TRENDS AND DEVELOPMENTS

Alaska

RECORD KING CRAB CATCH IN 1965:

The 1965 king crab catch in Alaska exceeded 130 million pounds, 50 percent more than the 1964 catch of 87 million pounds, according to the Alaska Department of Fish and Game. The ex-vessel value amounted to about $14 million and the primary wholesale value was more than $30 million.

Washing fresh-caught king crabs on the deck of a factoryship.

The Alaska king crab fishery is probably growing faster than any other segment of the United States fishing industry. Since 1954, the catch jumped from less than 9 million pounds to become the second most important species in the Alaska commercial fishing industry--second only to salmon.

In 1965, approximately 1,500 fishermen, more than 300 vessels, and an estimated 20,000 pots were engaged in harvesting Alaska king crab. Each season increasing numbers of the more efficient vessels appear in the fishery and most of them are capable of annually landing over one million pounds of king crab.

The two main fishing areas, Kodiak and the Alaska Peninsula-Aleutian Islands, were credited with landings of 75 million pounds and 50 million pounds, respectively, in 1965.

Kodiak Island has 11 king crab-processi plants operating at the present time. Seve of these plants are within the City of Kodia and require an estimated 40,000 crabs each day to maintain full operation.

When king crab are canned or processed as frozen meat, 80 percent or more of the crabs' landed weight becomes waste. In 1965 over 100 million pounds of king crab shells and gurry were thrown away.

The disposal of growing quantities of crab shells and waste has created serious problems for shore-based processing plants. The City o Kodiak in particular is being faced with a serious pollution problem. Some method of converting this waste material into salable products would substantially improve the economic well-being of the king crab industry and avoid an expensive pollution abatement program.

* * * * *

KING CRAB WORKSHOP HELD IN ANCHORAGE:

On February 28, the U. S. Department of the Interior's Bureau of Commercial Fisheries Technological Laboratory sponsored the third king crab workshop in Anchorage. The unanimous consensus of industry representatives at the meeting was that grade standards are premature at this time because the industry itself is not "standardized" enough to take this step. Instead, it was agreed that an industry-wide specification would be prepared, possibly under the auspices of the King Crab Quality Control and Marketing Board.

Following the standards discussion, research progress and technological problems of the industry were discussed. Waste disposal was added to the list of technological problems facing the industry (bluing, other color problems, liveholding, moisture control, etc.).

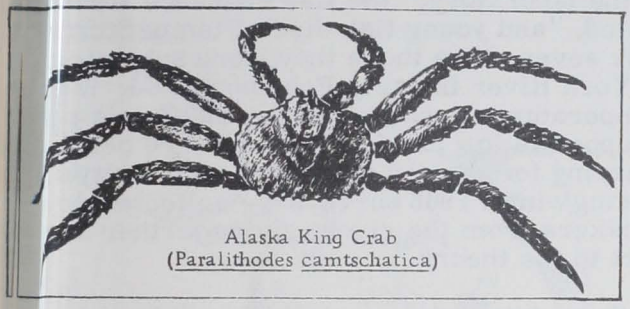
Discussion at the king crab workshop also emphasized that shell stock is fast becoming the largest volume king crab product, and that poor quality is much too evident. Production of shell stock is a very simple process and quality defects are principally the result of

poo[illegible]selection of crabs and poor workmanship--
pr[illegible]lems particularly suitable for solution by
a [illegible]lity Standard and Inspection Service.

* * * * *

R[illegible]RD SHIPMENT OF KING CRAB
L[illegible]VES ALASKA:

[illegible]he largest shipment of king crab ever to
le[illegible] Alaska was put aboard the SS Chena in
es[illegible] March. Altogether there were 49 refrig-
es[illegible]r vans--14 of crab meat and 35 in shell--
aa[illegible]1 vans of canned king crab in the load.
T[illegible]Chena loaded its cargo at Sand Point,
SS[illegible]w Harbor and Kodiak. This is the sec-



Alaska King Crab
(Paralithodes camtschatica)

[illegible]shipment of king crab valued in excess
[illegible]1 million to come out of Alaska. The for-
[illegible]r record load which arrived in Seattle in
[illegible]rch 1965, consisted of 26 refrigerator vans
[illegible]rozen and 6 vans of canned crab.

[illegible]ifornia

[illegible]TE ACCEPTS IRON GATE
[illegible]LMON HATCHERY:

[illegible]Iron Gate Hatchery was turned over to the
[illegible]ifornia Department of Fish and Game by
[illegible] Pacific Power and Light Company in a
[illegible]emony on March 22, 1966, at the hatchery.

[illegible]Construction of the hatchery, located on
[illegible] Klamath River upstream from Hornbrook,
[illegible]s been completed and the installation is in
[illegible] process of being staffed.

The hatchery was built by the utilities
[illegible]mpany to compensate for the salmon and
[illegible]elhead spawning and nursery areas that
[illegible]re cut off when Iron Gate Dam was built.
[illegible]e California Fish and Game Department
[illegible]ll operate it and operation and maintenance
[illegible]sts will be shared by the Department and
[illegible]e Company. (California Department of Fish
[illegible]d Game, March 19, 1966.)

Cans--Shipments for Fishery Products, January-December 1965

A total of 2,989,241 base boxes of steel and aluminum was consumed to make cans shipped to fish and shellfish canning plants in January-December 1965 as compared with 2,752,126 base boxes used during the same period in 1964. In 1965, there were increases in the U. S. canned pack of Maine sardines and Gulf shrimp.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. A "base box" is an area of 31,360 square inches, equivalent to 112 sheets 14" x 20" size. Tonnage figures for steel (tinplate) cans are derived by use of the factor 23.7 base boxes per short ton of steel.

Central Pacific Fisheries Investigations

TUNA BIOLOGICAL STUDIES CONTINUED:

M/V "Charles H. Gilbert" Cruise 88 (January 6-13, 1966): The return of live yellowfin, skipjack, little tunny, and frigate mackerel to Kewalo Basin for density determinations was one of the main objectives of this cruise by the research vessel Charles H. Gilbert, operated by the Department of the Interior's Bureau of Commercial Fisheries Biological Laboratory at Honolulu, Hawaii. The area of operation was within 100 miles of Oahu and Kauai.

Other objectives of the cruise were to (1) collect and return live scombrids to behavior tank facilities; (2) collect yellowfin, skipjack, little tunny; and frigate mackerel for red muscle size determination; (3) collect and return live bait to behavior tank facilities; (4) collect lenses from the eyes of scombrids for amino acid assays.

Thermograph and barograph recordings were made continuously. A standard watch for fish, birds, and aquatic mammals was maintained. Trolling lines were out continuously between Kewalo Basin and each fishing station. The total trolling time was 36 hours. A total of 19 little tunny (Euthynnus affinis), 14 yellowfin (Thunnus albacares), and 2 wahoo (Acanthocybium solandri) were caught.

Note: See Commercial Fisheries Review, April 1966 p. 22.

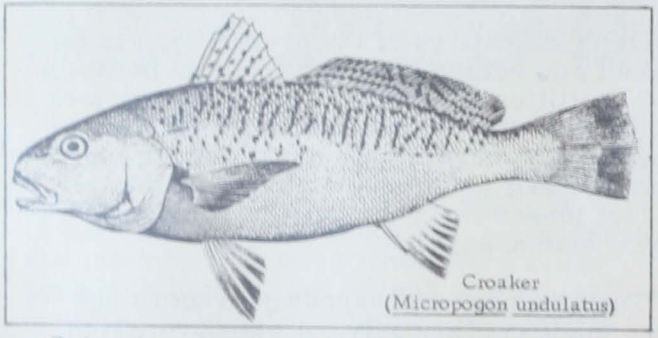
Chesapeake Bay

FRIGID WEATHER DESTROYS CROAKER CROP:

The possibility of a continued build-up of croaker populations in Chesapeake Bay experienced a serious setback during the extremely cold weather which clogged Virginia rivers with ice in late January and February 1966, according to the director of the Virginia Institute of Marine Science.

The head of the Institute's fish research reported that during a trawl cruise in search of young croakers in York River on February 11, no live fish were caught but many dead croakers were found in the river. During the December cruise young croakers were found in abundance, and had they survived, this year's crop, added to the production of two reasonably good seasons which occurred in 1963/64 and again in 1964/65, would have helped bring back this important commercial and sport fish.

A record catch of croakers occurred in 1945 when over 55 million pounds were landed in Virginia. Such an abundance of fish is as unlikely to occur in the near future as is the record low production of 1963 when only 122,400 pounds were landed. The rapid drop in catch immediately following 1945 led fishermen to request the Institute's scientists to study the habits of this fish and to determine the cause of decline.



Croaker
(Micropogon undulatus)

Scientists have methodically studied croakers, following their migrations into the Bay, checking the areas in which juveniles grow to "pinhead" size, and following their migration back to the ocean. Careful sampling of commercial catches has given considerable information about the age and size of fish being caught.

These studies indicate that fishing, either sport or commercial, was not the significant cause for the decreased production of croakers but that natural factors, chiefly weather conditions in the waters they inhabit, have controlled population levels.

During the 1957/58 winter, a former staff scientist reported that many young croakers appeared in the York and Pamunkey Rivers in late fall, but that when areas where they had been abundant were again sampled following a period of severely cold weather, the croakers had disappeared. He theorized that they were victims of cold weather.

"We tested this theory by subjecting young croakers to gradually lowering temperatures in the laboratory," the fish research head stated, "and young fish died at temperatures less severe than those they were subjected to in York River in early February 1966. Water temperatures recorded at the Institute's pier dropped as low as 29.5° F. and were below freezing for part of eight consecutive days. During winter 1966 surveys we collected dead croakers from the river, giving further support to the theory."

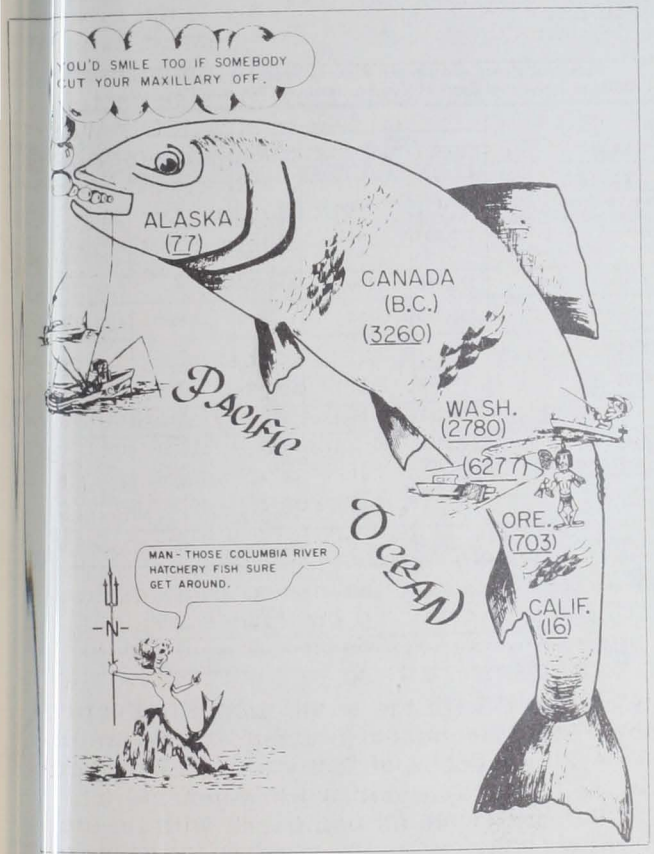
Some interesting facts gathered by scientists during the past ten years concerning the croaker population available to fishermen are: (1) croakers spawn in the Atlantic Ocean over the Continental Shelf from fall through early winter; (2) young croakers, sometimes no more than $\frac{1}{4}$-inch long, are transported by bottom currents from the ocean up to brackish water; (3) if young croakers are present in the brackish waters up the rivers and Bay during extended periods of extremely cold weather, large numbers will not survive the cold; (4) young croakers use protected estuarine waters as nursery areas the first summer of their lives and return to the ocean in early fall; they may return to Chesapeake Bay the following spring, at which time they are barely market or sport size; (5) very few fish over five years old occur in the commercial catch.

According to the Institute, the effects on croaker fishing from the severe winter weather of 1966 will not be apparent before 1967 when the number of small sport or market fish appearing in the catch will be reduced. Croaker fishing for the summer of 1966 is expected to be better than in the past two years unless there was also a winter mortality of one- and two-year old fish at sea. Those fish that do appear in the catch should be larger than those caught in the last two seasons. The stock of croakers will continue to be well below the past 25-year average.

Columbia River

SALMON HATCHERY EVALUATION PROJECT SHOWS PROMISING RESULTS:

"Operation Fin Clip," a joint study by Federal and state agencies to measure the contribution to sport and commercial fisheries of hatchery chinook salmon raised in Columbia River hatcheries, is showing "significant and encouraging results," Interior's Bureau of Commercial Fisheries reported March 18, 1966.



...'s conception of a fall chinook salmon simulating the Pacific Coast from Alaska to California shows numbers of marked ... recovered by commercial and sport fishermen in "Operation ... Clip." Largest number of marked fish (6,277) were taken the ...st three years in the Columbia River. Next biggest catch was ...corded off British Columbia (3,260). Other recoveries were ... off Alaska, 2,780 off Washington Coast, 703 off Oregon ...ast, and 16 off California.

Preliminary analysis of data obtained thus ... in the mammoth evaluation program indi...es Columbia River hatchery fall chinook ...the 1961 brood appearing in the fisheries ...1963, 1964, and 1965, have contributed a...t 2.6 million pounds of fish, valued at ...re than $1,500,000, to all fisheries.

The approximate cost of raising the fish ...the hatcheries was about $350,000, giving a benefit-cost ratio of a little more than $3.50 to $1.

"Operation Fin Clip" has involved the marking of about 32 million young fish over a 4-year period. The Bureau, which provides financial aid for operation and maintenance of 21 state and Federal hatcheries on the Columbia River and its tributaries, launched the program in order to find out how much the hatcheries contribute to the total fish catch as a basis for determining whether to continue financing them.

"Operation Fin Clip" was inaugurated in 1962 with the marking of 1961 brood-year fish--that is, those fish hatched from adult salmon which had returned from the ocean to spawn in 1961. About 8 million fish, representing roughly 10 percent of each hatchery's production, were marked by excision of fins each year.

The first fish of the 1961 brood were recovered in 1963 as two-year-olds by sport fishermen at various points in the Pacific Ocean and in the Columbia River. Others were recovered by sport, commercial, and Indian fishermen in 1964 as three-year-olds and more in 1965 as four-year-olds. It is expected that recoveries of broods marked in 1963, 1964, and 1965 will continue into 1970.

Outside of the recoveries made in the Columbia River itself, the greatest number of marked fish were reported off British Columbia, indicating that Columbia River salmon contribute considerably to the fishery of Canada.

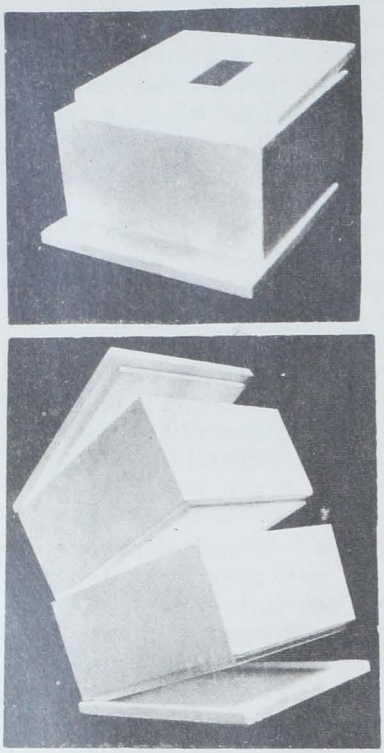
Containers

NEW FOAM BOX FOR TRANSPORTING LIVE TROPICAL FISH:

A modern high speed styrofoam molding plant now produces a newly designed patented styrofoam box for shipping live tropical fish. The plant is located at Palmetto, Florida.

The molding operation, situated on a fish farm, can produce about 2,500 boxes a day from the aluminum four-up mold. Both tops and bottoms of the box are molded four at a time. Special molding slugs are available so that the name of the shipper can be molded into the cover of the box to personalize the box with the name of the shipper.

The box, when used as a double pack, has a fitted cover which nests into the bottom of the box. Thus, when two boxes are shipped together, the bottom of the top box locks into the top of the bottom box, eliminating the need for the cover of the bottom box. The cover is, instead, placed on the bottom of the lower box, thus giving the fishes added protection at the bottom of the box, where they need it most. A rim around the bottom of the cover, plus the runners on the bottom of the box, creates a dead air space as well as lifting the fishes another inch from the floor. This has proven to be such protection that a double pack can be placed in a freezer and still hold the water temperature above 70° F. for almost 18 hours. The comparable "regular" box holds the temperature for only 5 hours. The price on the new patented box will be less than that of a regular box because of the savings in four-up molding. Standard boxes are made on one-up molds.



Two views of new foam box for transporting live tropical fish.

The firm is running the molding factory as a service to the tropical fish industry. It has not been created for profit, nor does it expect to prohibit other box manufacturers in Florida from making a similar box. Licensing arrangements are available to any manufacturer who cares to make a better box.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES OF FRESH AND FROZEN FISHERY PRODUCTS, JANUARY 1966:

The Armed Forces are a major buyer of fresh and frozen fishery products. Purchases of fresh and frozen fishery products for the Armed Forces in 1965 totaled about 28 million pounds with a value of about $19 million. This represents an important market for the U. S. fishing industry.

In January 1966 purchases of fresh and frozen fishery products for the Armed Forces were up 46.5 percent in quantity and 3.1 percent in value from the previous month. The increase was due mainly to larger purchases of scallops, flounder fillets, ocean perch fillets, and haddock fillets and portions.

Principal Fresh and Frozen Fishery Products Purchased by Defense Personnel Support Center, January 1966 with Comparisons

Product	January 1966 Quantity Pounds	January 1966 Avg. Cost Cents/Pound	January 1965 Quantity Pounds	January 1965 Avg. Cost Cents/Pound	Jan.-Dec. 1965 Quantity Pounds
Shrimp:					
raw headless	52,000	106	89,700	97	1,150,650
peeled and deveined	34,000	144	103,080	137	1,953,510
breaded	177,950	92	361,400	89	4,973,274
molded and breaded	7,000	68	76,100	64	707,160
Total shrimp	270,950	100	630,280	95	8,784,594
Scallops	252,750	53	165,400	83	1,933,674
Oysters:					
Eastern	49,056	122	39,476	107	744,621
Pacific	25,550	89	38,244	79	272,814
Total oysters	74,606	111	77,720	93	1,017,435
Fillets:					
Cod	21,000	44	31,900	34	504,690
Flounder	356,500	39	388,450	32	2,909,600
Ocean perch	404,000	36	369,290	33	3,619,060
Haddock	220,500	39	126,100	39	1,544,455
Haddock portions	237,250	52	208,500	50	1,855,834
Steaks:					
Halibut	89,600	60	102,900	48	1,373,760
Salmon	11,360	69	5,000	72	168,640
Swordfish	500	68	540	59	5,030

Note: Data shown do not represent total fishery purchases for the Armed Forces. Only the main items purchased are shown.

Compared with the same month in the previous year, purchases in January 1966 were down 6.2 percent in quantity and 13.7 percent in value. Average prices were generally higher in January 1966 as compared with the same month in 1965.

Fish Spotting

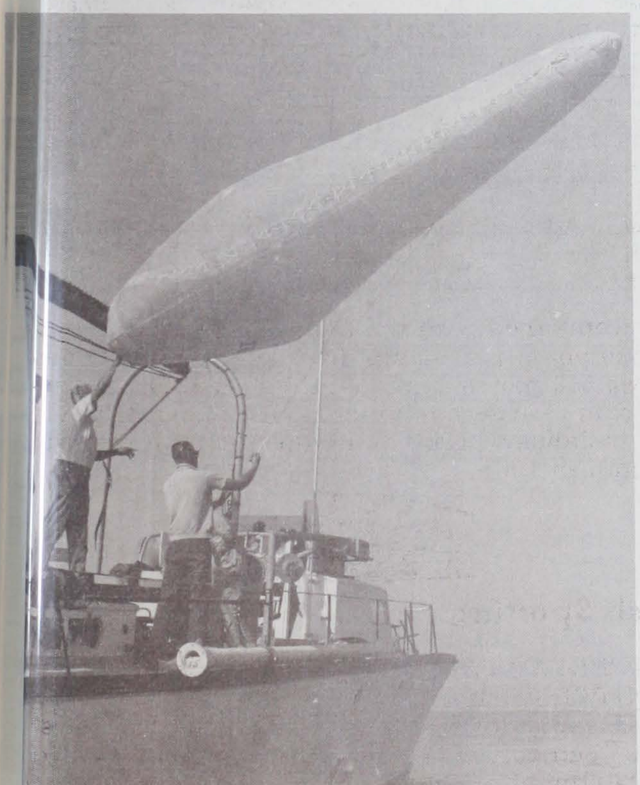
EXPERIMENTS USING BALLOONS FOR SPOTTING FISH CONTINUED:

A series of feasibility tests with balloons has been conducted over the past year by the Department of the Interior's Bureau of Commercial Fisheries Laboratory at La Jolla, Calif., in an effort to develop ship-based aerostats for use in fish spotting and in directing the setting of purse seines. The use of shore-based aircraft for these purposes, although greatly enhancing tuna production, is costly

available at only a few of the fishing ...s. The use of aircraft has been on the ...ne, partly due to the shifting of the fish- ... offshore.

...esults of the Tuna Resources Laborato- ... tests with a tethered hot-air balloon in ... indicated that the operation of such bal- ... is feasible from the deck of a fishing ...el. The model available for testing, how- ..., had a spherical shape and therefore ... vulnerable to high winds. Further tests ... necessary with aerodynamically-shaped ...oons.

... more recent test used a small (200 cu- ... feet) helium-filled balloon of aerodynamic ...pe (Vee-Line), which was towed behind a ...sel. This balloon gave satisfactory re- ...s. The Vee-Line balloon was chosen for ... test for reasons of economy. The fact ... it was small and helium-filled did not ...ract from useful observations of its aero- ...amic properties.



... 1 - Launching Vee-Line balloon from Tuna Resources Lab- ...atory research vessel.

During the latter tests, advantage was ...ken of the 8-pound payload potential of the ...ee-Line balloon. Experiments conducted ...ong with its flight observations showed that

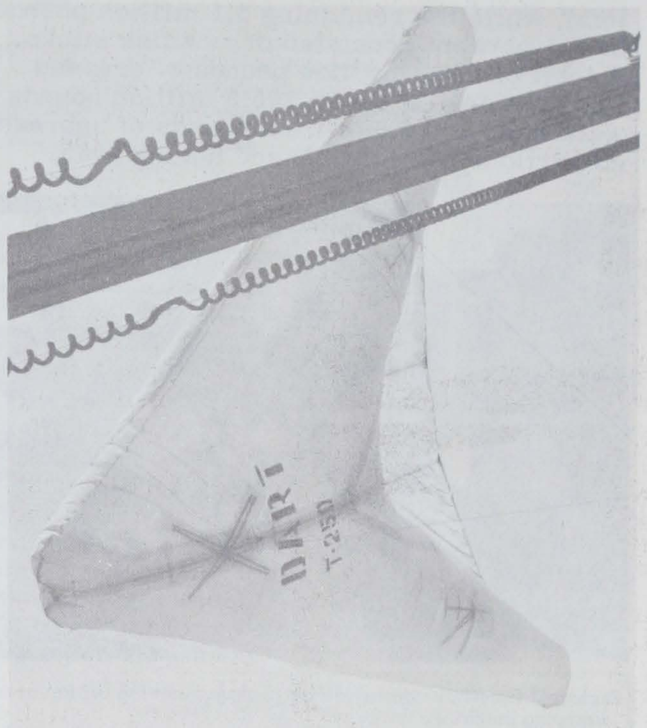


Fig. 2 - 200-cubic foot Vee-Line helium balloon riding above vessel.

small balloons of this type may also be useful in marine research by carrying aloft small instrument packages, such as the radio-controlled camera successfully used in one experiment, or sensor strings for oceanographic measurements, eliminating the "investigator effect" caused by the proximity to a vessel or other floating platforms. Further work, using a balloon, is contemplated following acquistion of a 400 cubic foot Vee-Line balloon.

Note: See Commercial Fisheries Review, May 1965 p. 18.

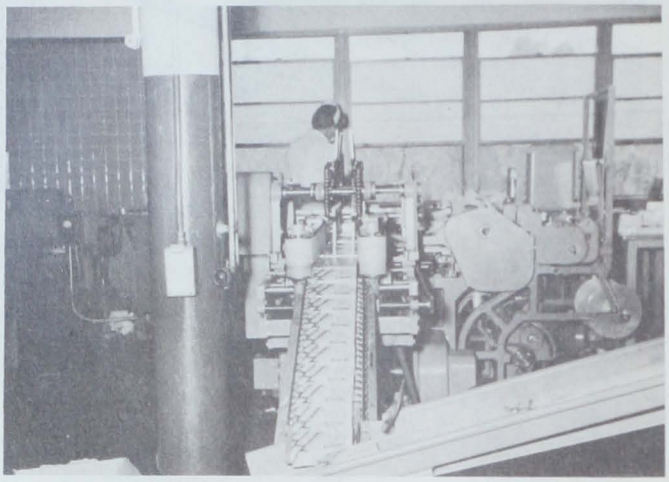
Fish Sticks and Portions

U. S. PRODUCTION, 1965:

United States production of fish sticks and portions during 1965 amounted to 221.7 million pounds valued at $91.4 million--a gain of 23.3 percent in quantity and 37.3 percent in value as compared with 1964. Fish sticks totaled 82.3 million pounds in 1965--8.7 million pounds or 11.8 percent higher than 1964, and fish portions amounted to 139.4 million pounds--up 33.1 million pounds or 31.2 percent.

Cooked fish sticks (77.2 million pounds) made up 93.9 percent of the 1965 fish stick

total, while the remaining 5.1 million pounds or 6.1 percent consisted of raw fish sticks. A total of 139.4 million pounds of breaded fish portions (of which 105.5 million pounds were raw) and 2.6 million pounds of unbreaded portions were processed during 1965.



Packaged fish-stick consumer-size packages coming off the overwrapping machine.

Table 1 - U. S. Production of Fish Sticks by Months and Type, 1965 1/

Month	Cooked	Uncooked	Total
	(1,000 Lbs.)		
January	6,524	278	6,802
February	6,259	261	6,520
March	7,557	513	8,070
April	6,045	367	6,412
May	5,027	443	5,470
June	6,510	303	6,813
July	4,911	431	5,342
August	6,203	401	6,604
September	6,903	535	7,438
October	7,364	483	7,847
November	7,085	525	7,610
December	6,843	511	7,354
Total quantity: 1965 1/	77,231	5,051	82,282
1964	67,810	5,764	73,574
	($1,000)		
Total value: 1965 1/	33,698	2,003	35,701

1/Preliminary.

Table 2 - U.S. Production of Fish Sticks by Months, 1961-65

Month	1/1965	2/1964	1963	1962	1961
	(1,000 Lbs.)				
January	6,802	7,226	7,554	6,082	6,091
February	6,520	7,062	8,241	6,886	7,097
March	8,070	6,965	8,053	7,658	7,233
April	6,412	5,871	6,546	5,719	5,599
May	5,470	5,661	5,750	5,643	5,129
June	6,813	4,221	6,125	5,117	4,928
July	5,342	3,815	4,870	3,740	3,575
August	6,604	6,310	5,696	5,760	6,927
September	7,438	6,482	5,865	6,582	5,206
October	7,847	7,029	8,128	6,698	6,133
November	7,610	6,153	6,471	6,305	6,288
December	7,354	6,779	6,003	6,027	5,618
Total	82,282	73,574	79,302	72,217	69,824

1/Preliminary.
2/Revised.

Table 3 - U.S. Production of Fish Sticks by Areas, 1965 and 1

Area	1/1965		1964	
	Firms	Quantity	Firms	Quant
	No.	1,000 Lbs.	No.	1,000 L
Atlantic Coast States	25	64,866	23	57,3
Inland & Gulf States	7	8,639	8	8,2
Pacific Coast States	10	8,777	14	7,9
Total	42	82,282	45	73,

1/Preliminary

Table 4 - U.S. Production of Fish Portions by Months, 196

Month	Cooked	Breaded Uncooked	Total	Unbreaded	Tot
	(1,000 Lbs.)				
January	2,434	6,876	9,310	197	9,
February	1,909	6,479	8,388	180	8,
March	2,950	9,414	12,364	349	12,
April	2,260	8,208	10,468	196	10,
May	1,725	8,626	10,351	233	10,
June	1,648	9,516	11,164	179	11,
July	2,010	7,952	9,962	105	10,
August	3,311	10,693	14,004	139	14,1
September	3,201	9,398	12,599	235	12,8
October	3,794	9,925	13,719	343	14,0
November	2,921	9,547	12,468	151	12,6
December	3,194	8,849	12,043	291	12,3
Total qty. 1965 1/	31,357	105,483	136,840	2,598	139,4
Total qty. 1964	20,956	82,816	103,772	2,541	106,3
		($1,000)			
Total val. 1965 1/	13,154	41,521	54,675	982	55,6
Total value 1964	8,667	26,955	35,622	910	36,5

1/Preliminary.

Table 5 - U.S. Production of Fish Portions by Areas, 1965 and 1964

Area	1/1965		1964	
	Firms	Quantity	Firms	Quant
	No.	1,000 Lbs.	No.	1,000 L
Atlantic Coast States	26	87,443	26	63,9
Inland & Gulf States	10	48,992	13	39,6
Pacific Coast States	9	3,003	11	2,6
Total	45	139,438	50	106

1/Preliminary.

Table 6 - U.S. Production of Fish Portions by Months, 1961-

Month	1/1965	2/1964	1963	1962	19
	(1,000 Lbs.)				
January	9,507	8,877	8,173	5,077	4,
February	8,568	8,497	7,361	6,360	4,
March	12,713	8,761	8,835	7,036	5,
April	10,664	8,016	7,919	6,408	4,
May	10,584	7,621	7,293	5,818	3,
June	11,343	7,672	8,774	6,137	4,
July	10,067	6,599	4,524	4,679	3,
August	14,143	9,398	6,684	6,687	4,
September	12,834	9,830	9,621	7,180	5,
October	14,062	11,123	9,877	9,871	6,
November	12,619	10,922	8,136	7,406	5,
December	12,334	8,997	7,447	6,019	5,1
Total	139,438	106,313	94,644	78,678	59,8

1/Preliminary.
2/Revised.

The Atlantic Coast was the principal are in the production of both fish sticks and fish portions with 64.9 and 87.4 million pounds, respectively. The Pacific Coast States wer next with 8.8 million pounds of fish sticks b

th land and Gulf States were second with 4[illegible] million pounds of fish portions.

Industrial Fishery Products

U. FISH MEAL AND SOLUBLES: Production and Imports, January 1966: Based on domestic production and imports, the United States available supply of fish meal for January 1966 amounted to 18,147 short tons--656 tons (or 3.5 percent) less than during the same month in 1965. Domestic production was 49 tons (or 1.8 percent) higher, but imports were 705 tons (or 4.4 percent) lower than in January 1965. Peru continued to lead other countries with shipments of 8,253 tons.

U.S. Supply of Fish Meal and Solubles, January 1966

	January 1966	January 1965	Total 1965
	(Short Tons)		
Fish meal and Scrap:			
Domestic production:			
Menhaden	1/	1/	172,158
Tuna and mackerel	1,598	1,914	26,423
Herring	1/	244	12,050
Other	1,221	612	29,849
Total production	2,819	2,770	240,480
Imports:			
Canada	2,998	2,408	43,830
Peru	8,253	11,933	209,801
Chile	-	1,102	5,651
Norway	22	-	78
South Africa Rep.	-	-	5,100
Other countries	4,055	590	6,206
Total imports	15,328	16,033	270,666
Available fish meal supply	18,147	18,803	511,146
Fish solubles:			
Domestic production	1,169	907	93,853
Imports:			
Canada	129	100	1,488
Japan	33	-	-
Other countries	-	550	3,650
Total imports	162	650	5,138
Available fish solubles supply	1,331	1,557	98,991

1/ Included with "other."

The United States supply of fish solubles during January 1966 amounted to 1,331 tons--a decrease of 14.5 percent as compared with the same month in 1965. Domestic production rose 28.9 percent and imports of fish solubles decreased 75.1 percent.

* * * * *

U.S. FISH MEAL, OIL, AND SOLUBLES: Production by Areas, February 1966: Preliminary data as collected by the Department of the Interior's Bureau of Commercial Fisheries:

U. S. Production[1/] of Fish Meal, Oil, and Solubles, February 1966 (Preliminary) with Comparisons

Area	Meal	Oil	Solubles
	Short Tons	1,000 Lbs.	Short Tons
February 1966:			
East & Gulf Coasts	623	72	806
West Coast[2/]	1,747	258	724
Total	2,370	330	1,530
Jan.-Feb. 1966 Total	5,189	709	2,699
Jan.-Feb. 1965 Total	5,027	1,051	1,710

1/ Does not include crab meal, shrimp meal, and liver oils.
2/ Includes American Samoa and Puerto Rico.

* * * * *

Production, January 1966: During January 1966, a total of 2,819 tons of fish meal and 379,000 pounds of marine-animal oil was produced in the United States. Compared with January 1965 this was an increase of 49 tons of fish meal but a decrease of about 194,000 pounds of marine-animal oil. Fish solubles production amounted to 1,169 tons--an increase of 262 tons as compared with January 1965.

U. S. Production of Fish Meal, Oil, and Solubles, January 1966[1/] with Comparisons

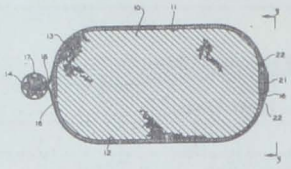
Product	January 1/1966	January 1965	Total 1965
	(Short Tons)		
Fish Meal and Scrap:			
Herring	2/	244	12,050
Menhaden 3/	2/	2/	172,158
Tuna and mackerel	1,598	1,914	26,423
Unclassified	1,221	612	19,349
Total 4/	2,819	2,770	229,980
Fish solubles:			
Menhaden	2/	-	72,948
Other	1,169	907	20,905
Total	1,169	907	93,853
	(1,000 Pounds)		
Oil, body:			
Herring	2/	163	7,767
Menhaden 3/	2/	2/	172,037
Tuna and mackerel	185	236	5,458
Other (incl. whale)	194	174	5,402
Total oil	379	573	190,664

1/ Preliminary data.
2/ Included in "unclassified" or "other."
3/ Includes a small quantity of thread herring.
4/ Does not include a small quantity of shellfish and marine animal meal and scrap because production data are not available monthly.

Inventions

RING BUOY LIFE PRESERVER PATENTED:

A patent was recently granted on a plastic life preserver with foamed plastic cord covered with fiberglass or plastic material permanently colored international orange. (Meets U. S. Coast Guard and military requirements.) The inventor claims that it equals or exceeds the buoyancy of a cork buoy with only one-half the weight, and it will not rot or mildew. Patterns for four sizes are available. (U. S. Patent No. 3,095,586 issued Ludwig S. Baier, P. O. Box 158, Tolovana Park, Oreg. 97145.)



Marketing

EDIBLE FISHERY PRODUCTS, 1965 AND OUTLOOK FOR 1966:

No appreciable changes are foreseen in the supplies of edible fishery products for 1966. Total domestic landings probably will vary little from 1965 but imports likely will continue to rise. Import increases are expected for such major items as frozen shrimp, spiny lobster tails, ocean perch fillets, and the blocks and slabs of fillets from which sticks and portions are manufactured.

During the first quarter of 1966, supplies of a few popular frozen products were expected to be more plentiful than a year earlier. Cold-storage holdings of crabs, spiny lobster tails, breaded shrimp, and scallops were up as the year began, along with fish sticks and portions. There were fewer fillets and steaks of flounder, haddock, and ocean perch, and less raw-headless shrimp in cold storage. Canned pink and chum salmon stocks were relatively low near the end of 1965 but stocks of canned red salmon were up substantially from a year ago.

Fig. 2 - Fishing trawlers tied up at Boston Fish Pier for unloading. At right in foreground is the New England Fish Exchange building.

Retail prices for fishery products averaged higher in the first quarter of 1966 than a year earlier, reflecting generally stronger demand conditions for meat and fish. Price increases were expected in both the fresh and frozen and canned fish categories.

The quantity of edible fish available in 19 set a record high of slightly over 5 billion pounds, up about 3 percent from 1964. On a round weight basis (as caught), imports contributed a record high 51 percent of the total. Substantially larger quantities of blocks of fish fillets and albacore tuna were imported in 1965 than a year earlier. In-shipments of both headless and peeled shrimp were up as were ocean perch fillets, flounder fillets, and sardines canned in oil.

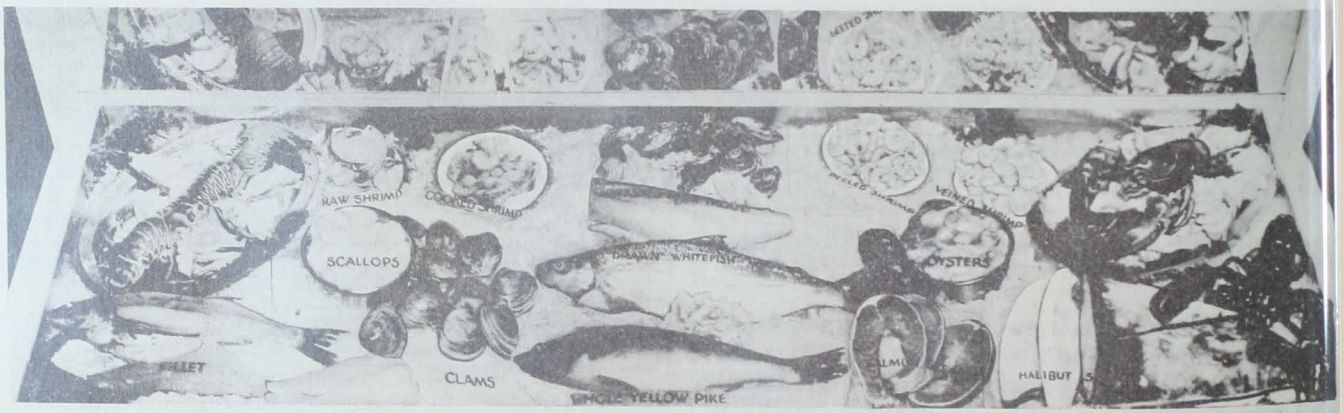


Fig. 1 - Attractive fresh fish display.

capita consumption of fishery products during 1965 increased to 11.0 pounds (edible weight) from 10.5 pounds in 1964. Consumption of fresh and frozen fishery products in 1965 increased to 6.0 pounds per person and for canned fish to 4.5 pounds.

Note: This analysis was prepared by the U. S. Department of the Interior's Bureau of Commercial Fisheries, and published in the U.S. Department of Agriculture's February 1966 issue of the World Food Situation (NFS-115).

Michigan

CHANGES IN COMMERCIAL FISHING REGULATIONS:

Starting June 1, 1966, commercial perch fishing will be liberalized in Michigan waters of the Great Lakes under a new plan to promote better growth rates among those fish and to speed the turnover in their populations.

The relaxed regulations, aimed at improving perch fishing for sportsmen as well as commercial operators, was given final approval by the Michigan Conservation Commission.

Under changes adopted, size and weight limits will be removed for processed and "in the round" perch. Also, closed commercial seasons on those fish will be dropped except in a 10-mile stretch of Saginaw Bay and Lake Huron waters.

Commercial perch fishing will be off limits from June 10 through Sept. 10 in waters less than 18 feet deep between Point Au Gres and Harrisville. Purpose of the three-month closing is to curb conflicts between commercial and sport fishermen during the peak of the tourist season.

In other action taken, the Commission tentatively approved a ban on commercial fishing for northern pike in the Great Lakes.

The measure, which must be aired at public hearings before coming back to the Commission for final action, is in keeping with the Conservation Department's program to spur sport fishing in the big waters.

It is not expected to produce a spectacular increase in pike populations because there is no indication that commercial fishing has overexploited those fish.

While taking into account that pike are of only incidental importance to commercial operators, the proposed ban reflects the fact that anglers have a major interest in those trophy fish. (Michigan Department of Conservation, February 17, 1966.)

* * * * *

LAWMAKERS SEEK FUNDS UNDER ANADROMOUS FISH ACT OF 1965:

A joint legislative resolution of the Michigan legislative body, urging that Michigan receive maximum allotments under the new Federal fish program, was submitted in early March 1966 to a Congressional appropriations subcommittee.

The request is keyed to Government plans, authorized under an act of 1965, which call for allocating $25 million in federal funds through mid-1970 to promote anadromous fisheries in the nation, Public Law 89-304.

A new project is under way by the Michigan Department of Conservation to introduce another anadromous fish--the coho salmon--in the Great Lakes.

The joint resolution presented to the Congressional subcommittee is focused on the coho project and the Michigan Department's plans to boost populations of steelheads and other anadromous fish in the Great Lakes. (Michigan Department of Conservation, March 10, 1966.)

North Atlantic Fisheries Explorations and Gear Development

TRAWL GEAR EVALUATIONS AND HADDOCK SURVEY:

M/V "Delaware" Cruise 66-1 (February 7-17, 1966): Comparative tows between the Department of the Interior's Bureau of Commercial Fisheries exploratory fishing vessel Delaware and similar class vessels using the standard No. 41 otter trawl, and terminal trials with the Atlantic Western Trawl, Model III, were the primary objectives during this cruise. Additional objectives achieved coincidently with the gear trials were (1) the procurement and storing of live fish, frozen fish, and iced fish, and (2) the reporting (to U. S.

fishing vessels) by radiotelephone of commercial quantities of haddock found in areas north of Georges Bank.

Catch of 4,000 to 5,000 pounds of mixed groundfish, primarily haddock, taken with the Atlantic Western Trawl, Model III, during Delaware Cruise 66-1.

The No. 41 trawl used aboard the Delaware during this cruise was made up of the following materials and rigging:

Section	Material	Mesh Size
Top wing	Polyethylene	5"
Bottom wing	Manila	5"
Square	Polypropylene	5"
Lower belly	Manila	4½"
Top belly	Polyethylene	4½"
Extension	Polypropylene	4½"
Cod end	Nylon	4½"
Chafing gear	Cowhide	

The roller gear consisted of 20-inch diameter rubber rollers in the bosom, 18-inch diameter rubber rollers along 15 feet of wings from the quarter and 27 feet of rounded (rope wrapped) wire along the remainder of the wings. Fifty floats were secured to the headrope: 20 were along the bosom and 15 were on each wing. Standard 10.5-foot doors weighing 1,250 pounds were used with 5-fathom legs and 10-fathom ground cables.

Six tows were made with the No. 41 net on Georges Bank in areas southeast of the "Leg" (in the "Winter Fishing Ground") and on the "Northern Edge." All tows were made in company with various Boston otter trawlers and Canadian vessels. Towing results were similar in yield to those vessels in the vicinity; time adjustments were applied when commercial vessels made longer tows. After satisfactory comparative towing information was compiled with the No. 41 trawl, the net was removed and the Atlantic Western Trawl Model III, was substituted.

The rigging data on the Atlantic Western Trawl, Model III, are:

Section	Material	Mesh Size
Wings	Polyethylene	5"
Square	Polypropylene	4½"
Bellies	Polypropylene	4½"
Extension	Polypropylene	4½"
Cod end	Nylon	4½" (doubl
Chafing gear	Polypropylene strands (Hula Skirt)	

The roller gear consisted of 20-inch diameter rubber rollers in the bosom and 18-inch diameter rubber rollers along 15 feet of wings from the quarters. The remainder of the wing footrope was fitted with rubber discs. Thirty-six floats were secured to the headrope: 20 along the bosom and 8 on each wing. Standard 10.5-foot doors weighing 1,250 pounds were used with 15-fathom legs.

The Atlantic Western Trawl was set 17 times in various areas off George Bank. The best concentrations of haddock encountered during this cruise were found when the Delaware was fishing alone northeast of Brown's Bank in 70 to 85 fathoms of water. Reports of these tows were broadcast by radio to two Boston-based vessels fishing on the southwest part of Brown's and the northwest edge of Brown's. These vessels were the only known U. S. vessels within immediate steaming distance of the Delaware.

The remaining areas in which the Atlantic Western Trawl was fished were northwest and west of Georges Bank. With the exception of one tow when 4,000 pounds of ocean perch were caught, the prevalent species encountered were haddock. The range in the yields during the remainder of tows with the Atlantic Western Trawl was consistent with commercial results at that time; the Delaware experienced spotty fishing which was in agreement with results of the fleet. The few times this net was fished within sight of other vessels its yields based on radio reports, compared favorably with those of the other vessels.

The primary objectives of this cruise were realized both with the No. 41 trawl and the Atlantic Western Trawl. The Delaware was able to produce on a par with other vessels

g similar gear. Fishing trials indicated t replacement of the rounded wire sweep w rubber disc-covered wire and modifica- t of the net by hanging the wing ends to the s and shortening the ground cables, when f g the rougher bottoms, would reduce w damage to some extent yet maintain g fishing characteristics with the No. 41 t .

he trials with the Atlantic Western Trawl i ated that this net has good fish catching c ties on fish both at or near the bottom. M r difficulty in setting the net, due to its l sweep and the unfamiliarity of the crew w the net's construction details, were the m notable disadvantages experienced dur- i his cruise. Evaluation of the trawl be- y this stage, as a commercial fishing unit, v require fishing trials aboard industry v els in production operations. Two Atlan- t Western Trawls, Model III and Model IV, c roper size for vessels of 700 hp. or great- e nd for 150 to 300 hp. are available for f her cooperative evaluation projects.

See Commercial Fisheries Review, November 1965 p. 30.

anography

ANNUAL OCEANOGRAPHIC AND RINE SCIENCES MEETING:

he Marine Technology Society (MTS) will its 2nd Annual Conference & Exhibit in hington, D. C., June 27-29, 1966.

nnouncement of plans for the "1966 MTS w" follows the successful symposium con- ed by the Marine Technology Society and r technical societies in Washington in ary 1966. Titled, "Man's Extension into Sea," this two-day symposium drew more 1,600 scientific and engineering people n across the country--double the original mated attendance.

The theme of the June Conference & Ex- it is "Exploiting the Oceans." The three- technical program will include more than presentations by recognized authorities h emphasis on both opportunities and prob- s as industry and government expand and d to explore and use the vast resources he world oceans. The four major subject as are: (1) ocean floor minerals and mical extracting, (2) fisheries and food m the sea, (3) legal aspects of explora- tion and exploitation, and (4) new techniques and hardware for ocean research, survey, and underwater operations.

* * * * *

BUREAU'S RESEARCH VESSEL LAUNCHED:

The newest and largest vessel in the Bureau of Commercial Fisheries' growing research fleet, the Miller Freeman, was scheduled to be launched April 2, 1966, at the Lorain, Ohio, shipyards of the American Ship Building Company, according to Secretary of the Interior Stewart L. Udall.

The new vessel was assigned to the Bureau's Biological Laboratory in Seattle, Wash. The shakedown cruise planned to take it to Seattle via the St. Lawrence Seaway to the Atlantic Ocean, then through the Panama Canal to the Pacific.

The Miller Freeman will be used for high-seas oceanography and fishery research in the North Pacific and Bering Sea. Its size will permit extended cruises to the West Pacific. The vessel will also assist in carrying out provisions of the 1953 International North Pacific Fisheries Convention signed by the United States, Canada, and Japan. The Convention concerns both the catch and the conservation of halibut and salmon--and the research necessary to meet international agreements.

The $3 million vessel is designed to carry a crew of 27, with additional quarters and facilities for 9 scientists. It is a 216-ft. stern ramp vessel, with a 42-ft. beam, powered by a 2,150-hp. diesel engine.

The vessel is named for Miller Freeman, Seattle conservationist and publisher, who died in 1955. He founded the publication Pacific Fisherman in 1903, which he dedicated to fishermen of the Pacific Coast. He devoted much of his energy to advancing international conservation of fishery resources.

Oregon

COHO SALMON TRANSPLANTS:

Some 30,900 adult coho (silver) salmon have been hauled from their home waters to new streams this season in an effort to make best

use of the spawn-ready fish, which are surplus to the needs of Oregon Fish Commission hatcheries. The big venture, in its second year of operation, is a joint effort of the Oregon Game Commission and the Fish Commission and marks the first mass use of this technique to expand the production of coho salmon. According to the Fish Commission hatchery chief, it has been found that coho salmon will spawn naturally in other than their natal streams if transplanted just prior to spawning time. The transplant of adult fish is started only after the egg requirements of hatcheries are assured and enough fish have been placed above racks on hatchery streams to take full advantage of whatever spawning grounds are available.

With the advent of increasing hatchery surpluses of coho salmon in recent years, other means had to be found to deal with the fish that would otherwise be wasted. The fish lift was conceived as the most immediate solution. One of the limiting factors in this program has been the shortage of suitably equipped trucks with which to haul adult salmon during the normal October through December migration period.

Even though planning started early for the massive transplant this past season, a frustrating delay in the arrival of fall rains held back the runs of migrating coho salmon. In early November when the rains finally did arrive, they triggered an explosion of coho that virtually swamped hatchery-holding facilities and exceeded the ability of the fish taxis to haul them out. This factor was mainly responsible for the reduction in fish hauled this year over last year when 38,000 cohos made the trips. Unfortunately the Christmas 1964 floods caused an inestimable amount of damage to the spawn deposited in the gravel of the transplant streams a year ago. If nature cooperates this season more production can be expected from the efforts. (Oregon Fish Commission, Feb. 21, 1966.)

Oysters

ARTIFICIAL PROPAGATION DISCUSSED AT OLYMPIA MEETING:

Oyster larvae can now be artificially grown the year round by comparatively simple methods, according to reports from a meeting of oyster growers and marine biologists held in Olympia, Wash., by the Washington Department of Fisheries, March 8, 1966. However, stages from the spat, or young oyster, to an oyster of a size that ca be put out on beds still present difficulties. There are indications that these difficulties may soon be solved, and it could be possib to produce commercial quantities of oyste and clam seed the year round to supply gro ers.

Featured speakers at the meeting includ the former director of the Milford, Conn. shellfish laboratory of the U. S. Fish and Wil life Service, a leader and innovator in the ar tificial propagation of bivalve seed. He spok on the history of the artificial propagation o bivalve molluscs and told of the advances made in the past few years. He said that th new laboratory at Milford will include a school where oyster growers may study and participate in the work to become familiar with artificial propagation procedures.

A State of Washington fisheries biologist told of the experiments conducted in 1964 an 1965 at the Hoodsport salmon hatchery in modified salmon rearing ponds on the artifi cial propagation of European oyster seed. H also told of the operation of a pilot plant for the production of oyster and clam seed that has been in use at the Pt. Whitney shellfish laboratory since 1958.

The Director of the Bureau of Commercial Fisheries shellfish laboratory at Oxfor Md., told of seed production procedures use at that laboratory. The Deputy Regional Director of the Bureau's Region I, gave his views of the future possibilities of the sale o Pacific Northwest oysters throughout the Uni ed States and world-wide. He said the recen decrease in air freight rates made it possibl to ship fresh salmon to Paris and other Euro pean cities as a luxury item and that in the near future, there will be a market for Amer ican oysters in a prosperous Europe.

A question and answer period followed the reports, with the experts fielding questions from oyster growers, who seemed interested in the training that will be possible at the Mil ford laboratory. (Washington State Department of Fisheries, March 9, 1966.)

Salmon

U. S. PACIFIC COAST CANNED STOCKS, FEBRUARY 1, 1966:

On February 1, 1966, canners' stocks (sold and unsold) in the United States of Pacific canned salmon totaled 1,913,780 standard cases (48 1-lb. cans)--564,181 cases less than on February 1, 1965, when stocks totaled 2,477,961 standard cases.

Table 1 - Total Canner's Stocks of Pacific Canned Salmon, February 1, 1966

Species	Feb. 1, 1966	Jan. 1, 1966	Dec. 1, 1965
	(No. of Actual Cases)		
King	87,321	109,284	123,126
Red	1,553,294	1,801,354	1,902,932
Coho	155,072	173,560	193,729
Pink	520,292	651,279	767,120
Chum	201,711	263,268	305,471
Total	2,517,690	2,998,745	3,292,378

On the basis of total stocks of 2,517,690 actual cases (consisting of cans of $\frac{1}{4}$-lb., $\frac{1}{2}$-lb., 1-lb., etc.), red salmon accounted for 1,553,294 cases (mostly 1-lb. and $\frac{1}{2}$-lb. cans) or 61.7 percent of the total canners' stocks on February 1, 1966; pink salmon accounted for 520,292 cases or only 20.7 percent (338 of 3 cases were 1-lb. talls). Next came chum (201,711 cases, mostly 1-lb. talls), followed by coho or silver (155,072 cases), and king salmon (87,321 cases).

Carryover stocks at the canners' level totaled 733,575 standard cases on July 1, 1965, the approximate opening date of the Pacific salmon packing season. Adding the 1965 new season pack of 3,541,187 standard cases brought the total available supply for the 1965/66 market season to 4,274,762 standard cases.

Shipments at the canners' level of all salmon species from July 1, 1965, to February 1, 1966, totaled 2,360,982 standard cases. The carryover of 733,575 standard cases on July 1, 1965, the beginning of the 1965/66 sales year, was substantially lower (37.6 percent) than the carryover of 1,175,588 cases a year earlier.

The 1965 U. S. pack of Pacific canned salmon (including Alaska) of 3,541,187 standard cases was 9.7 percent below the 1964 pack of 3,922,356 cases. By species, the new pack was made up of (1964 pack in parentheses); king, 95,503 standard cases (78,155); red, 2,013,077 cases (831,815); coho, 170,064 cases (202,610); pink, 951,688 cases (2,055,311); chum, 310,855 cases (754,465).

Data on canned salmon stocks are based on reports from U. S. Pacific Coast canners who packed over 96 percent of the 1965 salmon pack. (Division of Statistics and Economics, National Canners Association, February 25, 1966.)

Note: See Commercial Fisheries Review, April 1966 p. 36.

Table 2 - Total Canners' Stocks on Hand February 1, 1966 (Sold and Unsold), by Species and Can Size

Case size	Can Size	King	Red	Coho	Pink	Chum	Total
		(Actual Cases)					
48	1/4-lb.	4,710	152,181	60,044	2,708	66	219,709
48	1/2-lb.	75,554	532,232	60,557	168,650	41,264	878,257
48	1-lb.	6,760	865,160	27,751	336,663	154,747	1,391,081
12	4-lb.	297	3,721	6,720	12,271	5,634	28,643
Total		87,321	1,553,294	155,072	520,292	201,711	2,517,690

Table 3 - Canners' Shipments from July 1, 1965 to February 1, 1966, by Species and Can Size

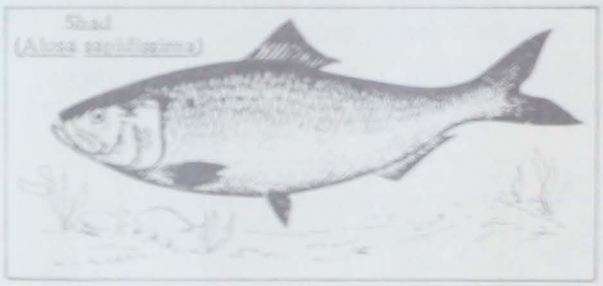
Case size	Can Size	King	Red	Coho	Pink	Chum	Total
		(Actual Cases)					
48	1/4-lb.	9,490	272,867	64,794	5,785	1	352,937
48	1/2-lb.	93,298	450,783	71,991	243,690	52,828	912,590
48	1-lb.	13,971	595,463	80,349	712,974	343,796	1,746,553
12	4-lb.	42	5,738	7,549	45,668	10,987	69,900
Total		116,717	1,324,851	224,683	1,008,117	407,612	3,081,980

Shad

SUSQUEHANNA STUDY PROGRAM EXTENDED THROUGH JUNE 1966:

An intensive research project to determine if American shad can be re-established in the Susquehanna River system is being extended for an additional six months, the Department of the Interior announced.

The project, begun in the spring of 1963, was scheduled to terminate in December 1965. A recent meeting of representatives from power companies maintaining dams on the river, State conservation departments of Maryland, New York, and Pennsylvania, and Interior's Bureau of Sport Fisheries and Wildlife and Bureau of Commercial Fisheries, determined that the study phase concerning adult shad should continue through one more spawning season. Studies would be continued to obtain additional information on the behavior of adult shad.



Several adult shad carrying sonic devices that transmit signals to shore receivers, and shad wearing the standard visual tags, have been transplanted in the Susquehanna above the dams. Some signals were picked up both above and below the point of release by the receiving equipment, but many of the sonic-tagged fish were never "heard from" again.

The Susquehanna shad research project has two phases. The first determined that shad eggs would hatch in the river and that young shad from these eggs could move downstream through sections of the river polluted by mine acid drainage, and through the dams.

The second phase is to determine whether adult shad will migrate upstream through the impoundments if they are provided a means of bypassing the dams.

The Conowingo Dam fish trap in Maryland, which was constructed for the study, is being modified, and a much larger number of tagged fish will be transplanted this spring to get a definite answer to this second question.

The research project has been a cooperative one, with State and Federal agencies providing biologists and equipment. The power companies--Philadelphia Electric Company, Pennsylvania Power and Light Company, Metropolitan Edison Company, and the Safe Harbor Water Power Corporation--volunteered to finance the study which could lead to a Federal Power Commission ruling that fishways be constructed around the four dams involved. The companies have provided nearly $200,000 for the study.

Note: See Commercial Fisheries Review, May 1965 p. 34.

Shrimp

BREADED PRODUCTION, 1965:

United States production of breaded shrimp during 1965 amounted to about 97.2 million pounds--an increase of 6.4 percent as compared with 1964.

The Gulf States ranked first in the production of breaded shrimp in 1965 with 60.9 mil

Table 1 - U.S. Production of Breaded Shrimp by Months, 1964-65

Month	1/1965	2/1964
	(1,000 Lbs.)	
January	7,442	7,40
February	7,117	8,10
March	8,348	7,30
April	7,366	7,08
May	7,304	6,22
June	7,371	6,64
July	7,401	8,59
August	9,040	7,35
September	9,315	7,88
October	9,475	9,22
November	8,957	7,90
December	8,050	7,31
Total	97,186	91,33

1/ Preliminary.
2/ Revised.

Table 2 - U. S. Production of Breaded Shrimp by Areas, 1964-65

Area	1/1965			2/1964		
	Plants	Quantity	Value	Plants	Quantity	Value
	No.	1,000 Lbs.	$1,000	No.	1,000 Lbs.	$1,000
Atlantic	19	29,149	21,588	25	28,937	19,82
Gulf	24	60,922	48,736	28	55,038	38,38
Pacific	7	7,115	5,885	9	7,358	5,18
Total	50	97,186	76,209	62	91,333	63,38

1/ Preliminary.
2/ Revised.

e 3 - U. S. Production of Breaded Shrimp, 1955-65		
	Quantity	Value
	1,000 Lbs.	$1,000
1	97,186	76,209
2	91,333	63,388
	76,216	53,527
	76,803	62,230
	73,795	55,089
	70,348	47,015
	69,764	45,314
	60,865	43,622
	51,085	37,764
	50,888	37,301
	38,991	26,907

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ll pounds, followed by the Atlantic States w 29.1 million pounds, and the Pacific Ss with 7.1 million pounds.

* * * * *

UITED STATES SUPPLY AND IPOSITION, 1963-65:

he available United States shrimp supply i 65 was 10.0 percent higher than in 1964 and 4.7 percent higher than in 1963. United States shrimp imports again were at a record high in 1965, having increased 5.6 percent from the previous year and 6.9 percent from the 1963 imports.

. S. Supply and Disposition of Shrimp, 1963-1965			
em	1/1965	2/1964	1963
	. . . (1,000 Lbs., Shell-on). . .		
--Heads-on weight:			
s tic landings	245,400	211,821	240,478
ign product of U.S.			
eries 3/.	640	1,040	253
rts 4/.	284,617	269,651	266,205
al supply (heads-on)	530,657	482,512	506,936
sition--Heads-on weight (approximate):			
en:			
dless	6/	289,593	283,271
t, raw (includes			
me cooked) 5/. . . .	6/	105,506	109,703
t, cooked 5/.	6/	21,611	15,232
a ded	98,000	91,841	76,700
cialties 5/.	6/	1,552	1,020
otal frozen 7/.	425,410	405,182	398,978
ed.	68,786	43,058	68,272
dried	6,975	4,845	5,640
h	26,000	25,000	27,000
assified	3,492	4,427	7,046

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t by domestic craft, principally in waters off Central America, and shipped to the ed States. Reported by the U. S. Bureau of the Census as "Products of the Amer- Fisheries."
omposition of imported shrimp includes estimates for 1963. Imports by commod- listed below were converted to heads-on weight by multiplying the quantity of dle ss shrimp by 1.59, raw meat by 2.04, cooked meat by 3.13, breaded by 1.00, ed by 3.21, dried by 7.69, and unclassified by 1.59.

Item	1965	1964	1963
	. . . . . (1,000 Lbs.)		
Shrimp:			
Headless	114,324	112,149	111,717
Meat, raw	31,961	27,385	29,460
Meat, cooked	2,883	2,585	2,547
Breaded	778	508	484
Canned	2,248	3,004	4,120
Cured	407	404	279
Unclassified	(a)10,487	(b)8,541	2,923
Total	163,088	154,576	151,530

(a) Estimated to include headless 6,700,000 pounds and raw 1,800,000 pounds.
(b) Estimated to include headless 4,800,000 pounds and raw meat 1,200,000 pounds.

nclude some fresh products.
vailable.
otals do not add and are less than actual totals because products frozen more than e were eliminated.
o convert the weight of heads-on shrimp to heads-off, divide by 1.59 which will pproximate weight of heads-off shrimp.

Tuna

ATTRACTANT STUDY:

The effectiveness of various types of floating objects in attracting tuna is being tested in the Pacific Ocean off Central America. The Department of the Interior's Bureau of Commercial Fisheries Tuna Resources Laboratory, La Jolla, Calif., has chartered for 60 days the San Diego sportfishing boat HM-85, which left San Diego on March 5, 1966.

Scientist observes fishes associating with a floating tree in the open sea off Costa Rica.

Bureau scientists who boarded the boat when it arrived in Puntarenas, Costa Rica, hope to learn why fish are attracted to drifting materials at sea and to develop an object which will be efficient in attracting tuna and skipjack. The results of the studies could lead to the use of attractors by American tuna fishermen to concentrate tuna schools.

It is well known to tuna fishermen that yellowfin tuna, skipjack, and many other fish col-

lect near and beneath drifting logs, branches, seaweed, and other materials at sea. Fishermen usually inspect drifting material to look for schools of tuna, and set their nets around such objects when commercial quantities of fish are present. In one year, a total of 1,500 tons of yellowfin and skipjack tuna was caught by California fishermen in that manner. As many as 200 tons of tuna were captured from a single drifting log.

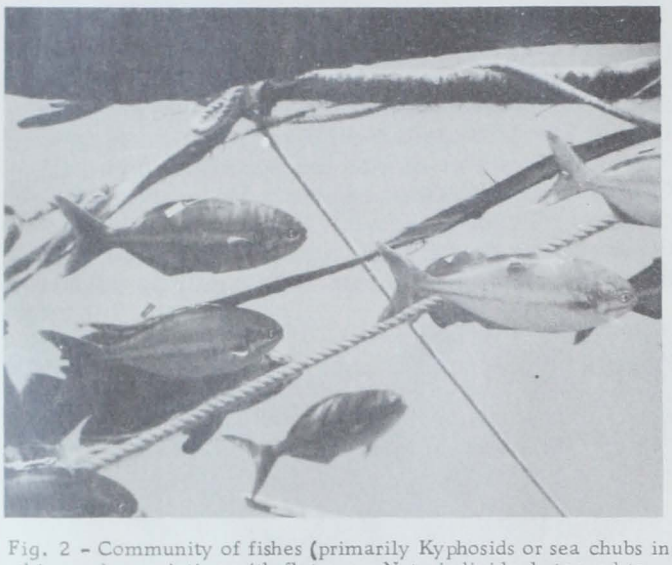


Fig. 2 - Community of fishes (primarily Kyphosids or sea chubs in this case) associating with flotsam. Note individuals tagged to determine movements between floating objects.

Fishermen of many other countries, including Japan, Indonesia, and India also take advantage of fish that collect beneath drifting materials at sea. Those fishermen moor rafts of bamboo, palm fronds, or other materials to attract fish.

At least a dozen floating objects differing in size, shape, and color will be moored in the waters off Costa Rica. They will include large objects fabricated from polypropylene cloth and with a surface area of 2,000 square feet, as well as smaller ones constructed of polyethylene cloth. Underwater, time-lapse cameras will be attached to the objects to obtain permanent photographic records of the fish which accumulate beneath the test objects. A small purse seine will be used to capture the smaller bait fish. Scientists also plan to tag individual fish to determine how long they will remain beneath an object, to make daily underwater estimates of the abundance of fish, and to record their behavior. According to a Bureau scientist, the major hazard is that sharks and marlin are also attracted to their objects as well as tuna. To avoid such hazards, a shark cage (for divers, not for sharks) into which divers can flee when sharks or marlin appear has been built for the divers by a San Diego firm.

United States Fisheries

ANADROMOUS FISHERY PROGRAM PLANNED:

Plans to start a new Federal program were announced by Secretary of the Interior Stewart L. Udall to conserve and develop the Nation's anadromous fishery resources. Anadromous fish, such as striped bass, salmon and shad, live in the ocean and return to fresh water during the spawning season.

The program could provide funds for research, stream improvement, and construction of fishways, spawning channels, and hatcheries.

The Anadromous Fish Act of 1965, authorized by Public Law 89-304, will be administered jointly by Interior's Bureau of Commercial Fisheries and Bureau of Sport Fisheries and Wildlife.

Although funds have not yet been approved by Congress, the Act authorizes the appropriation of $25 million through June 30, 1971. The maximum Federal funds authorized for one year are $5 million, and no state may receive more than $1 million in one year. Federal funds would finance up to 50 percent of approved anadromous fish projects.

Both sport and commercial fishery resources are expected to benefit, and State agencies with jurisdiction over sport and/or commercial fisheries may enter into cooperative agreements with the Federal Government to carry out approved activities. States bordering the Great Lakes are eligible for funds for projects dealing with fish which leave the lakes to spawn in tributary streams. The Columbia River Basin--in Washington, Oregon, Idaho--is covered by another program and is excluded from the 1965 Act.

The Anadromous Fish Act provides for the participation of State fishery agencies and non-Federal interests--colleges, universities, associations, companies, and individuals--interested in helping to finance the projects.

Note: See Commercial Fisheries Review, January 1966 p. 48.

U.. Vessels

ACMMODATIONS SURVEY:
survey of accommodations on U. S. fishing essels was conducted by the Interior Depaent's Bureau of Commercial Fisheries. Ob of the survey was to determine to what ex those vessels could meet standards in th posed draft Convention on Crew Accommtions on Board Fishing Vessels which wi e up for adoption at the 50th Internationall bor Conference, Geneva, Switzerland, Ju -20, 1966.

e agenda of the Conference includes final cc deration of a proposal for an internationall vention for minimum standards of accodation on board fishing vessels. The pos ed convention will very likely be adopted a sent to member nations for ratification.

e draft instrument which will be pres d to the Conference for consideration w d set mandatory minimum standards for c accommodations aboard fishing vessels o gross tons or more. Vessels from 25 u p 75 gross tons would be subject only w the national competent authority, after c ulting with fishing vessel owners' and f rmen's organizations, determines that t s reasonable and practicable. Vessels w h normally remain away from port for p ds of less than 36 hours and in which the c does not live on board would be exempt.

e draft instrument details specifications f leeping rooms including size of bunks and l rs, sanitary accommodations including w basins, tubs and/or showers, and specif ons for galleys and mess rooms. These s ifications would apply to all new or recons ted fishing craft except the smaller exe sizes.

e United States position on the proposed ment has not as yet been finally deter d. However, in discussions of this matter e Conference, the Bureau desires that the delegation participate as actively as pose. In that connection the delegation des information on the present status of ng vessel accommodations in the United es fleet (i.e. vessels of 5 net tons or r).

n its survey the Bureau obtained infor on from a sample of about 800 vessels h is considered representative of the . fishing fleet. Interviewers, staff members of the Bureau, contacted vessel owners or other persons with knowledge regarding accommodations on board fishing vessels during the period March 21-April 9, 1966.

* * * * *

NEW CUTTER COMMISSIONED FOR ALASKA DUTY:

The Coast Guard Cutter Confidence, the fourth of a new class of 210-foot rescue cutters, was commissioned February 19, 1966, at the Coast Guard Yard, Curtis Bay, Baltimore, Maryland.

A bow view of the new 210-ft. U. S. Coast Guard cutter, Confidence, taken at her mooring at the U. S. Coast Guard Yard, Curtis Bay, Md., before commissioning ceremonies on her flight deck commenced.

The Confidence is scheduled to be based at Kodiak, Alaska, where it will be used in law enforcement work as well as search and rescue. It was due to arrive at Kodiak in late May 1966.

The new cutter is equipped with a flight deck permitting landings and take offs of the Coast Guard's new turbine-powered "flying boat" rescue helicopters.

The Confidence has a capacity to tow ships up to 10,000 gross tons, and is equipped with twin propellers, each of which is powered by a combination diesel engine and gas turbine propulsion plant. It will have a sustained speed of 18 knots, and is designed to cruise for 5,000 miles at 15 knots.

The superstructure of the Confidence is arranged so as to permit 360-degree visibility from the bridge.

* * * * *

DOCUMENTATIONS ISSUED AND CANCELLED:

November 1965: During November 1965 a total of 51 vessels of 5 net tons and over was issued first documents as fishing craft as compared with 32 in November 1964. The number of documents cancelled for fishing vessels in November 1965 is not available.

U. S. Fishing Vessels 1/--Documentations Issued and Cancelled, by Areas, November 1965 with Comparisons

Area (Home Port)	Nov. 1965	Nov. 1964	Nov.-Dec. 1965	Nov.-Dec. 1964
	. . . .(Number). . . .			
Issued first documents 2/:				
New England	2	3	34	32
Middle Atlantic	1	1	14	10
Chesapeake	8	3	46	39
South Atlantic	8	7	68	46
Gulf	22	11	275	205
Pacific	10	5	167	135
Great Lakes	-	1	2	3
Hawaii	-	1	-	2
Puerto Rico	-	-	1	2
Total	51	32	607	474
Removed from documentation 3/:				
New England	4/	9	4/	51
Middle Atlantic	4/	2	4/	26
Chesapeake	4/	1	4/	29
South Atlantic	4/	5	4/	54
Gulf	4/	13	4/	95
Pacific	4/	13	4/	140
Great Lakes	4/	1	4/	13
Hawaii	4/	-	4/	-
Total	4/	44	4/	408

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/There were 5 redocumented vessels in November 1965 previously removed from the records. Vessels issued first documents as fishing craft were built: 27 in 1965; 1 in 1964; 1 in 1962; 1 in 1961; 1 in 1959; 1 in 1956; 1 in 1954; and 18 prior to 1952.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
Source: Monthly Supplement of Merchant Vessels of the United States, Bureau of Customs, U. S. Treasury Department.

* * * * *

December 1965: During December 1965 a total of 56 vessels of 5 net tons and over was issued first documents as fishing craft as compared with 29 in December 1964. The number of documents cancelled for fishing vessels in December 1965 is not available.

U. S. Fishing Vessels 1/--Documentations Issued and Cancelled, by Areas, December 1965 with Comparisons

Area (Home Port)	Dec. 1965	Dec. 1964	Jan.-Dec. 1965	Jan.-Dec. 1964
	. . . . (Number). . . .			
Issued first documents 2/:				
New England	4	1	38	33
Middle Atlantic	-	1	14	11
Chesapeake	10	-	56	39
South Atlantic	9	4	77	50
Gulf	24	16	299	221
Pacific	8	6	175	141
Great Lakes	1	1	3	4
Hawaii	-	-	-	2
Puerto Rico	-	-	1	2
Total	56	29	663	503
Removed from documentation 3/:				
New England	4/	2	4/	53
Middle Atlantic	4/	1	4/	27
Chesapeake	4/	-	4/	29
South Atlantic	4/	8	4/	62
Gulf	4/	11	4/	106
Pacific	4/	11	4/	151
Great Lakes	4/	1	4/	14
Total	4/	34	4/	442

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/There were 2 redocumented vessels in December 1965 previously removed from the records. Vessels issued first documents as fishing craft were built: 34 in 1965; 1 in 1964; 2 in 1963; and 19 prior to 1959.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
4/Not available.
Source: Monthly Supplement of Merchant Vessels of the United States, Bureau of Customs, U. S. Treasury Department.

U. S. Foreign Trade

IMPORTS OF CANNED TUNA IN BRINE, UNDER QUOTA:

United States imports of tuna canned in brine during January 1-February 26, 1966, amounted to 9,620,930 pounds (about 458,140 standard cases), according to preliminary data compiled by the U. S. Bureau of Customs. That was an increase of 130.4 percent from the 4,175,915 pounds (about 198,853 standard cases) imported during January 1-February 27, 1965.

The quantity of tuna canned in brine which can be imported into the United States during the calendar year 1966 at the 12½-percent rate of duty has not been announced; however, in 1965 the quota was 66,059,400 pounds (or about 3,145,685 standard cases of 48 7-oz. cans). Any imports in excess of that quota were dutiable at 25 percent ad valorem, but total imports were below the quota in 1965.

Wholesale Prices

EDIBLE FISH AND SHELLFISH, MARCH 1966:

Wholesale prices for fishery products (fresh, frozen, canned) in March 1966 were up .8 percent from the previous month. At 111.7 percent of the 1957-59 average, the overall index for edible fish and shellfish in March was higher by 17.0 percent as compared with the same month a year earlier. Prices this March, with few exceptions, were considerably higher than in the same month of 1965.

In the subgroup for drawn, dressed, or whole finfish, ex-vessel prices at Boston for large haddock in March 1966 dropped 19.3 percent from the previous month because of increased landings. As a result of light supplies, prices were up 1.1 percent for western frozen dressed halibut at New York City but compared with March 1965 they were higher by 9.8 percent. March prices were slightly lower for western frozen king salmon (down 1 percent), but were up 5.1 percent from the same month a year earlier. From February to March 1966, the subgroup index was down 4.2 percent, and 6.9 percent higher than in March 1965.

View looking north on South Street in the salt-water section of New York City's Fulton Fish Market.

Wholesale Average Prices and Indexes for Edible Fish and Shellfish, March 1966 with Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1957-59=100)			
			Mar. 1966	Feb. 1966	Mar. 1966	Feb. 1966	Jan. 1966	Mar. 1965
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					126.7	123.2	124.5	108.3
Fresh & Frozen Fishery Products:					125.3	124.9	127.7	112.5
Drawn, Dressed, or Whole Finfish:					118.5	123.7	138.3	110.8
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.12	.14	89.8	111.3	187.4	87.4
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.48	.47	140.5	139.0	141.0	117.3
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.87	.88	121.2	122.3	122.3	115.3
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.71	.73	105.9	108.2	93.3	93.3
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.85	.85	139.1	139.1	122.8	139.2
Processed, Fresh (Fish & Shellfish):					129.4	130.5	128.3	112.3
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.39	.45	94.8	109.3	105.7	97.1
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	1.05	1.05	123.0	123.0	116.0	111.3
Oysters, shucked, standards	Norfolk	gal.	8.50	8.50	143.3	143.3	147.6	115.9
Processed, Frozen (Fish & Shellfish):					122.8	116.0	111.9	109.3
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.42	.42	106.4	106.4	101.4	95.0
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.39	.40	114.3	117.3	115.8	112.9
Ocean perch, lge., skins on 1-lb. pkg.	Boston	lb.	.32	.32	112.2	112.2	112.2	108.7
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	1.09	.98	128.6	115.6	110.3	108.5
Canned Fishery Products:					129.6	120.7	119.3	101.3
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.50	28.50	124.2	124.2	122.0	89.3
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	14.85	12.63	131.8	112.1	111.0	101.6
Mackerel, jack, Calif., No.1 tall (15 oz.), 48 cans/cs.	Los Angeles	cs.	7.63	7.13	129.3	120.9	120.9	120.9
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	10.25	10.25	131.5	131.5	131.5	128.3

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

Source: U. S. Department of Labor, Bureau of Labor Statistics.

The processed fresh fish and shellfish subgroup index dropped 0.8 percent from February to March 1966 mainly because of lower prices for fresh small haddock fillets at Boston (down 13.3 percent). Prices for other items in the subgroup were unchanged from the previous month. As compared with the same month a year earlier, the subgroup index this March was higher by 15.2 percent. Prices were considerably higher for South Atlantic fresh shrimp (up 10.5 percent) at New York City and for standard shucked oysters (up 23.5 percent) at Norfolk than in March 1965.

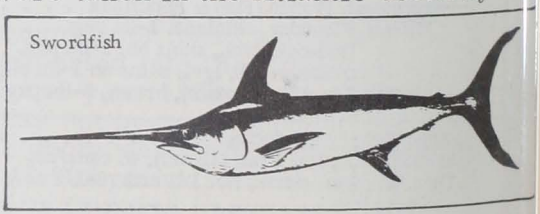
The March 1966 subgroup index for processed frozen fish and shellfish rose 5.9 percent from the previous month as a direct result of higher prices for frozen shrimp (up 11.2 percent) at Chicago. This was somewhat offset by lower prices for small haddock fillets at Boston which dropped 2.6 percent. The subgroup index this March was 12.4 percent higher than in the same month of 1965 chiefly because of substantially higher prices for frozen shrimp (up 18.5 perce and frozen flounder fillets (up 12.0 percent

The March 1966 subgroup index for can fishery products rose 7.4 percent from the previous month. But prices for canned tun were 17.6 percent higher because of the m stronger market due to light supplies and those for canned California jack mackerel were up 6.9 percent. Prices for canned pi salmon and Maine sardines were unchange from February to March. As compared wi the same month a year earlier, the index t March was 27.9 percent higher. Prices we sharply higher for canned pink salmon (up 39.1 percent) as a result of the very light 1965 pack and canned tuna (up 29.7 percent than in March 1965. (U. S. Department of t Interior, Bureau of Commercial Fisheries, Market News Service.)

NEW FISHERIES IN MIDDLE ATLANTIC REGION

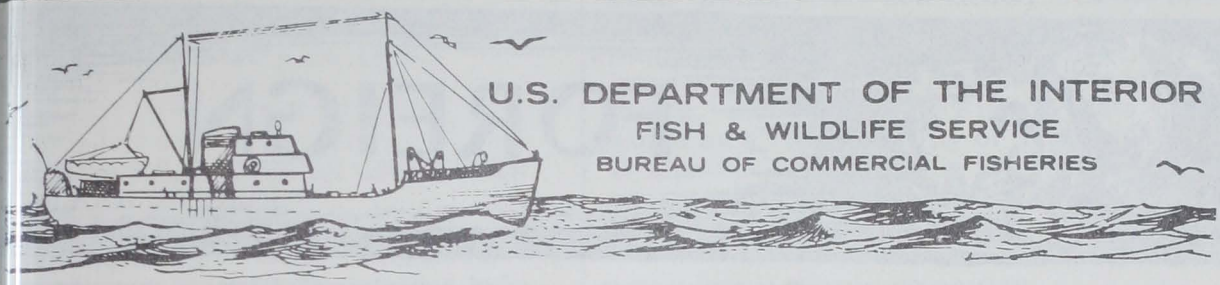
Important developments in the Middle Atlantic region include a decrease in two valua commercial and sport fisheries--croaker and sea trout--and the growing importance of tw new fisheries--tuna and swordfish. From nearly 58.5 million pounds of croaker (hardhea taken in 1945, the commercial landings have fallen in recent years to less than 3 million pound The fishery for sea trout or weakfish has tumbled from 36.5 million pounds taken commercial in 1945 to 2 million pounds or less in recent years. The croaker decline is attributed by so to a series of cold winters with low water temperatures that the young fish cannot tolerat

Nearly 6 million pounds of tuna (largely bluefin) were taken in the Atlantic ocean by U. fishermen and landed in Middle Atlantic Coast ports in 1964 as compared with 40,000 pounds just 2 years earlier. The region's growing tuna fishery is drawing purse seiners from as far away as the Pacific coast.


Swordfish

The fishery for swordfish (taken traditionally by harpoon) has increased markedly in the Middle Atlantic region in recent years as the fishery from New England waters expanded southward esp cially in the winter and spring and as the long-line fishing method was adopted.

--Conservation Note 17, The Big Bi Bureau of Commercial Fisheries, U. S. Department of the Interio Washington, D. C. 20240



U.S. DEPARTMENT OF THE INTERIOR
FISH & WILDLIFE SERVICE
BUREAU OF COMMERCIAL FISHERIES

FISHING VESSEL SAFETY BULLETIN

REVISED FISHING VESSEL RULES OF THE ROAD - EFFECTIVE 1 SEPTEMBER 1965

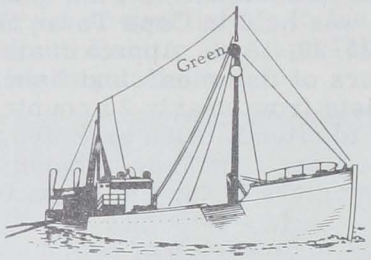
Important Changes in International Rules of the Road for Fishing Vessels:

LIGHTS DAY SHAPES SOUND SIGNALS

LIGHTS FOR VESSELS ENGAGED IN FISHING BY TRAWLING (DRAGGING DREDGE-NET OR OTHER GEAR THROUGH THE WATER)

GREEN over WHITE - OTTER TRAWLERS, CLAM DREDGERS, BEAM TRAWLERS, SCALLOP DREDGERS, OYSTER DREDGERS

GREEN ●
○

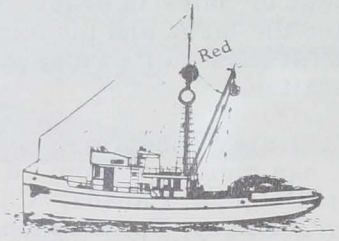


LIGHTS FOR VESSELS ENGAGED IN FISHING WITH LINES OR NETS EXCEPT TROLLING LINES

(Trollers should show only regular navigational lights.)

RED over WHITE - SEINERS, LINE TRAWLERS, HAND LINERS, GILL-NETTERS, LONG-LINERS, HARPOONERS

RED ●
○



Lights all around (32 points). Visible at least 2 miles. Vertical distance between lights not less than 4 or more than 12 feet.

DAY SHAPES FOR ALL VESSELS ENGAGED IN FISHING

Black shape consisting of two cones each not less than 2 feet in diameter with their points together one above the other, displayed where best can be seen. Visible at a minimum distance of 2 miles. Vessels less than 65 feet in length may substitute a basket for this shape.

SOUND SIGNALS IN FOG AND CONDITIONS OF RESTRICTED VISIBILITY

4-6 seconds — 1 sec. — 1 sec.

Vessels engaged in fishing when under way or anchored shall sound at intervals of not more than one minute, three blasts in succession, namely, one prolonged blast followed by two short blasts.

U. S. Coast Guard publication CG-169 contains the complete International Rules.

Note: See Commercial Fisheries Review, May 1965 p. 42.