



Landing a yellowfin tuna aboard a research vessel in the Indian Ocean. (Photo: Richard S. Shomura, BCF Biological Laboratory, Honolulu, Hawaii.)

1966 WAS A GOOD YEAR FOR U. S. FISHERIES

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United States fisheries had a good year in 1966. The shrimp fishery became the first to approach the \$100 million level. Tuna prices reached new highs at the beginning of the year. The salmon catch was one of the largest and best balanced in recent years.

On the other side of the ledger, the small menhaden catch was the biggest disappointment. (But the North Carolina fall menhaden fishery was good.) The low scallop prices and the reduced catches during the last part of 1966 made for a poor scallop fishery.

The year 1966 ended with prices received by fishermen about 16 percent above the 1957-59 average, seasonally adjusted. In comparison, the index of prices received by farmers for meat animals was up about 12 percent.

Annual dockside (exvessel) prices, on average, had remained quite stable from 1956 to 1964. In 1965, exvessel prices for both shellfish and finfish jumped about 8 percent over 1964; in 1966, they rose another 7 percent. The 1966 index of shellfish prices was 112 percent of the 1957-59 average; the same index of finfish was 116 percent.

Shrimp Prices Rose But Other Shellfish Prices Fell

Shrimpled all species with prices 124 percent of the 1957-59 average. The 1965 index of exvessel shrimp prices was only 103. This means exvessel shrimp prices increased about 21 percent from 1965 to 1966.

The average prices for other shellfish--including blue crabs, hard and soft clams, Northern lobsters, Eastern oysters, and sea scallops--were 103 percent of the 1957-59 average--a drop of 12 percent from 1965. Practically all of this drop was due to the drastic decline in scallop exvessel prices. Scallop prices were about 5 percent below the 1957-59 average. This was due almost entirely to the record scallop stock levels at the beginning of 1966.

The 1966 wholesale prices of industrial fishery products are 20-30 percent above the 1957-59 average but only about 5 percent above the 1965 level. The good world demand for both fish meal and fish oil has maintained these prices.

New England Finfish Prices Climbed 20%

New England finfish prices in 1966 were 18 percent above the 1957-59 average. Included in this group are the cod, flounders, haddock, and ocean perch. This was a 20 percent increase over the 1965 exvessel New England finfish price.

The exvessel prices of Pacific salmon have been quite stable in the past 2 years. The price indexes for 1964, 1965, and 1966 were 111, 110, and 113, respectively, with 1957-59 equalling 100.

Unlike salmon prices, there has been considerable fluctuation in exvessel tuna prices in the past couple of years. Included in the tuna group are the albacore, bluefin, skipjack, and yellowfin. The 1966 tuna prices will average about 120 percent of the 1957-59 average. This is an increase of about 20 percent over 1965 prices and 25 percent over 1964 prices. This annual index obscures the fact that prices during the first 3 months were 30 to 45 percent above the 1957-59 average.

Exvessel, Wholesale and Retail Prices Generally Move Together

In most U. S. fisheries, the exvessel price fluctuates more on a percentage basis than do wholesale or retail prices. The processors and retailers estimate what price they can obtain for the current volume and subtract their costs to determine the price they can afford to pay the fishermen. The exvessel value becomes the residual value after the processing and marketing costs are deducted. While marketing margins do vary slightly from month to month, exvessel, wholesale, and retail prices generally move up and down together. (BCF Branch of Current Economic Analysis.)



UNITED STATES

Industrial Fishery Products

FISH MEAL SUPPLY IS UP 13.1%,
SOLUBLES DOWN 14%

Based on domestic production and imports, available supply of fish meal in the United States for the first 10 months of 1966 was 548,549 short tons--63,411 tons (or 13.1 percent) more than during the same period in 1965. Domestic production was 53,220 tons (or 24.1 percent) lower, but imports were 127,315 tons (or 50.1 percent) higher than in January-October 1965. Peru was the leading source with shipments of 239,323 tons.

U. S. Supply of Fish Meal and Solubles, January-October 1966			
Item	Jan.-Oct.		Total 1965
	1966	1965	
. . . (Short Tons). . .			
Fish Meal and Scrap:			
Domestic production:			
Groundfish	8,954	9,797	10,696
Herring	10,690	12,340	12,932
Menhaden 1/.	113,952	161,403	175,959
Tuna and mackerel	25,594	21,389	25,399
Unclassified	8,047	15,528	17,360
Total production 2/.	167,237	220,457	242,346
Imports:			
Canada	38,833	36,866	43,830
Peru	239,323	204,841	209,801
Chile	69,904	5,201	5,651
Norway	18,954	49	78
So. Africa Rep.	6,040	2,900	5,100
Other countries	8,258	4,140	6,206
Total imports	381,312	253,997	270,666
Available fish meal supply	2/ 548,549	485,138	524,717
Fish Solubles 3/:			
Domestic production			
	74,774	87,637	94,839
Imports:			
Canada	1,223	1,293	1,488
Peru	1,941	1,504	2,598
Mexico	351	207	227
Other countries	360	825	825
Total imports	3,875	3,829	5,138
Available fish solubles supply	78,649	91,466	99,977
1/Includes other species.			
2/Does not include a small quantity of shellfish and marine animal meal and scrap because production data are not available monthly.			
3/Wet-weight basis except for imports from South Africa Republic (included in "other countries").			
Source: BCF and U. S. Department of Commerce, Bureau of Census.			

The U. S. supply of fish solubles during January-October 1966 was 78,649 tons--down 14.0 percent from the 1965 period.

Domestic production of fish solubles decreased 14.7 percent, but imports of fish solubles increased 1.2 percent.

FISH MEAL, OIL, AND SOLUBLES PRODUCTION DECREASES

During October 1966, about 8.7 million pounds of marine animal oils and 10,843 tons of fish meal were produced. Compared with October 1965, this was a decrease of 777,000 pounds of marine animal oils and 1,478 tons of fish meal and scrap. Fish solubles production was 5,588 tons--a decrease of 1,091 tons from October 1965.

U. S. Production of Fish Meal, Oil, and Solubles, October 1966 ^{1/} with Comparisons					
Product	Oct.		Jan.-Oct.		Total 1965
	1/1966	1965	1/1966	1965	
. (Short Tons).					
Fish Meal and Scrap:					
Groundfish	983	450	8,954	9,797	10,696
Herring	896	718	10,690	12,340	12,932
Menhaden 2/.	6,246	7,036	113,952	161,403	175,959
Tuna and mackerel	2,718	2,680	25,594	21,389	25,399
Unclassified	-	1,437	8,047	15,528	17,360
Total 3/.	10,843	12,321	167,237	220,457	242,346
Fish Solubles:					
Menhaden 2/.	4,405	4,197	56,197	68,865	73,181
Unclassified	1,183	2,482	18,577	18,772	21,658
Total	5,588	6,679	74,774	87,637	94,839
. (1,000 Pounds).					
Oil, body:					
Groundfish	198	132	1,456	2,270	2,441
Herring	442	386	7,046	8,171	8,543
Menhaden 2/.	7,170	7,333	123,685	165,778	175,202
Tuna and mackerel	870	711	4,452	3,993	4,793
Unclassified (inc. whale)	-	895	4,178	3,929	4,521
Total oil	8,680	9,457	140,817	184,141	195,500
1/Preliminary data.					
2/Includes a small quantity of other species.					
3/Does not include a small quantity of shellfish and marine animal meal and scrap because production data are not available monthly.					
Source: BCF.					



Imports of Fish Meal and Scrap Rose 50%

Imports of fish meal and scrap during the first 10 months of 1966 were 50.1 percent higher than the 1965 period.

U. S. Imports of Fish Meal and Scrap by Principal Areas ^{1/}		
Area	January-October	
	1966	1965
	(Short Tons)	
Maryland	76,219	52,160
Georgia	72,937	39,773
Mobile (Ala.)	75,221	48,540
Texas	20,584	12,276
Los Angeles (Calif.)	18,376	17,943
San Francisco (Calif.)	49,178	33,053
Washington	18,849	18,296
Duluth (Minn.) & Superior (Wis.)	4,373	7,309
Other	45,574	24,617
Total	381,312	253,967

^{1/}Imports were previously shown by Customs Districts; now they are shown by principal areas.



Shrimp Imports Rose Nearly 9%

Imports of all shrimp (fresh, frozen, canned, and dried) from all countries for January-October 1966 were 140.4 million pounds--compared with about 129.4 million pounds for the 1965 period, up 8.6 percent. Imports from Mexico totaled about 50.3 million pounds, an increase of 13.7 percent from the 44.2 million pounds of the 1965 period.



Can Shipments for Fishery Products Increase

During January-September 1966, 2,408,898 base boxes of steel and aluminum were used to make cans shipped to fish and shellfish canning plants. This compares with 2,324,148 base boxes used during the 1965 period.

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 using factor 23.7 base boxes per short ton of steel.

Source: U. S. Department of Commerce, Bureau of Census.



Pacific Coast Canned Salmon Stocks Are 20% Above 1965

On November 1, 1966, the U. S. pack of Pacific canned salmon, including Alaska's, was 4,253,272 standard cases. This was 20.1 percent above the 1965 pack of 3,541,187 cases. By species, the new pack was made up of (1965 pack in parentheses): king, 77,170 standard cases (95,503); red, 1,425,920 cases (2,013,077); coho, 190,866 cases (170,064); pink, 2,004,529 cases (951,688); chum, 554,787 cases (310,855).

Data on canned salmon stocks are based on reports from U. S. Pacific Coast canners who packed over 96 percent of the 1966 salmon pack. (Division of Statistics and Economics, National Canners Association, Dec. 9, 1966.)



Wholesale Prices/Index for Edibles, November 1966

From October to November 1966, wholesale prices were lower for several principal items: haddock, fresh and frozen fillets, shrimp, and canned salmon; rose for others, and were unchanged for some. At 125 percent of the 1957-59 average, the overall wholesale price index for edible fishery products in November dropped 4.8 percent from October. Compared with November 1965, November 1966's index was 4.7 percent higher because most products were generally higher.

Lower prices at Boston for ex-vessel large haddock, down 29.8 percent from October to November, were largely responsible for 11.2-percent drop in November's subgroup index for drawn, dressed, or whole finfish. In New York City, prices were lower for frozen king salmon and Great Lakes fresh yellow pike, but slightly higher for frozen western halibut. Compared with November 1965, prices were sharply lower for haddock (down 19.7 percent) and yellow pike (down 16.2 percent) because of better supplies, and slightly lower for king salmon (down 1.7 percent). As a result, the subgroup index was down 5.8 percent from the 1965 month.

The processed fresh fish and shellfish subgroup index dropped 7.6 percent from

Wholesale Average Prices and Indexes for Edible Fish and Shellfish, November 1966 with Comparisons								
Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ (\$)		Indexes (1957-59=100)			
			Nov. 1966	Oct. 1966	Nov. 1966	Oct. 1966	Sept. 1966	Nov. 1965
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					125.0	131.3	131.4	119.4
Fresh & Frozen Fishery Products:					126.5	136.1	137.0	122.7
Drawn, Dressed, or Whole Finfish:					121.0	136.2	135.6	128.5
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.15	.21	115.2	164.0	114.5	143.4
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.48	.47	142.0	139.0	142.0	140.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.86	.93	120.2	129.6	139.7	122.3
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.63	.62	93.3	91.8	123.1	85.8
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.65	.67	106.4	108.9	143.2	126.9
Processed, Fresh (Fish & Shellfish):					127.6	138.1	137.6	124.2
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.47	.54	114.2	131.2	109.3	115.4
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	1.03	1.12	120.1	131.2	130.1	106.6
Oysters, shucked, standards	Norfolk	gal.	8.25	8.75	139.1	147.5	151.8	147.6
Processed, Frozen (Fish & Shellfish):					125.1	128.6	132.0	110.9
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.44	.43	110.2	109.0	106.4	103.9
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.40	.40	117.3	115.8	118.7	117.3
Ocean perch, lge., skins on 1-lb. pkg.	Boston	lb.	.30	.32	103.5	110.5	112.2	112.2
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	1.11	1.16	131.0	137.5	142.3	107.3
Canned Fishery Products:					122.9	123.3	122.0	114.0
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	27.50	28.00	119.9	122.0	122.0	117.7
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	12.95	12.95	115.0	115.0	115.0	102.6
Mackerel, jack, Calif., No.1 tall (15 oz.), 48 cans/cs.	Los Angeles	cs.	8.50	8.00	144.1	135.6	135.6	120.9
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	11.25	11.25	144.3	144.3	131.5	131.5

1/Represent average prices for one day (Monday or Tuesday) during week in which 15th of month occurs. Prices are published as indicators of movement, not necessarily absolute level. See daily Market News Service "Fishery Products Reports" for actual prices.

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

October to November 1966 because of lower prices for all items. Prices were down 8.5 percent for South Atlantic fresh shrimp at New York City and 5.7 percent for standard shucked oysters at Baltimore because of very good oyster production. The subgroup index in November 1966 was 2.7 percent higher than November 1965 solely because fresh shrimp prices were up 12.7 percent. Prices for standard shucked oysters (down 5.8 percent) were lower than in November 1965.



Oyster shucker.

Index Down For Frozen Processed Items

Lower prices from October to November for frozen ocean perch fillets (down 6.3 per-

cent) at Boston and frozen shrimp (down 4.7 percent) at Chicago produced 2.7-percent drop in subgroup index for frozen processed fish and shellfish; prices for other species of frozen fillets were slightly higher. The subgroup index rose 12.8 percent over November 1965 because of higher shrimp prices (up 22.1 percent). Prices for flounder fillets were 6.1 percent higher than November 1965; for ocean perch fillets 7.8 percent lower.

The subgroup index for canned fishery products dropped 0.3 percent from October largely because canned pink salmon prices were down 1.7 percent. November prices were 6.3 percent higher for California jack mackerel, and unchanged for other group items. November 1966 prices were substantially higher than November 1965 for nearly all canned fish products; subgroup index was up 7.8 percent. Prices for canned salmon were up slightly. (BCF Market News Service.)



U.S. Adopts 12-Mile Fishery Zone

On October 14, 1966, President Johnson signed into law P.L. 89-658 to establish an exclusive fisheries zone for the United States 12 miles from the baseline from which the territorial sea is measured--9 miles of fisheries jurisdiction beyond the 3-mile territorial sea. Traditional foreign fishing recognized by the United States may continue in this zone.

The enactment of the law means that the United States is not now in a position to contest the right of other nations to similar exclusive 12-mile limits. However, this nation will endeavor to maintain traditional fishing rights that U. S. fishermen may have established in such zones. The United States action has no effect on traditional freedoms of the sea.

As a consequence of the new law, the Fishermen's Protective Act (P. L. 680-83) will no longer cover reimbursement of fines paid by U. S. fishermen following seizures within exclusive fisheries zones up to, and including, 12 miles in width claimed by some countries.



Seashore Damage Blamed for Fish Decline

Coastal fish resources of the Atlantic have reached a "critical condition," according to an annual resource report of the American Littoral Society. The society is a national aquatic conservation group based at the Sandy Hook Marine Laboratory, Highlands, N. J. The report says that much of the scarcity of fish may be due to pollution and the general disruption of the coastal area.

The society used BCF statistics in its analysis. These showed that commercial catches of 18 Atlantic coastal species were down nearly 50 percent from 1960 to 1965--from 1,400 million pounds to 700 million pounds. Major cause of the downward trend was the sharp drop in catches of menhaden; from 1,176 million pounds in 1960 to 530 million pounds in 1965.

Other prime species showed a downward trend on the Atlantic coast from Maine to Florida: fluke, croaker, spot, and porgy; together, they dropped from an index level of

88 to 58 million pounds. These important sport fishes, like the commercial menhaden, may be suffering from lack of good breeding grounds.

Coastal Areas Destroyed

The babies of most coastal species live in the marshes and very shallow waters along the edges of bays and tidal rivers, where they find protection and rich food. In recent years, these areas have been destroyed relentlessly or filled over for house lots, garbage dumps, or industrial sites. Without these sanctuaries, many young perish.

The report says that pollution of coastal bays also is harsh on young coastal fish, conditioned by nature to live in clean shore waters. Fishes migrating along the coast could easily be repelled by the filth pouring into the bays and continue on their way looking for better habitat.

However, sea fish that go up into the fresh waters of coastal tributary rivers for spawning appear to be better off. River spawners showing an upward trend over the 5-year period were river herring and shad, 56 to 72 million pounds. Those showing a slight downward trend were striped bass and white perch, 11 to 10 million pounds.

Bluefish and mackerel increased from an index of 6 to 9 million pounds. These are coastal species whose habitat seems least affected by man's progress.



Fish Diet Reduces Incidence of Heart Attacks

Men who ate fish 5 times a week for lunch and dinner for 5 years suffered only a third as many heart attacks as men in a control group. Hypertension and obesity also were reduced. The fish eaters, 814 men 40-59 years old, were members of a New York "anti-coronary" club who volunteered to take part in a study seeking ways of preventing heart disease. The control group consisted of 463 men of the same ages.

The club members followed a "prudent diet" prescribed by the New York City Department of Health, reports the Department's Dr. Seymour H. Rinzler. They ate much fish,

substituted margarine for butter, sherbet for ice cream, and soft cheeses for hard. Chicken, veal, and lamb were the main meat choices, but one pound of beef or pork was allowed weekly. The rest of the diet consisted of a maximum of 4 eggs a week, one ounce of oil daily, bread, and cereals.

Dr. Rinzler said anti-coronary clubs are starting up in many communities. He cited as examples 5 in New York State, 1 in Chicago, and 1 in Burlington, Vt. (Reprinted, with permission from "Science News," weekly summary of current science, copyright 1966 by Science Service, Inc.)



Inventions

NEW METHODS OF PREPARING AND FREEZING LOBSTERS AND CRABS

A patent was granted recently on a "method of preparing and freezing lobsters and crabs." The method prepares whole lobsters (Atlantic or *Homarus americanus*) for freezing for indefinite storage. Thus, the lobster may be kept for long periods and the meat does not freeze to the shell, which makes it easier to remove on normal thawing. The same method also may be used with other shellfish, such as crabs. (U. S. Patent No. 3,261,693, to Ruth W. Jung, Jung International Food Corp., 217 Broadway, Amityville, N. Y. 11701.)

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PROCESS TO EXTRACT RAW MEAT OF SPINY LOBSTER

A patent was granted recently on a "process for extracting raw meat from the shell of the body-section of the spiny lobster." This was formerly discarded as waste because it was difficult to extract under ordinary conditions and temperatures. An important objective of the process is to extract the meat in one piece, in prime condition, and with a minimum of mutilation in order to produce an attractive product for the market.

The manual process is executed with modified simple hand tools. The inventors claim the same process can be used to extract raw meat from the shell of the body-section of the northern or Atlantic lobster. (U. S. Patent No. 3,276,070, to Joseph M. and Frank J. Kaspar, 6750 SW. 8th St., Miami, Fla. 33144.)



Humphrey Visits BCF's Miami Lab

Vice President Hubert H. Humphrey, acting as chairman of the new Marine Resources Council, and Cong. Dante Fascell of Florida visited the University of Miami and BCF's Tropical Atlantic Biological Laboratory on December 8, 1966. BCF Regional Director Seton Thompson and Laboratory Director Thomas Austin greeted the Vice President and staff and briefed them on the Bureau's program in the Gulf and Tropical Atlantic. Thompson emphasized the possibilities of fish protein concentration (FPC). During his visit, the Vice President appeared especially interested in FPC, international cooperation, and the processing and transmission of oceanographic data. From the laboratory the vice-presidential party went on to the docks to tour the "R/V Undaunted."



Lamprey Control Gains, Great Lakes Commission Told

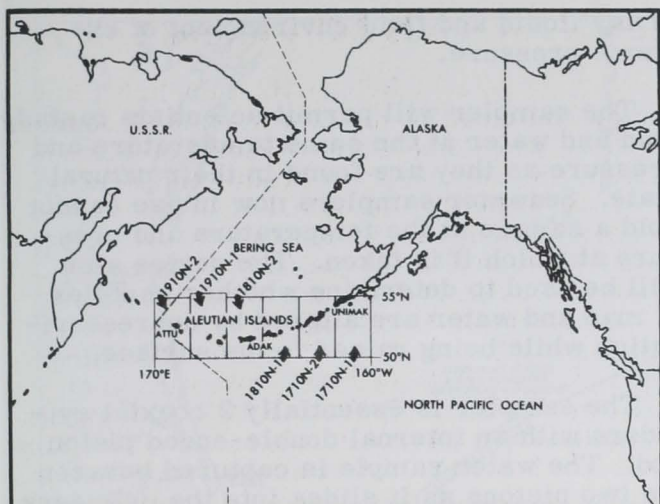
Biologists of the Canadian Department of Fisheries and BCF reported good progress in lamprey control in Lakes Superior, Michigan, and Huron to the recent meeting of the Great Lakes Fishery Commission. Lampreys have been reduced by over 90 percent in Lake Superior and lake trout are thriving. Catch quotas for 1967 have been increased 70 percent over 1966--permitting the harvest of 400,000 pounds of trout.



Oceanography

DISCOVER UNDERSEA MOUNTAINS, RIDGES, AND SEA BASINS IN NORTH PACIFIC

The discovery of uncharted undersea mountains, mountain ridges, and sea basins in the North Pacific and Bering Sea was disclosed on December 27, 1966, when the U. S. Department of Commerce published 6 new maps of the sea floor surrounding the Aleutian Islands. The bathymetric maps were produced by the Department's Environmental Science Services Administration (ESSA).



Diagonal markings show area covered by new Aleutian Island sea-bottom maps.

They cover about 400,000 square statute miles of seabed where thousands of earthquakes are spawned each year. Almost 25 years of work went into their preparation. They were compiled from more than 275 hydrographic surveys by vessels of ESSA's Coast and Geodetic Survey between 1943 and 1964--among them, the "Pioneer," "Surveyor," "Explorer," and "Pathfinder."

The maps cover the seabed adjacent to the Aleutian Islands from Unimak Island on the east to submerged Stalemate Bank, 45 statute miles west of westernmost Attu Island. The area extends from a few miles south of the Aleutian Trench to about 350 statute miles north; it includes the southern portion of the Bering Sea and the submerged mountain range (Bowers Ridge) extending northward into the Bering Sea.

Provides Knowledge About Geologic Forces

The detailed portrayal of submarine topography of the island chain can provide better understanding of the geologic forces shaping the ocean floor in this seismically active area. It will enable seismologists to determine changes in the sea floor resulting from major earthquakes. The maps can prove valuable to scientists in associated disciplines--physical and biological oceanography, geophysics, and commercial fisheries.

Many features, such as the immense Aleutian Trench, are shown in greater detail than before. This trench parallels the arc about 75 miles to the south of the Aleutian Islands and has a maximum depth of over 25,000 feet.

Positions of the soundings within sight of land were obtained by standard visual fixes, positions of offshore soundings were located by electronic positioning devices. Depths were secured with echo sounders that create a continuous profile of the ocean floor.

The six maps, on a scale of 1:400,000, may be ordered by number for 50 cents each from the Coast and Geodetic Survey, Environmental Science Services Administration, Rockville, Md. 20852.

A text describing the shape of the ocean floor in the area covered by the maps is expected to be available early in 1967.

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NAVAL OCEANOGRAPHERS PLANT ACRE OF BUOYS

A team of oceanographers and technicians from the U. S. Naval Oceanographic Office planted "an acre of buoys" about half way between Cape Hatteras and Bermuda. The object is to measure and interpret the dynamic characteristics of the ocean in a small area.

It was planned to take measurements at intervals of 15 minutes to one hour for 6 weeks to 6 months with sensing arrays moored down to 17,000 feet. All instruments are self-recording on either 16mm film or scratch-type strip chart.

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HYDROGRAPHIC SHIP IS COMMISSIONED, A SECOND CHRISTENED

The \$2.4 million survey vessel USC&GSS "McArthur" was commissioned December 15, 1966, at the Coast and Geodetic Survey's Atlantic Marine Center, Norfolk, Va., announced the U. S. Department of Commerce's Environmental Science Services Administration (ESSA).

The 175-foot, 995-ton, air-conditioned ship is built of welded steel strengthened for navigation in ice, propelled by diesel engines with twin-screw reversible-pitch propellers, and equipped with specialized depth recorders and positioning equipment. It has crew accommodations for 36 officers and men.

The McArthur, essentially, is a hydrographic survey ship, but can conduct various

sophisticated oceanographic investigations. Her first assignment, until mid-June 1967, will be gravity measurements on the East Coast between Cape Hatteras, N. C., and Key West, Fla. This is part of a program to determine properties of the continental shelf.



Hydrographic survey ship, USCGC McArthur. Photo: ESSA.

In July 1967, the ship is scheduled to arrive at her home base in Honolulu. She will carry out hydrographic and current surveys, magnetic and gravity observations, and oceanographic research.

A second Department of Commerce hydrographic survey vessel, the \$4.3 million USC&GSS "Mt. Mitchell," was christened November 29, 1966, in Jacksonville, Fla.

The 231-foot, 1,627-ton vessel has a welded steel hull strengthened for navigation in ice; twin-screw diesel engines equipped with reversible-pitch propellers; engine room monitored by centralized automated system; a bow thruster; electronic, depth recording, and positioning equipment; and accommodations for 80 officers, crew, and scientists.

The Mitchell and two sister ships, "Fairweather" and "Rainier," are scheduled to be completed in 1967. They are designed to chart U. S. coastal waters to meet navigational needs, and to conduct oceanographic work on the continental shelves and slopes.

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ENVIRONMENTAL SAMPLER CAN HELP UNDERSEA STUDY

A deep-ocean environmental sampler developed by 4 Naval Research Laboratory scientists can take samples at great depths

in any liquid and fluid environment of extreme pressure.

The sampler will permit scientists to study mud and water at the same temperature and pressure as they are found in their natural state. Seawater samplers now in use cannot hold a sample at the temperature and pressure at which it is taken. The device also will be used to determine whether samples of mud and water are altered by depressurization while being raised to the surface.

The sampler is essentially 2 coaxial cylinders with an internal double-ended piston rod. The water sample is captured between the two pistons as it slides into the cylinders under gravitational or spring loading. Patent issued to: Chester L. Buchanan, Jervis J. Gennari, Howard E. Barnes, and Walter L. Brundage Jr. ("Science News," copyright 1966.)

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HIGH-SPEED HYDROFOIL BOAT IS SUITABLE FOR OCEANOGRAPHIC WORK

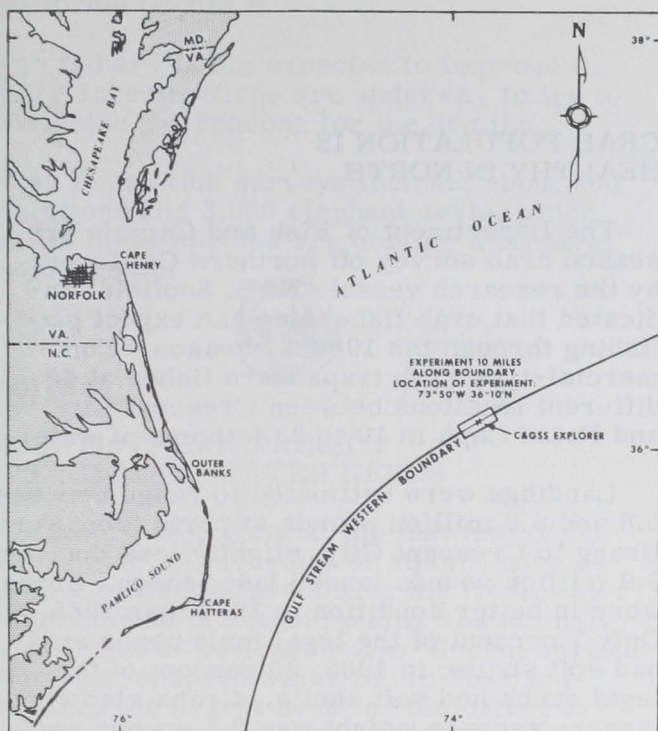
Tests show that it is feasible to use high-speed hydrofoil boats in making echo soundings in hydrographic survey work, reports the U. S. Naval Oceanographic Office. Data analysis indicates that equipment worked favorably in shallow and deep water, over seaweed, rock, and sandy bottom. The speed of the hydrofoil was varied and had no adverse effect on readings.

The echo sounder differs from traditional types used in hydrographic surveying. Instead of relying on measurement of the transit time for single sound impulses, it used a continuous wave frequency modification principle.

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STUDY GULF STREAM FROM SEA AND AIR

A 10- by 3-mile section of the Gulf Stream was tested intensively in October 1966 by 3 Government agencies seeking to learn more about the mysterious "ocean river." This was reported last month by the Environmental Science Services Administration (ESSA), U. S. Department of Commerce.



Segment of Gulf Stream where tests were made.

The tests were conducted 150 to 400 miles off the North Carolina coast by the USC&GS Ship "Explorer" of ESSA's Coast and Geodetic Survey, and aircraft of the Navy Oceanographic Office and the Manned Spacecraft Center of NASA.

The results are being processed and studied. The tests are part of a larger study of the Gulf Stream underway for more than a year by 15 governmental and private groups.

The ship and planes communicated constantly by radio. The planes were equipped with aerial cameras, infrared and microwave sensing instruments, and radar.

One instrument was an infrared line scanning image system which photographed the Gulf Stream's western boundary. The instrument records on film small differences in the ocean surface's temperature. The Gulf Stream is warmer than the coastal waters that form its western terminus. The cold water appears lighter on the film than the warmer Gulf Stream, so the Gulf Stream's western limits show up clearly. ESSA believes that if the expected results materialize, the way may be open for showing on film, on a regular basis, both surface boundaries of the Gulf Stream. Although the western border now is known, it keeps changing. The stream's eastern edge is more difficult to identify because the small thermal difference between Gulf Stream and eastern water makes its boundary less distinct. The image system used in the tests may detect the small heat differences and product useful results.



Created in 1849, the Department of the Interior—America's Department of Natural Resources—is concerned with the management, conservation, and development of the Nation's water, fish, wildlife, mineral, forest, and park and recreational resources. It also has major responsibilities for Indian and Territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States—now and in the future.



STATES

Alaska

UPGRADES SKILLS OF FISHERMEN

The first of two 14-week courses to upgrade skills of fishermen began in Ketchikan on November 21, 1966. The series is being administered by the State Department of Labor under a Manpower Development and Training Act program. The courses are supervised by an extension educator in fisheries of the University of Alaska. Each course includes a practical training period aboard a west coast combination vessel to demonstrate trawling techniques. Personnel of BCF's Ketchikan Technological Laboratory have prepared lectures on fish handling and preservation.

* * *

HERRING CATCH IS LOWEST ON RECORD

Only 5,073 tons were taken in Southeastern Alaska in 1966, the smallest on record since 1941. Because the 1941 catch was only an experimental operation, the 1966 catch actually is the lowest recorded since 1929, when recordkeeping began. The catch per-unit effort during the 1966 season was slightly lower than the average: 0.31 ton per unit of effort compared with a 35-year average of 0.37 ton.



California

ANCHOVY LANDINGS TOTAL 5,200 TONS

About 5,200 tons of anchovy were landed through December 7, 1966, in the 1966-67 experimental anchovy reduction fishery, the Department of Fish and Game reported on December 9.

The experimental fishery, in its second year, was established with a maximum take of 75,000 tons. It opened October 1, 1966, and will close April 30, 1967. The DFG Director is authorized to close the fishery on 48 hours notice if it threatens the resource, or when the quota in any one of the five zones involved is reached.

* * *

CRAB POPULATION IS HEALTHY IN NORTH

The Department of Fish and Game's pre-season crab survey off northern California by the research vessel "N. B. Scofield" indicated that crab fishermen can expect good fishing through the 1966-67 season. Commercial-type crab traps were fished at 40 different locations between Crescent City and False Cape in 10 to 33 fathoms of water.

Landings were estimated to range between 6.8 and 8.9 million pounds at ports from Fort Bragg to Crescent City, slightly less than the 9.9 million pounds landed last season. Crabs were in better condition in 1966 than 1965. Only 7 percent of the legal male crabs still had soft shells; in 1965, 20 percent of the legal crabs had soft shells. Crabs also were larger: average weight was 2.4 pounds per crab, compared to 2 pounds in 1965.

* * *

1966 IS RECORD YEAR FOR FISH

Several fish and game records highlighted the annual report of Walter T. Shannon, Director, Department of Fish and Game, to the Fish and Game Commission on December 9, 1966:

- Fish hatchery production hit high in poundage and number of fish produced. In fiscal 1965-66, 2,276,895 pounds (63,192,719 fish) were produced, including 27,325,996 trout and kokanee; 35,110,632 silver salmon, king salmon, and steelhead; and 56,091 warm-water fish.

- Both the commercial and sport catch of salmon increased. Commercial landings exceeded 10 million pounds, a near record, and were well above the 10-year average of 7.4 million pounds. In 1965, 9.7 million pounds were landed. Sport salmon landings of 114,000 fish nearly doubled 1965's 61,000 salmon.

- Shrimp landings of 1,230,000 pounds compared to 1965's 1,427,000 pounds. Market crab landings were more than 9½ million pounds, mostly in northern California. In the San Francisco Bay area, landings were under 50,000 pounds, a very low figure. The

California (Contd.):

crab fishery is not expected to improve in 1967. Investigations are underway to try to determine the reasons for the decline.

- "Population surveys indicate about 600 sea otters and 3,090 elephant seals, which means these species are holding their own," Shannon said.



Florida

SCIENTISTS CAN PREDICT EVERGLADES' WATER NEEDS

Fishery biologists at the Institute of Marine Science, University of Miami, have devised a system of predicting the fresh water requirements of aquatic plants and animals in Everglades National Park. Recent serious shortages of fresh water in the Park emphasized the urgent need for biological estimates of water requirements.

In the Park, where most of the priceless plant and animal communities are aquatic or semiaquatic, requests for supplementary fresh-water flow must be made on the basis of biological need. At stake are the multi-million dollar pink shrimp landings of the Dry Tortugas, Florida's most valuable fishery resource, other commercial fisheries, and the rapidly expanding sport fishery of Florida Bay and the 10,000 Islands. Most commercial and sport fishes and shrimps and crabs of the region spend critical months of their life cycle in the brackish water of the Park's estuaries.

The system of predicting biological water need is based on the recently discovered close relationship between ground water levels in the Shark River Valley and the position of lines of equal salinity, called "isohalines", in the coastal estuaries. By measuring ground water elevation above or below sea-level in any one of three wells in the watershed, it is possible to predict salinity in the estuaries throughout an 85-mile area along the south Florida coast--from the Keys to Everglades City. Companion studies have provided information on the kinds and quantities of plants in these coastal estuaries under different conditions of salinity. Thus, the height of water in the test wells warns when salinities are too high. It will tell

authorities when and how much water should be delivered to the park.



Maine

CANNED SARDINE STOCKS DROP

Through December 3, 1966, the year's pack of canned Maine sardines totaled 1,197,000 standard cases, according to the Maine Sardine Council. This compared with 1,227,000 cases packed during the same period in 1965. Bad weather during November was responsible for poor fishing conditions along the coast of Maine.

New legislation permitting year-round canning of Maine sardines removed the traditional December 1 closing date for the packing season. It opened winter canning to all Maine sardine packers--with domestic as well as imported herring.



Michigan

COHO ARE THRIVING

The 850,000 coho (Silver salmon) planted in spring 1966 in one Lake Superior stream and 2 Lake Michigan streams have made "amazing progress," reports the Department of Conservation. The young coho were raised in Michigan hatcheries and planted as 4- to 6-inch fingerlings. Within 3 months, several measuring more than 15 inches and weighing up to 2 pounds had been netted in Lake Michigan. The Department says the coho "promises to be one of Michigan's most outstanding fish."

The fall 1966 run was composed of 2-year-old fish--the "jacks" of the Pacific Coast. The majority of cohos planted in spring 1966 will either be caught in the Great Lakes in summer 1967, or will return in fall 1967 as full-fledged 3-year-old "adults."

Washington State Donates Chinook

The efforts to revitalize the Great Lakes fishery was aided by a Washington State donation to Michigan of more than 1,000,000

Michigan (Contd.):

chinook, or king salmon eggs. Fingerling chinooks hatched from these eggs will be planted in spring 1967 in a stream that has not yet been selected.



Oregon

DUNGENESS CRAB OUTLOOK IS GOOD

The Fish Commission reported an extremely good outlook for the 1966-67 Dungeness crab season. It opened December 1, 1966, and runs through August 15, 1967, in the Columbia River and Pacific Ocean. This season's harvest is expected to equal the 1965-66 catch of more than 10 million pounds. The average annual landings over the last 20 years has been 7 to 8 million pounds.

Due to the August 16-November 30 closed season, the crabs usually are abundant and in good shape by opening day.



Virginia

MENHADEN LANDINGS
NOT EXPECTED TO IMPROVE

The outlook for an improved catch of menhaden in the 1967 season is not good, reported Dr. Edwin B. Joseph, head of the Department of Ichthyology, Virginia Institute of Marine Science (VIMS), Gloucester Point, Va. "Although there has been some increase in our samples of young menhaden hatched out in 1965/66 winter season," he noted, "it has not been large, and reports coming to us from other investigations along the coast indicate that the 1966 production of young has been poor."

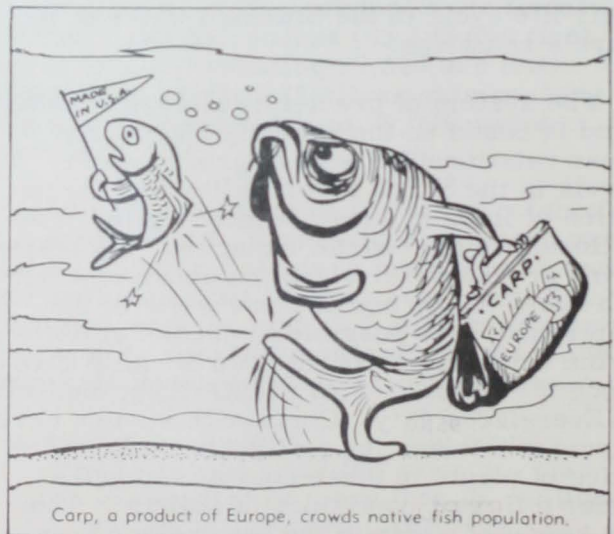
The Institute has been working to improve methods for predicting the abundance of menhaden a year or more in advance. Sampling the rivers and bay with a fine mesh net provides a measure of the relative abundance of young menhaden from year to year. It also supplies information about the probable fish population that will be available to purse seiners a year or more later.

Testing A Theory

VIMS's Department of Data Processing has intensively studied near-shore currents along the coast. A theory now being tested is that when a predominance of on-shore currents occurs during the breeding and larval season for menhaden, the largest numbers of young fish will appear in Chesapeake Bay--and the fishery will thrive a year later.

The "year classes" (young produced each year) have been weak for the past 4 years. The Chesapeake Bay fishery, which depends primarily on one-and two-year-old fish, now is operating on a short supply not likely to improve this year.

Institute scientists have been interested in locating other sources of fish which might be utilized for meal and oil when menhaden stocks are low. Under a BCF contract, a methodical study is being made of the variety and quantity of fish available in the Virginian Sea over the Continental Shelf at all seasons. It is possible that some species neglected by fishermen may be utilized by fish reduction plants when menhaden are inadequate.



Carp, a product of Europe, crowds native fish population.

BUREAU OF COMMERCIAL FISHERIES PROGRAMS

North Pacific Fisheries Explorations and Gear Development

"COBB" FINDS NO LARGE HAKE SCHOOLS

The "John N. Cobb" returned to Seattle October 14, 1966, after a 4-week exploratory hake fishing survey off the Washington coastline (Cruise 81). The primary purpose was to determine the distribution of schools of Pacific hake (*Merluccius productus*) while the Cobb worked along with the commercial hake vessels. Other objectives were to obtain biological data and more data on the hake's availability to the Cobb pelagic trawl.

Echo sounding transects were made throughout the area surveyed. When suitable tracings appeared on the echogram, they were fished with the Cobb pelagic trawl to determine species composition and abundance. The concentrations then were sounded out to determine their dimensions. This information was relayed to the commercial boats.

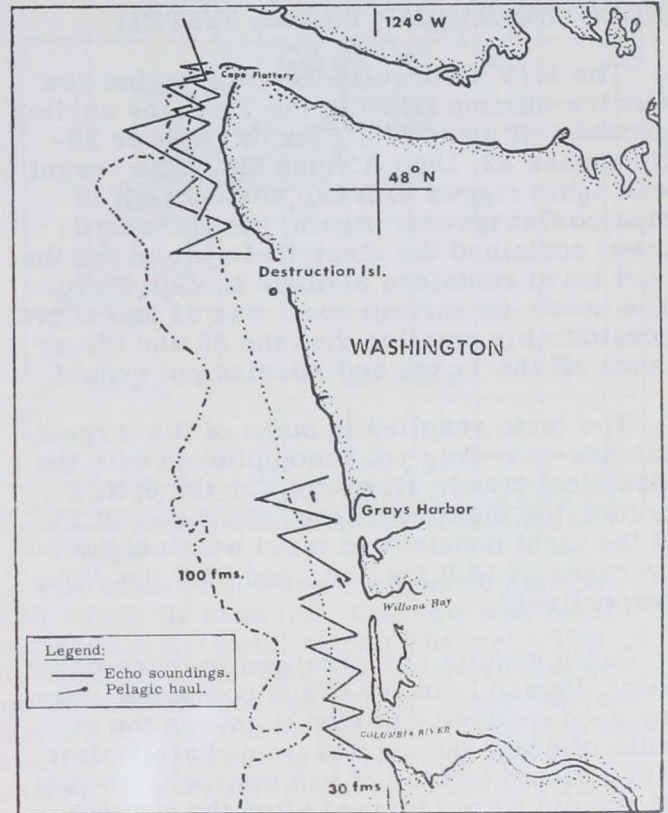
No large schools of hake were found. The five tracings observed on the sounder differed from those of previous cruises. They were not as compact nor as concentrated at any one depth. The first was located 18 miles west of Cape Beal, Vancouver Island; the second 25 miles west northwest of Cape Flattery; the third 15 miles west of La Push; the fourth 14 miles west southwest of Destruction Island, and the fifth $12\frac{1}{2}$ miles west of Cape Disappointment. The catches ranged from 2,000 to 15,800 pounds of hake per one-half hour haul; the total length of the hake ranged from 44 to 64 centimeters. Hake signs in the past were quite distinct and recognizable as hake, but during this cruise echograms believed to be hake turned out to be only large red jellyfish of the genus *Cyanea*. This animal usually causes a problem in the otter trawl and salmon trolling fisheries off the Washington coast. The species seemed quite abundant in summer 1966.

Note: For more information contact Base Director, BCF Exploratory Fishing and Gear Research Base, 2725 Montlake Blvd. E., Seattle, Wash. 98102.

* * *

"COBB" EXPLORES FOR ANCHOVY

The Cobb returned to Seattle November 18, 1966, after a 10-day exploratory anchovy



Area of exploratory anchovy survey of M/V John N. Cobb Cruise 82.

(*Engraulis mordax*) survey in coastal waters off Washington (Cruise 82). A major objective was to determine the catching efficiency of a modified Cobb pelagic trawl. A $\frac{2}{3}$ -scale model of the standard Cobb pelagic trawl with a mesh size of 2 inches and a full $\frac{1}{2}$ -inch mesh line in the codend was used. Sounding transects were made in 10-50 fathoms between the mouth of the Columbia River and Grays Harbor, and in 20-100 fathoms between Destruction Island and Cape Flattery. Signs of fish schools were very scarce. Some indications of fish concentrations occurred in the offing of Grays Harbor. Two sets made there yielded between 30-50 pounds of fish, of which only 8 pounds were small anchovies. Additional cruises will be made to determine whether or not commercial quantities of anchovy are available during the winter months.

Note: For more information contact Base Director, BCF Exploratory Fishing and Gear Research Base, 2725 Montlake Blvd. E., Seattle, Wash. 98102.



Gulf Fisheries Explorations and Gear Development

"BOWERS" TESTS ELECTRO-SHRIMP TRAWL SYSTEM

The M/V George M. Bowers tested the electro-shrimp trawl in the Tortugas shrimp grounds off southwest Florida October 20-November 12, 1966 (Cruise 69). The vessel was again rigged with two 40-foot Gulf of Mexico flat trawls. Again, the starboard trawl contained the electrical system and the port trawl contained a single tickler chain. The heads-on shrimp count was 41 and above, considerably smaller than the 35 and larger taken off the Texas and Mississippi coasts.

The tests resulted in some of the largest catches-per-drag yet accomplished with the electrical trawl. However, for the entire cruise, the electrical trawl averaged 50.1% of the night nonelectric trawl with weight averages of 18.9 lbs./hr., and 37.7 lbs./hr., respectively.

Catch results are arranged in three periods: Period I covers drags completed during good weather. Period II covers the results of drags during and immediately after a protracted stretch of bad weather. Period III results were obtained after the weather improved. During Period II, the catch average was 31%--compared to 51.7% for Period I and 58.9% for Period III--of the night conventional trawl catches.

Although the catch ratio was less than achieved off the Mississippi and Texas coasts, the shrimp catch in pounds during Periods I and III could be commercially acceptable. Expanded to two 40-foot trawls and 10 hours of fishing per day, the 19.5 lbs./hr. and 22.2 lbs./hr. would have produced better than 400 pounds of shrimp each day.

Note: For more information contact Base Director, BCF Exploratory Fishing and Gear Research Base, P.O. Drawer 1207, Pascagoula, Miss. 39567.



North Atlantic Fisheries Explorations and Gear Development

"DELAWARE" STUDIES DUTCH HERRING TRAWL

The M/V Delaware completed the third in a series of industrial fish exploratory cruises

on November 18, 1966 (Cruise 66-10). Its primary objectives were to perform gear trials with the Dutch Herring Trawl using headrope and wing transducers, and a strain gauge on a towing warp, while having the net rigged in a variety of ways; also, to determine relative abundance of industrial fish on the southeast part of Georges Bank, at depths over 100 fathoms in the channel between Georges and Browns Banks, and in deeper areas north of this channel. The vessel made 14 tows: the first 4 primarily gear trials, the remainder survey tows.

The net used for the gear trial and industrial fish survey phases was a Dutch Herring Trawl, which has a 63-foot headrope and 128-foot footrope. After the cruise, the staff of the Gloucester Base concluded that this trawl was not an effective net for bottom survey work due to its overall size, mesh size, and twine size--and that it should be limited to smooth bottom. Also, the net as rigged requires modifications--and that it may be more feasible for the staff to design a trawl more suitable for industrial fish surveys.

Some Results of Industrial Fish Survey

No commercial quantities of herring were found. In the greater fishing depths of the channel between Browns and Georges Banks, argentines (*Argentina silus*) were the predominant species caught. One tow gathered 4,000 pounds and other tows in this general area also produced proportionately high yields. "Taste tests" aboard vessel--and at the Technological Laboratory after cruise--show argentines are an unutilized food fish resource. As survey moved northward to areas west of German Bank and southeast of Mt. Desert Rock, tow results did not show industrial fish species.

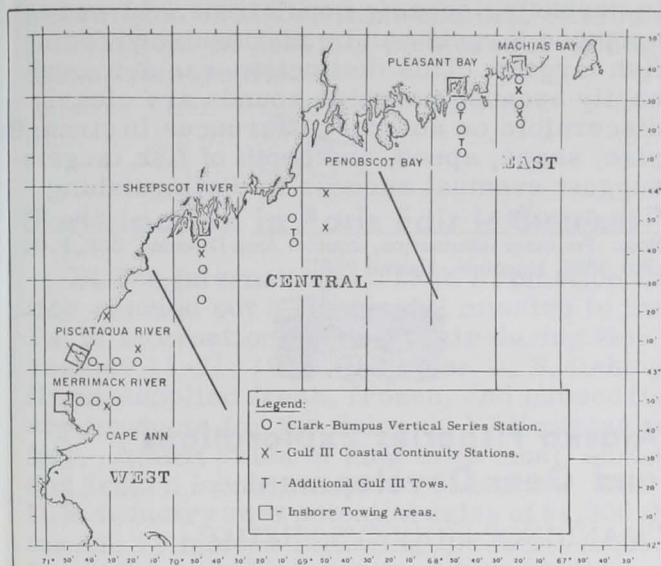
Note: For more information, contact Dr. John R. Thompson, Acting Base Director, EF&GR Base, State Fish Pier, Gloucester, Mass. 01930. Tel: 617-283-6554.



North Atlantic Fisheries Investigations

"RORQUAL" STUDIES ZOOPLANKTON DISTRIBUTION

The R/V Rorqual investigated the inshore-offshore and vertical distribution of zooplankton, with regard to hydrographic conditions, from Cape Ann to Machias Bay, October 9-17, 1966 (Cruise 7-66).



Area of investigations of R/V Rorqual Cruise 7-66.

The following are some preliminary findings: The average concentration of zooplankton along the coast, 1.4cc/100m³, was lower than in the preceding four autumn seasons. Average volumes decreased from west (3.0cc/100m³) to east (0.14cc/100m³). Copepods and cladocerans were the dominant zooplankters (89% of total). Of 14 copepod species in the samples, 4 dominated the catches--*Centropages typicus* (74% of the total), *Oithona similis* (9%), *Calanus finmarchicus* (6%), and *Temora longicornis* (3%). Dense patches of phytoplankton were encountered all along coast. Two dinoflagellate species, *Ceratium longipes* and *C. fusus*, occurred most frequently in samples and apparently were phytoplankters producing the autumn bloom encountered.

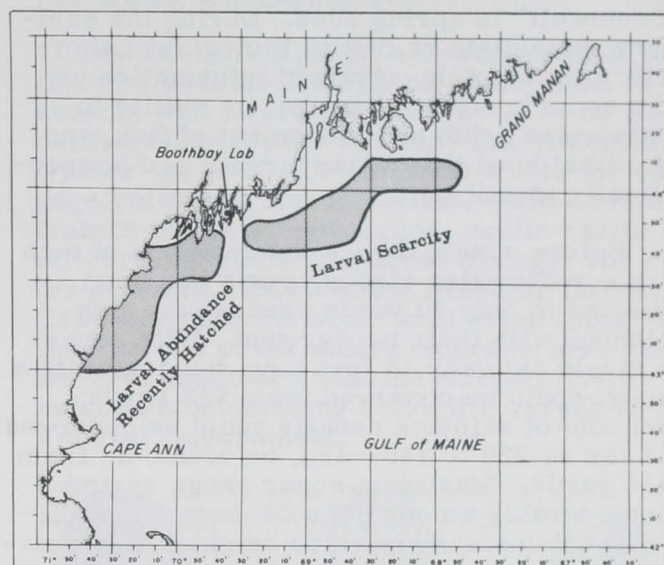
The samples had 1,442 larval fishes, 1,393 of them herring--ranging from 6.3 mm to 20.5 mm; average length was 9.0 mm.

Surface temperatures were seasonally normal, ranging from 8.7°C to 13.9°C. As in previous autumns, vertical mixing of water column increased from west to east.

"RORQUAL" ESTIMATES ABUNDANCE OF LARVAL HERRING

The purpose of the Rorqual cruise of October 17-27, 1966 (Cruise 8-66) was to estimate the abundance and vertical distribution of larval herring and their association with water types. The area of operation was

Cape Ann to Grand Manan Channel, from the headlands to the 50-fathom isobath (see chart).



Approximate location of recently hatched larval herring (R/V Rorqual Cruise 8-66).

Two tows each were made at 46 stations with a Gulf III sampler. One tow was made at a station in Grand Manan Channel. The distribution of herring larvae above and below 20 meters was sampled at three stations. Surface temperatures and water samples for salinity determination were collected at each station. A hydrographic cast was made in Grand Manan Channel.

The chart shows the approximate location of a large group of recently hatched larval herring. Also notable was an area of larval scarcity. No large concentrations of fish were detected on the echo sounder.

Note: For more information, contact BCF Biological Laboratory, W. Boothbay Harbor, Maine 04575.



Central Pacific Fisheries Investigations

SONAR STUDIES OF PELAGIC FISH

Skipjack tuna are one of the large under-harvested resources in the Pacific Ocean. They spend most of their lives in the central Pacific--away from the Americas and Asia. To harvest them in their vast ocean domain, it is necessary to know how they are distributed in the sea.

To help answer this and other questions about increasing the harvest of skipjack and

other high-sea fishes, a continuous-transmission, frequency-modulated sonar was installed on the research vessel "Townsend Cromwell" in spring 1966. During the summer, scientists of BCF's Biological Laboratory in Honolulu obtained information on the sonar's effective range, its ability to determine depth and movement of fish, and the likelihood that sonar targets can be specifically identified.

Before sonar, direct observations of tuna from underwater viewing ports had been limited to only 20 yards because the fish blended with their background. With sonar, a single skipjack $1\frac{3}{4}$ feet long, hung beneath a buoy, could be observed from 258 yards; schools of skipjack usually could be observed as far as 220 to 440--and, on occasion, from 715 yards. Maximum sonar range varied considerably among schools because of different fish sizes and wave heights. The maximum sonar range achieved was 880 yards on a group of porpoise.

Sonar Searches Rapidly

The sonar has high resolution and a high information rate. It can rapidly search a complete underwater hemisphere. The high resolution makes it possible to determine accurately the relation of fish to ship. The high information rate makes it possible to update the fish's position as often as every 30 seconds. So, along with depth information, the biologists also obtained data on the fish's swimming speed and course over short periods. For example, an unidentified subsurface target was found swimming at 2 knots at 27 fathoms. It was tracked as it surfaced, turned, and swam to the ship, where it was identified--a 5-foot whitetip shark.

Some of the most interesting information from these first cruises dealt with depth distribution of subsurface targets in the upper 220 fathoms. One day, most targets were in the upper 6 fathoms, but a second concentration was at 30 fathoms, and a third at 74. The 6-fathom and 30-fathom targets were in the mixed layer (80° F.); the deepest targets in the thermocline were at 69° F. On another day, a mixed group of skipjack and yellowfin tunas was identified at the surface and tracked to 77 fathoms.

If biological targets could be identified to species from sonar data alone, sonar would be an even more powerful tool--especially

in assessing oceanic populations. Already, porpoise targets can be distinguished from fish targets. This distinction was achieved easily because porpoise sounds are clearly discernible on sonar. Differences in strength, size, shape, speed, and depth of fish targets suggest eventual success in distinguishing fish species.

Note: For more information, contact Area Director, BCF, P.O. Box 3830, Honolulu, Hawaii 96812.



Alaska Fisheries Explorations and Gear Development

"MANNING" SURVEYS SHRIMP

The John R. Manning returned to Juneau, Alaska, on November 22, 1966, after completing the first leg of the fall 1966 shrimp survey off Southeastern Alaska. Best catches (240 pounds) of coonstripe shrimp occurred in Charpentier Inlet, inside Glacier Bay. Best catches of spot shrimp (63 pounds) were made in Port Frederick; largest shrimp collected were 11-count spots. The relative fishing efficiency of both the 2- and 3-inch conical tunnel shrimp pots was significantly higher than igloo and ramp-style shrimp pots. Repeated tows with a roller-rigged shrimp trawl showed a significant reduction of debris, rocks, crabs, etc. in the trawl's cod-end.

The Manning departed Juneau on November 27, 1966, to begin the second leg of the survey.



Aerial Photos Reveal Surface Schools in Gulf of Mexico

In early December 1966, the first in a series of aerial surveys of surface-school fishes in the Gulf of Mexico was carried out from BCF's Pascagoula Exploratory Fishing Base. Color and infrared photos were taken of schools between Mobile Bay and Panama City, Florida. About 150 fish schools were sighted along the 40-mile stretch from Mobile Bay to Pensacola and 200 more schools between the latter and Panama City. Most schools were believed to be menhaden. Experimental fishing operations will coincide with future flights to substantiate aerial ob-

servations. They will also obtain preliminary information on possible methods for taking these offshore stocks.



Participation in Paris Fair is Success

BCF's International Trade Promotion Office carried out a successful mission to the Paris International Trade Fair during November 11-21, 1966. Thirteen U. S. fishery firms supplied fresh, frozen, and canned fishery products for the Salon de l'Alimentation fair. Actual sales of king crab meat, shrimp, and frozen lobsters totaled \$120,000. The U. S. industry sees potential sales of \$1,200,000 for the 12 months following the fair. Inquiries were made by importers from Spain, Italy, Belgium, Luxembourg, Germany, Martinique, Algeria, etc.

Maine lobsters, frozen by a liquid nitrogen process, were displayed for the first time and won orders. Several importers would like to negotiate an exclusive agreement with the Maine processor.



Ketchikan Lab Holds Workshop for Fishermen

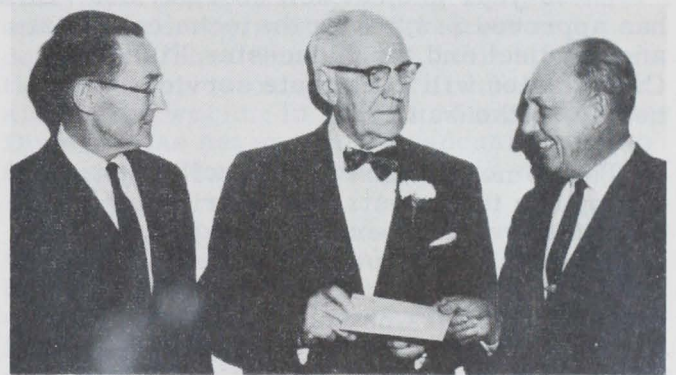
More than 70 fishermen, processors, and interested citizens recently came to the Fishery Technological Laboratory in Ketchikan to talk about fishing for Alaska prawns. The BCF Exploratory Fishing and Gear Research Unit displayed various types of shrimp pots and methods of rigging them. The Alaska Region's gear experts discussed gear problems, the results of exploratory fishing and plans for future work. Technologists talked about methods of optimum handling and processing aboard vessels.

The workshop began with brief talks. Later, the group moved to the Bureau's warehouse to examine trap types, their construction, rigging, and fishing methods. Fishermen had been invited to bring their favorite traps for comparison.



Dr. Galtsoff Receives Award for Book on Oysters

Dr. Paul S. Galtsoff, a Government scientist who dedicated 40 years to shellfish research, was awarded \$2,500 by BCF on December 9, 1966, for writing "The American Oyster" in 1964. Dr. Galtsoff wrote the 480-page reference for biologists, State administrators of oyster resources, public health officers, students of marine biology, and oyster growers. BCF Acting Director Harold E. Crowther said the book "will stand for a long time as one of the most comprehensive studies ever made of a marine animal. It climaxed an outstanding scientific career in the Federal Government."



Dr. Galtsoff receiving award. From left to right: Dr. Herbert W. Graham, Dr. Paul S. Galtsoff, and John T. Gharrett.

(Photo: Robert K. Brigham)

"The American Oyster" costs \$2.75 and is available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.



BLUEFIN TUNA TAGGED IN JAPAN CAUGHT OFF BAJA CALIFORNIA

A bluefin tuna tagged and released by Japan August 27, 1965, was captured off Baja California July 15, 1966, by the United States purse seiner Jo Linda. It is the first Japanese-tagged bluefin recovered in that area, according to California's Department of Fish and Game. The fish, 36 centimeters (14 inches) when released had grown to 68 centimeters (27 inches) during 323 days of liberty. It was estimated that the bluefin traveled at least 5,000 miles.

Note: See Commercial Fisheries Review, Dec. 1964 p. 62.

FEDERAL ACTIONS

Department of Commerce

EDA APPROVES GLOUCESTER FISHING INDUSTRY STUDY

The Economic Development Administration will finance a study that may open more jobs in the fishing industry of the Gloucester, Massachusetts, area. The study will determine whether a program similar to the agricultural extension service will benefit fishermen, fish processors, and allied trades in the Gloucester-Rockport-Essex area.

The 2-year project will cost \$47,539. EDA has approved \$43,543 for the technical assistance project and the Gloucester Fisheries Commission will contribute services worth nearly \$4 thousand.

The demonstration project will try to strengthen the industry by distributing information to vessel operators and processors on the latest developments in fishing and processing methods; explaining government assistance programs and advising government agencies on industry problems; improving the industry's competitive position with other industries; conducting on-the-job training programs to supply trained fishermen to the area's fishing fleet.

BCF reviewed and recommended approval of the project. It will monitor the study and make periodic reports to EDA.

* * *

PLAN CENSUS OF FISHING VESSELS

The Bureau of the Census and BCF are co-operating in preparing a census of commercial fishing vessels for 1967. Information on quantity and value of landings by species and area will be obtained for all U. S. vessels. These data will complement and serve as benchmarks for the annual data collected by BCF's Branch of Fishery Statistics. The census takers will also seek such information as landings in foreign countries.



Department of the Interior

ADVISES ON MILITARY'S FISH PURCHASES

At the suggestion of the President's Council of Economic Advisors, the Departments of Defense (DOD), Agriculture, and Interior are cooperating in the military procurement of food. Large military food purchases have produced much pressure in some markets. To minimize this, DOD will use the current economic analysis of fishery and agricultural products by Interior and Agriculture to prepare annual food plans and menus, and in the food procurement program. This approach will help move abundant commodities and may prevent large price rises in scarce commodities.

* * *

FINANCIAL ASSISTANCE PROGRAMS MARK TIME UNTIL NEW FUNDS GRANTED

Fishing Vessel Construction Differential Subsidy Program: Under this BCF-administered program, more subsidy applications were received and approved in 1966 than in any year since the program began in 1960. As a result, the Bureau does not have sufficient funds available to complete the processing of all applications now ready for final action leading to vessel construction. Processing of additional applications necessarily will be delayed until additional funds become available.

Fishing Vessel Mortgage Insurance Program: More and larger applications also have been received by the Bureau for mortgage insurance. Currently, the amount of active applications on hand exceeds the amount BCF is authorized to insure. No further applications for mortgage insurance will be accepted because a nonreturnable filing fee is required with each application. Appropriate notice will be given when BCF again is in a position to accept applications.

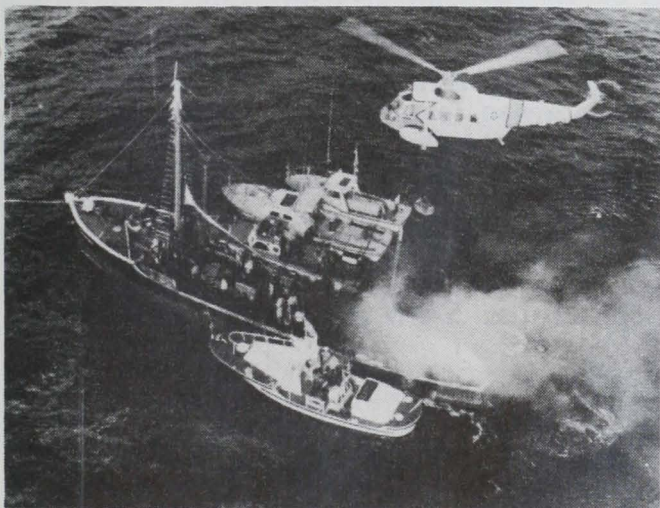


Treasury Department

COAST GUARD SAILS FROM TREASURY TO NEW TRANSPORTATION DEPARTMENT

The Coast Guard will be transferred in the next few months from the Treasury Department to the new Department of Transportation, opening a new era for the 176-year-old agency.

The Coast Guard (CG) is an Armed Force, but its primary peacetime mission is to protect life and property at sea. It took on this role in the early 1830s when revenue cutters were directed to conduct winter cruises to aid distressed vessels. In 1966, the CG answered 43,466 calls for help and saved more than 3,400 lives. Of equal importance with search and rescue is its accident prevention function designed to prevent disasters at sea. In 1966, the CG inspected 4,743 U. S. vessels of 11,599,942 tons, and 1,544 foreign vessels of 14,887,164 tons.



COAST GUARD AT WORK: In September 1966, the Coast Guard answered a call for help from the burning fishing trawler "Cara Cara" off the Massachusetts coast. Four of the USCG boats are shown clustered around the trawler. An HH-52A amphibious helicopter lowers a basket with additional fire-fighting equipment. All 7 crewmen were safely removed to one boat. After the flames were put out, a second USCG craft towed the Cara Cara to Scituate, Mass. (Photo: U. S. Coast Guard)

A Century of Oceanography

The Coast Guard carried out its first oceanographic mission in 1867 when the revenue cutter "Lincoln" explored the waters of the Alaskan Territory shortly after its purchase from Russia. Since then, the CG's Alaskan Patrol, ocean station vessels in the Atlantic and Pacific, and the International Ice Patrol have helped expand understanding of the sea. In 1961, legislation gave the CG official oceanographic status. The cutter "Northwind" has carried out investigations of the Kara and Barents Seas north of the USSR. Larger vessels are being equipped with the latest instruments to permit more effective work. The new 378-foot cutter "Hamilton," scheduled to be commissioned early this year, will have fully equipped wet and dry oceanographic laboratories and a computer. The CG makes available information it obtains to oceanographic centers around the world. In 1966, a Marine Sciences Division was set up at CG headquarters with full jurisdiction over the agency's efforts.

On December 15, 1966, the CG acquired the last of the U. S. Navy's deep-draft ice-breaking fleet, the "Burton Island," and became the chief U. S. icebreaking agency. The icebreakers will support the Navy's polar operations.

The Coast Guard has constructed a chain of Loran-C stations off Thailand and South Viet Nam to provide southeast Asia with a system of electronic navigational aids. Loran (Long Range Aid to Navigation) was developed by the Coast Guard early in World War II. The Loran network now circles the world.

The Coast Guard also is replacing the picturesque old lightships with modern offshore structures. In 1966, it commissioned the building of one at Diamond Shoals, about 12 miles southeast of Cape Hatteras, North Carolina. And, in the entrance to New York Harbor, an offshore structure at Ambrose Station will replace the lightship.

