLETS.
SSR.-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number — Title

CFS-872 - Frozen Fish Report, May 1953, 8 p.
CFS-877 - Massachusetts Landings, 1952, Annual Summary, 15 p.
CFS-878 - Fish Meal and Oil, April 1953, 2 p.
CFS-879 - Florida Landings, March 1953, 6 p.
CFS-881 - New Jersey Landings, April 1953, 2 p.
CFS-884 - Mississippi Landings, April 1953, 2 p.
CFS-885 - Maine Landings, April 1953, 4 p.
CFS-887 - Florida Landings, April 1953, 6 p.
CFS-888 - Texas Landings, May 1953, 3 p.
CFS-889 - Imports and Exports, 1948-1952, Annual Summaries, 8 p.
CFS-890 - Massachusetts Landings, March 1953, 8 p.
FL -168 - Commercial Fishery Laws and Regulations (Revised), 7 p.
Sep. No. 351 - Construction Details of Tuna Long-Line Gear Used by Pacific Oceanic Fishery Investigations.
Sep. No. 352 - Oyster Growth as Affected by Latitudinal Temperature Gradients.

SSR-Fish. No. 78 - Oceanographic Conditions and the Black Tuna Fishery, by Takeshi Kawana (Translated from the Japanese language by Wilvan G. Van Campen), 34 p., illus., processed, July 1952. Reports on observations concerning the fishing situation, habits, and oceanographic conditions. Original report in Japanese was published in 1934.

SSR-Fish. No. 90 - Experimental Surface Gill Net Fishing for Skipjack (Katsuwonus pelamis) in Hawaiian Waters, by Walter M. Matsumoto, 22 p., illus., processed, November 1952. Covers the trial of gill nets as a possible means of taking skipjack in commercial quantities without the use of bait. A surface gill net designed to take skipjack was fished experimentally in Hawaiian waters a total of 284 hours, of which 233½ hours were fished at night. Fishing was done only in the lee of the larger islands because of difficulty in handling the gear in rough water. However, part of the experiment was performed in an area known to be a productive skipjack ground and during the known season of abundance of this species. The total catch of 28 fish, of which only 6 were skipjack, showed a very poor catch per unit of effort. It is concluded from the results of this experiment that surface gill-netting shows little promise as a commercial fishing method for skipjack in Hawaiian waters.

SSR-Fish. No. 91 - Reaction of Tunas and Other Fishes to Stimuli--1951, 88 p., illus., processed, November 1952. (This report is also Contribution Nos. 22-26, Hawaii Marine Laboratory, University of Hawaii.) This report is divided into five parts: Part I—Background and Summary of Results, by Albert L. Tester; Part II—Observations on the Chemoreception of Tuna, by P. B. van Weel; Part III—Observations on the Reaction of Tuna to Artificial Light, by Sidney C. Hsiao; Part IV—Observations on Sound Production and Response in Tuna, by Iwao Miyake; and Part V—Notes on the Response of a Tropical Fish (Kuhlia sandvicensis) to Interrupted Direct Current, by Albert L. Tester. In the study of chemoreception in tuna (Part II), it was found that both the yellowfin tuna (Neothunnus macropterus) and little tunny (Euthynnus yaito) have a well-developed sense of smell or taste whereby they may be attracted to certain food substances. They were strongly attracted to clear, colorless extracts of tuna meat. Moreover, it was found that the attractant was contained in the "protein" rather than in the "fat" fraction of the clear extract. In general, the reactions of the tunny were more pronounced than those of the yellowfin. On the other hand, there was no positive reaction of either species to "conditioned" water in which bait fish had been living, nor to extracts of either bait fish or squid. Two chemicals, other than food substances, were tried—asparagine, a possible attractant; and copper acetate, a known shark repellent. The former did not prove to be an attractant. The latter was a repellent to tuna, although its effect was not as pronounced as on fish of oth-

er species which were also present in the tank. Part III describes the reaction of the tuna to artificial light generated from an arc lamp, a projection lantern, and electric light bulbs. Experiments were performed after dark, with the tank illuminated constantly by two 60-watt bulbs. It was found that both yellowfin and tunny were attracted to continuous white light over a range of moderate intensity (about 70 to 450 foot-candles). However, they were not attracted by a light of weaker intensity, and they were repelled by a light of stronger intensity. Both species were attracted to colored lights of moderate intensity, but to no greater extent than to white light. Similar results were obtained with interrupted white light. There appeared to be no relationship between the strength of the reaction and the frequency of interruption of the light. It was noted that although the tuna approached an interrupted light of moderate intensity, they were repelled from the near vicinity at the instant the light flashed either on or off. Part IV describes an attempt to discover (1) if tuna produced any sound, and (2) if they could be attracted or repelled by sounds of various frequencies. Using a listening frequency which ranged from about 100 cycles to 70 kilocycles per second, it was possible to identify low frequency sounds produced by the sudden movement of the tail of the yellowfin in the tank. This might have some significance in respect to the mechanism of school formation. No sounds produced by the tuna at moderate, high, and supersonic frequencies were detected. In attempting to attract or repel tuna by continuous sound stimuli, sounds were produced at many frequencies within the 100 cycle to 70 kilocycle range. No positive results were obtained. However, there were several indications that the tuna might react positively to complex sounds of low frequency. Part V describes a study of the reaction of the aholehole or "mountain bass" (kuhlia sandvicensis) to interrupted direct current in a small wooden tank of sea water. It was found that by progressive shortening of the on-fraction of a cycle at a frequency of 15 cycles per second the downward trend in average current necessary to attract the fish was continued. The relationship between source voltage and electrode size was also clarified. Part I discusses the background of the projects and summarizes the results.

SSR-Fish. No. 96 - Destruction of Undersized Haddock on Georges Bank, 1947-51, by Ernest D. Premetz, 36 p., processed, May 1953. Includes the results of port interviews for the years 1947 to 1951, and the samplings at sea for the year 1951. During the period 1947 to 1951, the annual destruction of undersized haddock on Georges Bank by the Boston fleet alone averaged over 4½ million pounds (based on skippers' estimates as reported to port interviewers). This quantity represented over 6 million individual fish. Most of the destruction occurred between the months of June and October during which time most of the 2-year-old fish, which were caught in great numbers, were under one pound in weight and unmarketable. The areas of greatest discard were the northern edge and southeast part. Areas of lesser destruction were the western side and the southern end of South Channel. Areas of most intense discard coincided with areas of most intense fishing. During 1951, observers went to sea on seven commercial trips to analyze the catch. Skippers' estimates of pounds discarded were found to be within 12 percent of estimates made by the Fish and Wildlife Service observers at sea. The size of fish discarded varies with the size of the catch. Smaller fish are saved when the catches are small. The 50-percent point on the average cull curve was 13-3/4 inches (0.9 pounds). Practically all fish of this size were 2 years old. The smaller fish discarded included many 1-year-olds while the largest individuals in the discards included many 3-year-olds.

SSR-Fish. No. 97 - Sea Lamprey Spawning: Wisconsin and Minnesota Streams of Lake Superior, by Howard A Loeb, 38 p., illus., processed, June 1953. Lampreys have been reported from the St. Louis, Sucker, and Knife Rivers in Minnesota in recent years. Although actual spawning records are absent from both Minnesota and Wisconsin, the persistent and general increase in scarring of lake trout and other fish along both shorelines is an indication of actual utilization of the local streams for spawning purposes. Lampreys are occasionally taken by commercial fishermen of both States. As many as 10 percent of the fish in certain catches have been scarred. It is likely that the sea lampreys which cause the scarring would attempt to use the local streams for spawning (unless the scarred fish migrated from the eastern portions of Lake Superior where large lamprey populations are known to exist). Many streams in Wisconsin appear to be suitable for sea-lamprey spawning. Minnesota streams appear to be generally less suitable. Nevertheless, at least 22 of the 156 streams examined along the north shore of Minnesota are considered to be quite suitable for spawning, despite the fact that some of them contain barriers a short distance above the mouths or are subject to rapid fluctuations in water levels. The author believes that all of the suitable streams in both Wisconsin and Minnesota and also those considered to be marginal should be rechecked in the future to determine the actual extent of utilization by sea lampreys. (Rechecks of certain Michigan streams surveyed in 1950 have revealed a slight increase in the numbers of nests present). From observations to date, it is believed that the streams of Wisconsin and Minnesota (although less suitable than those in Michigan) can support spawning runs of considerable size. The 1952 survey of the streams of Wisconsin was inadequate insofar as it told little about the productive potentials of the streams, and nothing about the actual extent of utilization of the streams; little control work of any nature is possible in this area until a great deal more information is gained.

SSR-Fish. No. 99 - Trial of Denil-type Fish Ladder on Pacific Salmon, by Leonard A. Fulton, Harold A. Gangmark, and Scott H. Bair, 18 p., illus., processed, May 1953. An experiment was designed to compare the effectiveness of the pool-type and Denil-type ladders as fish-passage devices. Observations were made in a side-by-side installation at Dryden Dam on the Wenatchee River approximately 17 miles above the confluence of the Wenatchee and Columbia Rivers. Interest in the Denil-type fish ladder constructed at the Herting power dam in Sweden led to the construction of a similar installation at Dryden Dam. Comparison of the Denil-type and pool-type ladders was facilitated because it was possible to construct a Denil-type ladder in one-half of the existing pool-type ladder at Dryden Dam. During the actual time

that counting observations were conducted in 1949 and 1951, the Denil-type was preferred by fish utilizing the ladders. In 110 hours 45 minutes, 1,828 fish used the Denil-type ladder, and in 96 hours 55 minutes a total of 226 fish were counted through the pool-type ladder. The Denil-type ladder at Dryden Dam occupies essentially the same amount of space as the pool-type ladder. There is, therfore, some advantage in the Denil construction in conservation of space, both from the standpoint of its narrowness and shorter length made possible by a steeper slope. It was concluded that because of the baffles and higher flume wall construction of the Denil-type ladder, there is no substantial saving in cost of construction over the standard pool-type ladder. With regard to flow requirements, the data collected revealed that the Denil-type ladder passed a greater number of fish per second-foot of flow and required less attention. With only 40 percent more flow than in the pool-type ladder, the Denil-type was utilized by 89 percent of the fish counted through the ladders. Probably the most desirable feature of the Denil-type was the attraction flow it presented to fish.

SSR-Fish. No. 100 - Zooplankton Volumes off the Pacific Coast, 1952, by the Staff of the South Pacific Fishery Investigations, 43 p., processed, May 1953. This report contains a record of the volumes of zooplankton taken on the survey cruises of the California Cooperative Sardine Research Program during 1952, along with information on the plankton hauls.

SSR-Fish. No. 102 - Pilchard Eggs and Larvae and Other Fish Larvae, Pacific Coast--1951, by Elbert H. Ahlstrom, 56 p., illus., processed, May 1953. This report contains the results of quantitative sampling of pilchard (Sardinops caerulea) eggs and larvae off the west coast of California and Baja California during 1951. Although the collections were designed primarily to yield information on the distribution and abundance of pilchard eggs and larvae, information was also gathered on a number of other fish of present or potential commercial importance. Records are included of the larvae of five of these: northern anchovy (Engraulis mordax), jack mackerel (Trachurus symmetricus), hake (Merluccius productus), Pacific mackerel (Pneumatophorus diego), and rockfish (Sebastodes sp.).

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

A Contagious Disease of Salmon Possibly of Virus Origin, by R. R. Rucker, W. J. Whipple, J. R. Parvin, and C. A. Evans, Fishery Bulletin 76 (From Fishery Bulletin of the Fish and Wildlife Service, Volume 54), 15 p., illus., printed, 15 cents, 1953. A disease, possibly of virus origin, is described which affected blueback salmon and kokanee fingerlings (Oncorhynchus nerka), but did not infect fingerlings of the chinook salmon (O. tshawytscha), silver salmon (O. kisutch), or cutthroat trout (Salmo clarki clarki).

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

"Australia's Tuna Industry," by Peter Knox, article, The Fishing News, March 14, 1953, no. 2082, pp. 9-10, illus., printed. The Fishing News, 9 Northington Street, Gray's Inn Road, London, W. C. 1, England. Describes Australia's tuna industry and its great potentialities. Progress in the industry, methods of capture, and the growing demand for tuna are also described.

(California) Forty-second Biennial Report of the Department of Fish and Game for the Years 1950-1952, 187 p., illus., printed. California Department of Fish and Game, San Francisco, Calif., January 1953. This report covers the period during which the agency went through the transition stage from a division of the Department of Natural Resources to full departmental status. Toward the end of the biennium the new department was undergoing reorganization to a decentralized form of administration. Both of these changes are described. The report reviews the activities of the various branches of the Department in fostering the conservation of fish and game in California, summarizes the important policy statements of the Fish and Game Commission, and describes the legislative action affecting fish and game. Among the reports included, that of the Bureau of Marine Fisheries discusses the commercial fisheries of California—salmon, bottom fish, sardine, tuna, mackerel, live-bait, abalone, crab, oyster, and clam. Also reviewed is the work of California's research vessels and the statistical unit of the Bureau. Marine fisheries statistics are included in an appendix—total production of fishery products; landings (quantity and value) by species; status of commercial fishing fleet by ports; and number of licensed commercial fishermen.

Fish Cook Book, Fawcett Book 174, 144 p., illus., printed, 75 cents. Fawcett Publications, Inc., Greenwich, Conn. Contains 300 selected recipes for cooking fish and shellfish and general instructions for baking, broiling, steaming, and poaching. Some U. S. Fish and Wildlife Service kitchen-tested recipes are included.

(FAO) 1950-51 Yearbook of Fisheries Statistics (Annuaire Statistique des Peches, Incluye un Suplemento en Espanol), 307 p., printed in English and French), US$3.50. Food and Agriculture Organization of the United Nations, Rome, Italy, 1953.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

(Also available from Columbia University Press, International Documents Service, New York, N. Y.)

This is the third Yearbook to be prepared by the FAO Fisheries Division. It continues, revises, and expands the statistics which were published in the two earlier issues of 1947 and 1948-49. Information available as of July 31, 1952, is included. The statistical tables in the first two Yearbooks were to a certain extent still in the experimental stage; this latest issue incorporates the many suggestions received by FAO from the users of the preceding two volumes. Now that effective liaison has been established with a larger number of member countries, it has been possible to incorporate more comprehensive and up-to-date information.

The first tables in the Yearbook (1-4) constitute the "Catch" section and present the available recorded and estimated figures for country and continental totals, as well as catch statistics for about 20 producing countries by major species groups. One table presents the catch of nine marine species groups by country. In this issue the national statistics by individual species are not repeated as these are available through the specific national publications. In the second section, on "Utilization," one table shows how the catch was used in the major fishing countries in 1950 and 1951, while other tables provide data on the net product weight of the principal types of processed commodities produced in the major producing countries in 1938 and 1947-51. The third section deals with external trade. The first series of tables are summaries showing imports and exports of each of the major commodity groups and of some selected items of primary importance. These summaries are followed by detailed country tables for imports and exports, showing quantities and values for each of the principal items arranged by commodity groups, giving a breakdown of the quantities of each important item by principal countries of origin or of destination. The fourth section, "Fishing Craft," provides national statistical tables on craft, broken down by categories characteristic of each country. FAO points out that at the present stage it is virtually impossible to present craft data in an internationally standardized form, but it hopes that the inclusion of these more detailed statistics on craft will encourage the supply of fuller information which can be incorporated in future tables. This applies equally to data dealing with fishermen and processing establishments, which it is hoped to incorporate in future issues.

As a step towards eventual clarification, the current Yearbook provides, in the notes on species groups, on conversion factors, and on classification of external trade items, fairly detailed comments on classifications and definitions. Readers are referred to the nomenclature section contained in the 1948-49 Yearbook which listed scientific and common names by country as an aid to identifying the species referred to by local common names in the national landing tables.

The FAO Yearbook of Fisheries Statistics is not intended to replace national publications; it is designed to supplement national sources by providing internationally comparable data, in summary form, with world and regional totals and commodity summaries as the necessary background material for the better utilization of the national publications.

Three principal sources of information provided the basis for the statistics presented: first, the various official publications on export and import statistics; second, the communications from a number of the governments to whom the 1948-49 Yearbook tables, and drafts for the new tables, were referred for comment and completion; third, the FAO Questionnaire: Preliminary Report on Landings and Utilization, which, with some revisions, has been circulated annually since 1946. The metric system is used, except in some of the national tables on craft statistics. Values are expressed in the national currencies shown in the original sources and in some cases have been rounded off. Time series are usually confined to the five postwar years, 1947-51, which, wherever possible, are compared with a prewar year, usually 1938. In a few cases where no data were available for these years, other years have been selected. The calendar year is normally used; those few cases where the countries provided data for 12-month periods other than the calendar year are indicated by footnotes. To aid Spanish-speaking readers in the use of the English-French tables, Spanish notes on the tables have been included.

"FAO Fisheries Statistics," Reprint from Monthly Bulletin of Agricultural Statistics and Economics, April 1953, 4 p. printed. Food and Agriculture Organization of the United Nations, Rome, Italy. Includes statistics on fish landings in 10 countries in 1952 and external trade in fish and fisheries products of 9 importing and 9 exporting countries in 1952, compared with the corresponding period of 1951.

(FAO) The Work of FAO 1951/52 (Report of the Director-General), 38 p., printed, US$1.00. Food and Agriculture Organization of the United Nations, Rome, Italy, October 1952. Summarizes the principal events and trends during the period from mid-1951 to mid-1952 which affect and are of interest to FAO. The widened interest in the food and population problem and the accelerated progress of the technical assistance program are discussed. In reviewing FAO's drive to increase the supply of technicians, it is pointed out that among the various types of training centers set up are several on fisheries in Latin America and the Far East. In the discussion of the growth of regional action programs, fisheries programs in Europe, Mediterranean Area, Latin America are covered. The publication reports on the new emphasis on goals and programs for increased food production, the movement for agrarian reform, and proposals for meeting acute food shortages and famine. The chapter on the growth of country development projects includes a discussion on the improvement of fisheries. The last chapter deals with continuation of worldwide technical services by FAO.

Greek Trade Manual (Revised Edition), 444 p., printed. Mutual Security Agency, Special Mission to Greece for Economic Cooperation, Athens, Greece, 1953. (Also available from the Mutual Security Agency, Washington 25, D. C.) This second edition of this manual is designed to facilitate further development of trade relationships between businessmen of Greece and the United States, with particular reference to those smaller manufacturing and exporting firms in both countries whose for-

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eign trade opportunities may be aided by this information. It includes a summary of import and export procedures, together with an alphabetical directory of import and export firms in Greece as well as manufacturers arranged by commodities (including fishing equipment, oils, sponges, and fish) and geographical locations.

Guide to the Fishes of Colorado, by William C. Beckman, Leaflet No. 11, 111 p., illus., printed, $1.00. University of Colorado Museum, Boulder, Colo., December 1952. This guide is intended to help identify the fish of Colorado, giving descriptions and general information on the life history of each species. It has been prepared for use both by the amateur and by beginning students, and therefore includes both non-technical and technical material. Keys to families, genera, species, and subspecies have been constructed, and an explanation of the terms and measurements used in the keys and descriptions is given. A tentative list of the fish expected to be found in Colorado is also included. In Colorado waters one may expect to find 89 different fishes at the present time. Of these, 54 are native to Colorado, 33 have been introduced, and 2 are potential residents having been taken within a short distance of the border in neighboring states.

How to Eat a Maine Lobster, 4 p., illus., printed. Department of Sea and Shore Fisheries, Augusta, Maine. Describes, with illustrations, how to eat boiled and broiled Maine lobsters. Also contains an illustrated brief account of how Maine lobsters are caught and packed.

(India) Report on the Marketing of Fish in the Indian Union (Second Edition), Marketing Series No. 65, 174 p., illus., printed. Manager of Publications, Civil Lines, Delhi, India, 1951. Presents a list of the chief commercial fish and shellfish of India, and annual production data. Also discusses the gear and methods of fishing; type of fishing vessels; preparation for market; demand and utilization; and assembling, storage, transportation, and distribution. A short chapter is devoted to the nature of fisheries research now being undertaken with suggestions as to how these activities should be coordinated and extended to make the fishing industry play a significant role in solving India's food problem.

La Pesca, by Alejandro Quesada, 277 p., printed in Spanish. Fondo de Cultura Economica, Mexico, 1952. This publication is the "Fisheries" section of the Economic and Social Development of Mexico, a report recently issued in Mexico. The entire report is a study made by the Combined Mexican Working Party of the International Bank for Reconstruction and Development and the Mexican Government (Nacional Financiera). This book, La Pesca, is an economic analysis of the Mexican fisheries and their potential. All available data from official sources was drawn upon in order to conduct this study. Although the data are as complete as possible, the author points out that the information was drawn from reports which cover the fisheries only partially and certain fundamental aspects of the fisheries are omitted. The study required a visit to most of the fishing centers on both coasts of Mexico. Both fresh- and salt-water fisheries are covered. In analyzing the relevant aspects of the Mexican fisheries, comparisons and references to similar aspects of the fisheries of other countries have been included. Economic, human, natural, technical, and financial aspects of the fisheries are reviewed. A list of the principal species and their distribution along the Mexican coasts, fishermen's cooperatives, working conditions, wages, fishing fleet statistics, plants handling and packers of fishery products, fishing methods and types of gear, oceanographic investigations, fish culture, catch, distribution, foreign trade, legislation affecting the fisheries, and the outlook of the Mexican fisheries are some of the subjects discussed. The book also contains a bibliography and an index. This is a complete study of the Mexican fisheries from all aspects.

(MSA) Monthly Report of the Mutual Security Agency to the Public Advisory Board (Data as of March 31, 1953), 104 p., illus., processed. Division of Statistics and Reports, Mutual Security Agency, Washington 25, D. C. Included are charts and tables summarizing important activities under the economic assistance and defense support programs of the Mutual Security Agency and its predecessor, the Economic Cooperation Administration, through March 31, 1953. Charts and appendix tables on the European program cover MSA/ECA operations beginning with April 3, 1948. Charts and appendix tables on the Far East program cover MSA/ECA operations under the China Area Aid Act of 1950. A section of the report deals with U. S. foreign trade.

Operation of the Trade Agreements Program (Fifth Report, July 1951-June 1952), 289 p., processed. United States Tariff Commission, Washington, D.C., 1953. During the period covered by the report, the United States concluded no new trade agreements. The report, however, discusses the concessions that the United States granted and obtained in the General Agreement on Tariffs and Trade in 1950-51 at the Torquay Conference, and analyzes the effects of all trade agreement concessions on the level of the United States tariff. It also covers, for the last half of 1951 and the first half of 1952, important developments respecting the General Agreement. Like the earlier reports, the fifth report also discusses such matters as changes in tariffs, exchange controls, and quantitative restrictions on imports by contracting parties to the General Agreement; changes in tariffs, exchange controls, and quantitative restriction on imports by countries with which the United States has bilateral trade agreements; and United States measures relating to imports of trade agreement items. This report on the Operation of the Trade Agreements Program was prepared in compliance with Executive Order 10082, of October 5, 1949. The first report in the series (issued in 1948) covered the period from June 1934 through April 1948; the second report (issued in 1949) covered the period from May 1948 to April 1949; the third report (issued in 1951) covered the period from April 1949 through June 1950; and the fourth report (issued in 1952) covered the period from July 1950 through June 1951. (Copies of the earlier reports may be purchased

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from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C.)

(Oregon) Fish Commission Research Briefs, vol. 4, no. 1, 39 p., illus., printed, free. Fish Commission of Oregon, Portland 1, Oregon, December 1952. Contains short "progress" reports on some of the current studies by the Commission. Summaries of two reports of special interest to commercial fishermen and industry members follow:

"A Review of the 1951 Albacore Season," by Edwin K. Holmberg. The author summarizes his report as follows: "In 1951, the landings of albacore in Oregon reached a new low just under 3 million pounds. Landings of albacore in Oregon have been erratic, ranging from a peak of 22.5 million pounds in 1944 to the 1951 low. After the peak of 1944, the annual landings dropped to 4 million pounds in 1946. The 1947 total was up to 9.5 million pounds, but a steady decline has occurred since then. The landings in Oregon do not reflect the trend of the coastwise landings since 1947; however, the 1951 decline was apparent throughout the fishery.

"There are only two principal size groups (presumably also age groups) in the fishery. Fisheries exploiting a small number of age groups have a greater tendency toward large fluctuations in the catch. The effects of oceanographic and meteorological conditions on the abundance of albacore are not known.

"The northern tuna fleet is composed of vessels which also fish for halibut, ocean salmon, and bottom fish. There are a few vessels which fish exclusively for albacore.

"Albacore were scarce off Oregon in the 1951 season, but some good catches were made off central California. In early November, landings were made in Oregon by vessels returning to their home ports from California.

"Racial population studies are being continued in Oregon.

The length-frequency samples have been weighted by the catch."

"Results of Preliminary Shrimp Explorations Off the Oregon Coast," by Alonzo T. Pruter and George Y. Harry, Jr. The authors summarize their report as follows: "During the months of October 1951, and March, April, and May 1952, a total of 80 exploratory shrimp drags were made off the Oregon coast between the Columbia River and the Rogue River. Pink shrimp (Pandalus jordani) were taken in sizable quantities in most of the areas explored.

"The largest concentrations of shrimp were taken in areas with a green mud or mixed mud and sand bottom.

"No pink shrimp were taken in less than 50 fathoms, and the center of abundance was found to occur at depths between 60 and 80 fathoms.

"Four definite size groups of pink shrimp are present in the catch; two are males and two females.

"Less than 3 percent of the females taken on October 5 through October 8, 1951, were carrying eggs, but 42 percent of the females examined about three weeks later were egg-bearing. On March 22, 1952, eleven percent of the females were egg-bearing; on April 4, twenty-four percent were egg-bearing; and on May 28, no females in the samples carried eggs.

"The larger females apparently do not attain the egg-carrying stage before the smaller females.

"An inverse relationship was found between the number of shrimp and the number of fish taken: drags producing the most shrimp usually yielded the smallest number of fish.

"The Fish Commission of Oregon will continue the shrimp explorations as opportunity permits."

Also included are the following reports: "How May Fish Hatchery Foods Needs be Met," by Russell O. Sinnhuber; "Second Progress Report on Spring Chinook Salmon Diet Experiments," by Thomas B. McKee, Ernest R. Jeffries, Donald L. McKernan, R. O. Sinnhuber, and Duncan K. Law; and "The 1950 Willamette River Spring Chinook Sport Fishery," by Chester R. Mattson and John B. Dimick.

Port Security is Part of Your Job, CG-274, 16 p., illus., printed. U. S. Coast Guard, Washington, D. C., 1953. Examples of espionage and subversive activities are pictured in this booklet with the suggestion that if such are seen they should be reported to the local COTP and FBI offices. Addresses of these offices are listed in the last two pages of the booklet.

"The Pothead Whale Industry of Newfoundland," by D. E. Sergeant, article, Trade News, March 1953, vol. 5, no. 9, pp. 3-4, 18, illus., processed. Department of Fisheries, Ottawa, Canada. Describes an unusual fishery in the eastern bays of Newfoundland—the driving of herds of pothead whales, Globicephala melaena, and their processing for meat and oil. The pothead whale, known elsewhere as blackfish, pilot whale or caa'ing whale, related to the beluga or white whale. It is found on both sides of the North Atlantic and is hunted also in the Faeroe Islands, where the technique of driving is very similar to that pursued in Newfoundland. Sporadic driving takes place also in Iceland, Greenland, and North Norway.

Marine Laws (Navigation and Safety), by Frederick K. Arzt, 1,212 p., printed, $6.95. Equity House, Equity Publishing Corporation, Stony Brook, L. I., N. Y., 1953. This is a successor of the author's previous book, Navigation Laws of the United States, 1940. Presents up-to-date federal laws and international conventions covering marine matters, with amendments to January 20, 1953, included. Forty-six chapters deal with such aspects of marine law as admeasurements of vessels, load lines, inspection of vessels, documentation, ship mortgages, insurance, radio, clearance of vessels, and death on

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the high seas. Terms of the International Conventions for Safety of Life at Sea, 1929 and 1948, are presented. Those vessel operators engaged in foreign and domestic markets, carrying of passengers, mail service, and fishing will find sections dealing with their special problems. Aids to Navigation, pilotage, consul's services to vessels, anti-smuggling, immigration, crimes, legal procedure, and nautical education are covered. The Merchant Marine Act, 1936, and related statutes are presented for easy reference. Operators of fishing vessels will find those international rules which are now in effect and those which are tentatively scheduled to become effective next year. Especially valuable to the layman are the "comments of author" throughout the text which explain with background information the laws and give additional sources of information. A useful appendix includes a schedule of navigation fees, customs collection districts and ports of documentation, and Coast Guard districts and marine inspection offices.

--D. E. Powell

(Prince Edward Island) Fisheries Statistics of Canada, 1951, 4 p., printed, French and English, 25 cents. Department of Trade and Commerce, Dominion Bureau of Statistics, Ottawa, Canada. Consists of tables giving the production and value of the principal species of fish and shellfish landed in Prince Edward Island in 1949-51; quantity and value of manufactured fishery products for 1950-51; capital equipment in the primary fisheries operations; the number of persons engaged in the fisheries; and the vessels used in the sea fisheries.

"The Sea Lamprey in Inland Waters," by Truman T. Guard, article, Michigan Conservation, May-June 1953, vol. XXII, no. 3, pp. 14-15, 19-20, illus., printed. Michigan Department of Conservation, Lansing, Mich. Describes a survey conducted by the author in the spring and summer of 1952 to determine the distribution of the sea lampreys in the inland lakes of Michigan. Also describes the characteristics of the sea lampreys, which annually enter many Michigan streams from the Great Lakes, and four native lampreys: the American brook lamprey, Michigan brook lamprey, chestnut lamprey, and the silver lamprey.

Survey of Fishery Activities, 1953, compiled by the Branch of Federal Aid, 138 p., processed, May 1953. A catalogue of current research and management projects pertaining to the sport fisheries of the United States. More than 500 projects designed to help perpetuate sport fishing are now in progress throughout continental and territorial United States. The activities described in this bulletin fall into two main categories: fishery research and fish management.

The bulletin cites projects under way in the 48 States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. About one-fourth of them are being supported by Federal funds made available to States and territories under the Federal Aid in Fish Restoration Act, better known as the Dingell-Johnson program. The remaining projects are being financed directly by State fish and game departments, the Fish and Wildlife Service, Soil Conservation Service, Forest Service, State health departments, and a number of colleges and universities.

Research is being conducted to obtain needed information on such matters as fish migration, spawning habits, feeding habits, food supplies, age and growth, survival, polluted waters, habitat requirements, control of excessive weed growths, fishing pressures, angler harvests, effects of siltation, rough fish control measures, effects of power projects on fish populations, and development of improved methods such as the use of electricity in catching fish for study purposes. While most of the research projects deal with fresh water species, studies of marine sport fish are under way in several of the coastal States.

Management projects are concentrating on such activities as weed control, rough fish control, fish cultural operations, habitat improvements, constructing and maintaining public fishing lakes, fertilizing fishing waters, increasing fish food supplies, constructing and maintaining fish ladders and diverting fish into tributary streams to circumvent power projects in rivers, reducing fish losses in irrigation canals, removing log jams and other streamflow obstructions, and improving watersheds to stabilize streamflows.

(Due to a limited printing, the publication will not be available to the general public but persons interested in studying the contents will find reference copies at Fish and Wildlife Service regional offices in Portland, Oregon; Albuquerque; Minneapolis; Atlanta; Boston; and Juneau, Alaska; or at State fish and game department offices.)

The Technology of Herring Utilization (Report of the FAO Meeting on Herring Technology, Bergen, Norway, Sept. 24-29, 1950), edited by Mogens Jul and Mog. Kondrup, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy. Fiskeridirektoratets Skrifter, Serie Fiskeri, vol. II, no. 1., published by the Norwegian Director of Fisheries, printed by A. S. John Griegs Boktrykkeri, Bergen, 1953. 405 pages.

Contains the papers and discussions at the FAO meeting on Herring Technology in Bergen, Norway, September 24-29, 1950. The material has been arranged according to subject so that the book can be used as a handbook. The following chapters are included: 1. Scope and results of the meeting. 2. The herring industries. 3. The herring-marketing situation. 4. Possibilities for finding markets for herring products in Asia and Africa. 5. Fish protein products made by fermentation or chemical hydrolyzation. 6. Fresh herring. 7. Eviscerating, boning and filleting machines. 8. Freezing of herring. 9. Salted and spiced herring. 10. Herring delicatessen and marinated products. 11. Smoking, drying and dehydration of herring. 12. Herring canning. 13. Manufacture of herring oil and meal. 14. Fish solubles, whole meal, etc.

(Uganda) Annual Report of the Game and Fisheries Department (For the Year Ended 31st December, 1951), 99 p., illus., printed, 5s. (about 70 U. S. cents). The Government Printer, Entebbe, Uganda, 1952. Includes a section on the fisheries of the Uganda waters of Lake Victoria; Lake Albert (including the Albert Nile and associated fisheries); Lake

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Kyoga and waters of eastern Uganda; and Lakes George, Edward, and waters of Western Uganda. Tables give the 1951 catch of fishery products by months for Lake George and Lake Edward and Kazinga Channel; and quantities and values of dried (salted) and smoked fish exported in 1951 from Lakes Edward, George, and associated fisheries. The Uganda Fish Marketing Corporation, prices of dried fish, the East African Fisheries Research Organization, fish farming, boat building, the quantities and values of fishing nets imported, and angling are some of the other subjects covered.

Whalemeat: Bacteriology and Hygiene, by R. H. M. Robinson, M. Ingram, R. A. M. Case, J. G. Benstead, and H. E. Daniels, Food Investigation Special Report No. 59, 62 p., printed, illus., 2s. net (30 U. S. cents net). Department of Scientific and Industrial Research, Cambridge, England. (For sale by Her Majesty's Stationery Office, London, England.) Describes at length the types and numbers of bacteria found in the meat of the whale at the various stages of processing. Two main groups of bacteria are recognized; those present from the outset throughout the carcass of the whale and those which reach the meat during dressing and handling. The report points out that although with the present methods of catching whales little can be done to reduce the numbers of bacteria initially, two measures can be taken to limit their subsequent multiplication. The first is to reduce to the minimum the time between the death of the whale and the freezing of the meat. The second is to bleed the carcass and slit the belly wall as soon as possible after death. The contamination of the meat during dressing is largely eliminated by proper attention to sanitary handling of the carcass and meat. This phase is dealt with in the final sections of the report. The first part of the booklet discusses the species of whales hunted, capture and delivery of whales to factory or land station, dismembering the carcasses, and post-mortem changes of bacteriological significance in whale muscle. The second part concentrates on the bacteria in whale meat.

Whalemeat: Production and Preservation, by J. G. Sharp and B. B. Marsh, Food Investigation Special Report No. 58, 54 p., printed, illus., 2s. 6d. net (35 U. S. cents net). Department of Scientific and Industrial Research, Cambridge, England. (For sale by Her Majesty's Stationery Office, London, England.) Surveys the whaling industry, the methods used in slaughtering and handling the carcasses, and the general problems arising in the production and preservation of whale meat. This booklet discusses the Antarctic whaling industry; changes occurring in the muscle tissue of whales after death; chemical composition, color, and texture of whale meat; palatibility and flavor of whale meat; changes occurring in frozen whale meat during storage; and differences in the condition of the fresh meat, bacteriology, and storage behavior.

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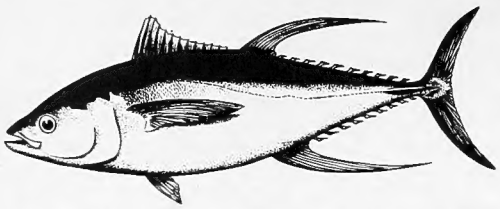
CORRECTION

June 1953 issue, p. 32. The first sentence of the last paragraph should read: "The 1952 canned shad production was 26 percent less in quantity and 30 percent lower in value than the 1951 production (table 2)."

SURVEY OF THE DOMESTIC TUNA INDUSTRY

Special Scientific Report: Fisheries No. 104, Survey of the Domestic Tuna Industry, is a detailed report requested from the Department of the Interior by six Pacific Coast Senators. The tuna industry's position in the domestic economy is analyzed in the report. Quite a number of the U. S. Fish and Wildlife Service's specialists worked on the various phases of the report. Under the discussion of the history of the United States tuna industry are included the following subjects: description of tuna and tuna-like fishes, the United States tuna industry, imports of tuna and tuna-like fishes, tuna fishing gear, tuna fishing craft, tuna canning processes and types of packs, and tuna byproducts. Other chapters analyze consumption, world production, domestic production, processing, relationship of the industry to the national interest, distribution, and Government assistance in the United States and competing countries. A set of conclusions and recommendations is included.



YELLOWFIN TUNA (NEOTHUNNUS MACROPTERUS)

Each subject is covered in considerable detail and represents the results of exhaustive analysis by experts in specialized fields after months of preliminary work. For the principal subjects covered the report contains the following observations: consumption--outlook bright; world production--landings can be maintained and increased; domestic production and processing--prospects of large relative cost reduction rather bleak; distribution--no great prospects of cost savings.

Interspersed throughout the report are many tables and charts which provide a wealth of statistical detail on various subjects related to the tuna industry.

A free copy of Special Scientific Report: Fisheries No. 104 is available upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

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