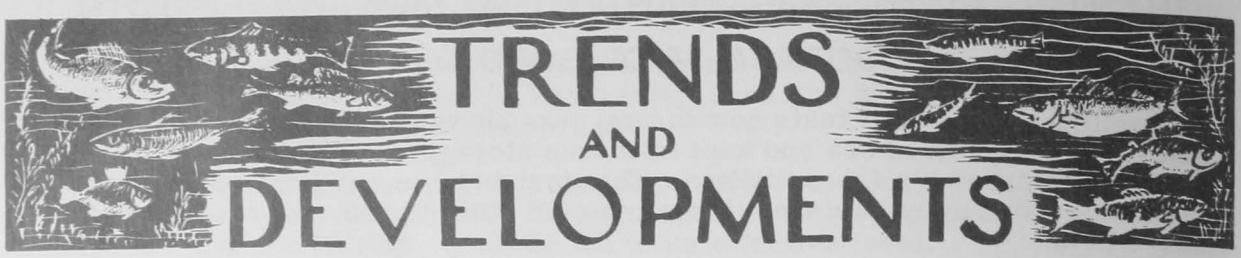

California

ANCHOVY AND MACKEREL FISHERIES EXPERIENCE POOREST SEASON IN MANY YEARS: The California anchovy and mackerel fisheries are experiencing their poorest season in many years. While 1957 was an excellent year, it was unusual also to the extent that it was the best year for mackerel fishing in several years.

Table 1 - California's Anchovy and Mackerel Landings, January-May 7--1958 and 1957, and Tonnage and Ex-Vessel Value Loss in 1958 through May 7

Species	Landings January 1-May 7		Loss in 1958 through May 7 when Compared with the Same Period in 1957	
	1958	1957	Quantity	Ex-vessel Value
	. . . (Tons) . . .		Tons	$1,000
Anchovy.	1,091	10,450	9,359	234
Jack mackerel	1,326	19,444	18,118	770
Pacific mackerel	3,111	4,577	3,251	138
Total	5,528	34,471	30,728	1,142

A comparison of the landings of anchovies and mackerel for January 1 through May 7 this year with the same period in 1957 reveals that this year those fisheries are operating at a very low level.

Table 1 shows the amount of tonnage loss, but when transposed to dollars the figures are even more staggering.

In the San Pedro-Long Beach area there are approximately 100 vessels engaged in the two fisheries at present, which means the average loss per vessel is about $11,423, which breaks down to somewhere between $700-900 per crew member depending on the size of the vessel.

The packers also are greatly affected by this shortage, as they are faced with the loss of foreign markets which have been developed over the years. Anchovies are especially hard hit since the foreign markets for canned anchovies are relatively new. Canned anchovies did not gain ready acceptance, and were just at the point of becoming a real factor in the Far East markets, when they disappeared. Both canned anchovies and mackerel are in heavier demand than usual, due to the sardine shortage this past season in California, but canners are not able to take advantage of the situation due to the shortage. In fact canners will probably lose many of the advances made during the last year in consumer acceptance of canned anchovies unless enough are packed to keep them on the shelf.

The effect on fishermen has been exceptionally severe, as during the first quarter of the year no other species is available that can be substituted for anchovies and mackerel. In the latter part of May local bluefin tuna show up off Southern California, and the San Pedro fishermen receive some income from bluefin, but without mackerel and anchovies the normal earnings are upset. Therefore, this probably will be a poor year for the San Pedro-Long Beach purse-seine vessels.

--A. D. SOKOLICH, MARKET NEWS REPORTER
BRANCH OF MARKET NEWS, BUREAU OF
COMMERCIAL FISHERIES, SAN PEDRO, CALIF.

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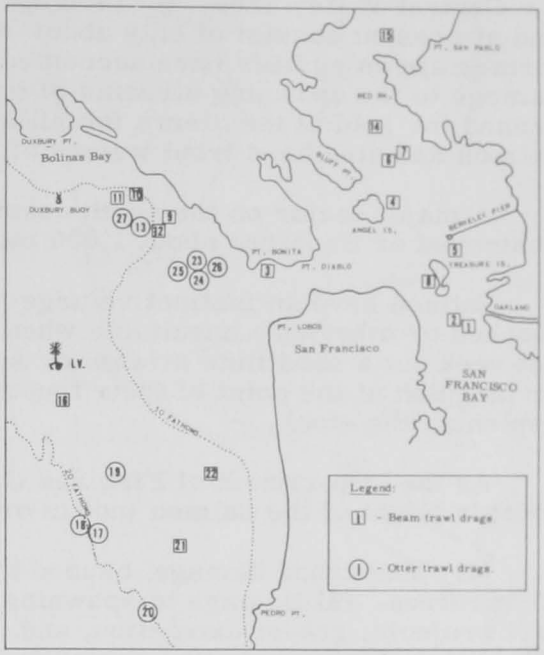
DUNGENESS CRAB--YEAR-CLASSES SURVEYED AND OTTER TRAWL AND BEAM TRAWL TESTED FOR SAMPLING (M/V Nautilus Cruise 58-N-1-Crab): The January 10-January 24, 1958, cruise of the California Department of Fish and Game's small research vessel Nautilus was made in San Francisco Bay and in the ocean area from Pedro Point to Bolinas Bay to continue studies being made on the dungeness crab (Cancer magister). During the cruise, 27 tows with the 10-foot shrimp-mesh beam trawl and the 12-foot shrimp-mesh otter trawl yielded a catch of 33 male and 113 female dungeness crabs. The trip was planned to (1) determine the year-classes of the Dungeness crab (market crab) present in San Francisco Bay and in the ocean from Pedro Point to Bolinas Bay; (2) determine the size of the "crabs-of-the-year" in these two areas; (3) determine the expediency of using the 12-foot shrimp-mesh otter trawl compared to the 10-foot shrimp-mesh beam trawl in crab sampling.

The gear used was shrimp experimental gear consisting of a 10-foot beam trawl with a net of 1-inch mesh. This net was fished with floats on the anterior portion of the mouth. The lead line had just enough weight to keep it on the bottom. The otter trawl was a 12-foot wide net of $1\frac{1}{2}$-inch mesh. The doors were 4 by 5 feet and weighed approximately 80 pounds each.



M/V NAUTILUS CRUISE 58-N-1 (JANUARY 10-24, 1958).

The size of the crabs was recorded. This is the shoulder width, i. e. a caliper measurement just anterior to the most lateral spines. Preliminary inspection of the size frequency record of male crabs was made for groupings reflecting the age classes. This inspection was made with consideration of data from previous cruises. There were 4 and possibly 5 year-classes present. The fifth year-class appears as crabs over 190 millimeters in width; the fourth from 160 to 190 millimeters; the third from 130 to 160 millimeters; the second from 90 to 130 millimeters; and the first from 28 to 60 millimeters. The youngest crabs were very nearly one year old. Crabs in the first two years of life molt more than once per year, hence the gaps in the size distribution. This year-class breakdown was made for males only because a different growth ratio for females has been observed in other studies.

The sample of the first year-class (or crabs-of-the-year) numbered 28. These crabs were taken at stations 5 and 14 in San Francisco Bay and at stations 25 and 26 in the ocean (see chart). The crabs taken in the bay had an average size larger than those taken outside.

Dungeness crabs of the same size range were taken by the beam trawl and the otter trawl. Thirty crabs were taken by the otter trawl and 116 crabs by the beam trawl. There was an average of 11.6 crabs per tow of the beam trawl and 10 crabs of the otter trawl. Over-all, 11.2 crabs were taken per tow. These figures were computed from the tows that contained crabs. Fourteen tows did not contain crabs. There was no difference in the selectivity of the two nets for different size crabs. Both nets are useful in collecting crab samples. The beam trawl is easier to handle with the manpower and gear on the Nautilus, a 50-foot research vessel.

* * * * *

LOSS OF SPAWNING BEDS BELIEVED MAJOR FACTOR IN DECLINE OF KING SALMON: One of the major reasons for the decline in California's king salmon resource is loss of spawning beds, the March 1958 issue of the Department of Fish and Game's Outdoor California reports. At one time in the early history of the State over 6,000 miles of spawning streams were available to the king salmon in the Central Valley area. By 1928 the spawning streams had shrunk to 520 miles and at present consist of only about 300 miles. Dams which have cut off and flooded former spawning beds have accounted for most of this loss of spawning areas. This damage to the spawning streams of the Central Valley started with first miners who panned for gold in the Sierra foothills and it continues at present throughout the salmon and steelhead trout waters of the State.

A major factor on the north coast streams has been careless logging, which has destroyed or impaired about 1,000 more miles of spawning area.

Salmon have an instinctive urge to return to their home stream. If they find it blocked or otherwise unsuitable when they come in from the sea, most of them will not seek out a substitute stream or spawning bed but will batter themselves to death or languish at the point of their frustration, dying without fulfilling their mission to replenish the stock.

As the Department of Fish and Game sees it, the other factors responsible for today's plight of the salmon (not in order of importance) are:

(1) Watershed damage, caused by mining, grazing, logging, agriculture, and forest fires. (2) Damage to spawning streams, caused by mining, logging, flood control projects, gravel extraction, and highway construction. (3) Changes in water flow below dams, including actual drying of stream, temperature increase and manipulation of releases, stranding spawning nests and fish. (4) Water diversions for power, industrial processing, irrigation, domestic use, duck clubs, etc., which cause reduction or elimination of stream flow. (5) Pollution, which causes loss of fish and fish food and creates blocks to migration. (6) Poorly planned and executed artificial propagation in early days. (7) Predation and competition, including introduced species and changed conditions that favor predators. (8) Increased fishing pressure, sport and commercial, both in California and in the migration area to the north, coupled with increased fishing mortality of small fish and genetic downbreeding by selective fishing.

* * * * *

YELLOWFIN AND SKIPJACK TUNA STUDIES OFF WEST COAST OF SOUTH AMERICA (M/V Southern Pacific Cruise 57C5-Tuna): A total of 1,230 yellowfin and skipjack tuna were tagged off the coasts of Mexico, Central America, Peru, and Chile by biologists of the California Department of Fish and Game aboard the commercial tuna clipper Southern Pacific during a 99-day cruise that ended on February 11, 1958. The objectives of the cruise were as follows: (1) To study the population structure of the Eastern Pacific "tunas" by tagging yellowfin and skipjack tuna. (2) To field test two methods of securing the ends of "spaghetti" tags and to test a new dart tag. (3) To make collections of related marine life in baiting and fishing areas. (4) To make limited oceanographic observations.

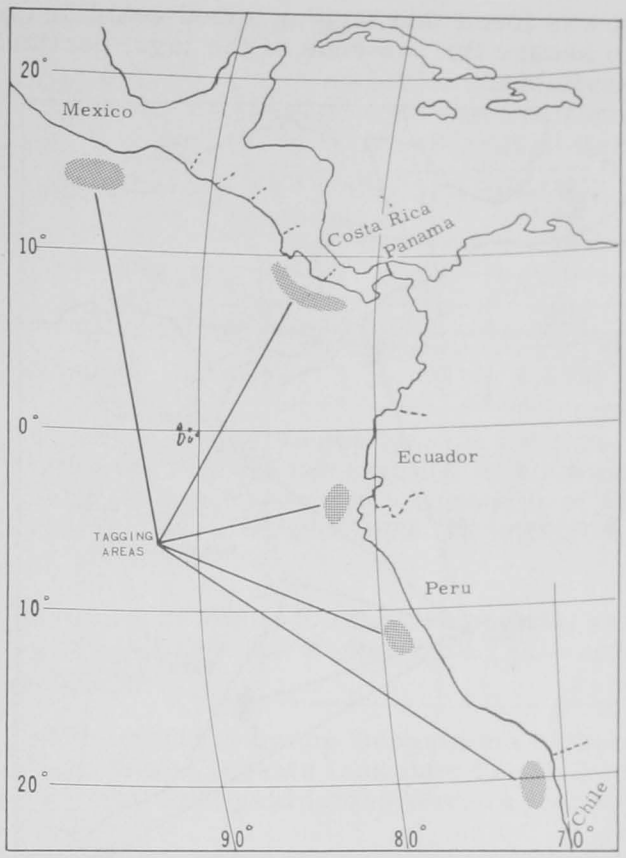
The 1,230 yellowfin and skipjack tuna were tagged with yellow type G (clamp), type G (knot), and dart tags, and released in the following areas: Southern Mexico, 32 yellowfin; Central America, 155 yellowfin and 27 skipjack; Peru Bank, 70 yellowfin and 309 skipjack; North Central Peru, 115 yellowfin and 62 skipjack; Southern Peru, 1 yellowfin and 142 skipjack; Northern Chile, 63 yellowfin and 254 skipjack.

A total of 932 fish were tagged with "spaghetti" tags; 532 of this series were knotted in the standard way, while 400 were reinforced with 40-pound test monofilament nylon cores and the ends secured by means of a small metal clamp. Although the clamp does not increase tagging speed, the nylon core gives a tag of superior strength.

A total of 298 fish were tagged with experimental "spaghetti" dart tags. This tag could be applied faster than conventional "spaghetti" tags. (One of these dart tags was recovered before the completion of the cruise.)

The boat schedule and the areas fished did not permit extensive collecting of marine life. However, live-bait hauls produced 8 collections; night lighting, 16; examination of tuna stomachs, 9; and early morning deck inspections, 2. This material is presently being processed.

Surface water temperatures in the areas fished ranged from 65°-85° F. The 14-fathom bank off Peru showed the greatest variation, 65°-72° F. Other surface temperatures ranged from 71°-81° F.



M/V SOUTHERN PACIFIC CRUISE 57C5-TUNA (NOVEMBER 4, 1957-FEBRUARY 11, 1958).

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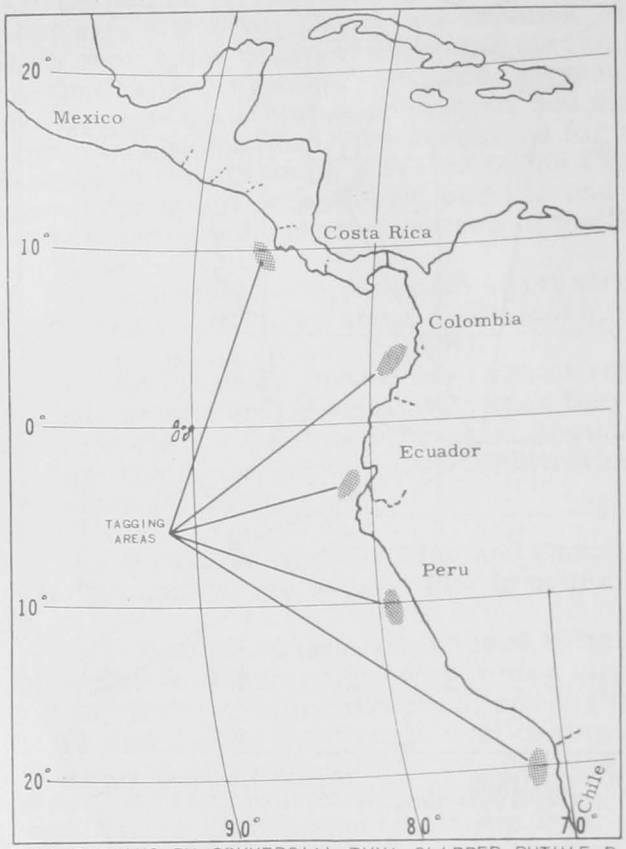
YELLOWFIN AND SKIPJACK TUNA STUDIES OFF WEST COAST OF SOUTH AMERICA (M/V Ruthie B Cruise 57C6-Tuna): The commercial tuna clipper Ruthie B with two biologists of the California Department of Fish and Game aboard collected biological and oceanographic data on the tunas of the eastern Pacific during an extended cruise lasting from November 12, 1957, to March 15, 1958.

The purpose was to: (1) To study, by tagging techniques, the migrations, ages, rates of growth, and other salient features of the eastern Pacific yellowfin tuna and skipjack populations. (2) Obtain biological and other information concerning "tuna" schooling habits, by sampling the size and species composition of individual schools. (3) Delineate "tuna" spawning areas and seasons by collecting post larvae and juveniles under a night light. (4) Make routine biological and oceanographic observations that may be related to the occurrence of "tuna." (5) Collect marine organisms associated with "tunas" in fishing areas and also on the baiting grounds with important live bait species.

During the cruise, 134 yellowfin and 313 skipjack tuna were tagged and released at the following locations: off Costa Rica, 2 yellowfin; off Colombia, 18 yellowfin and 7 skipjack; off Peru (Peru Bank) 35 yellowfin and 95 skipjack; off Peru (14 Fathom Spot), 72 yellowfin and 92 skipjack; off Northern Chile, 7 yellowfin and 119 skipjack. Two skipjack tagged off Peru (14 Fathom Spot) were recaptured during the cruise and returned to the Terminal Island Laboratory. These two fish were recaptured in the release area after being at liberty for 15 and 22 days, respectively.

It was found that tagging speed could be improved by using plastic coated metal clamps to secure the two ends of the tags, particularly if properly designed pliers were available.



TUNA TAGGING BY COMMERCIAL TUNA CLIPPER RUTHIE B (CRUISE 57-C-6-TUNA, NOVEMBER 12, 1957-MARCH 16 1958.

Six yellowfin and five skipjack tuna were sampled for size and species composition. These data indicate that "pure" schools, those consisting of a single species, tended to school by size. Schools of yellowfin tuna and skipjack mixed, however, sometimes contained several sizes of each. For example, one mixed school was made up of 4.5- and 7.5-pound skipjack plus 7.5- and 15-pound tuna.

Fifty-six bottles of formalin-preserved specimens, primarily obtained from night-light stations, are being identified and processed for "tuna" larvae.

Oceanographic and meterological observations were made throughout the cruise. There was no obvious relationship found between "tuna" catches and sea surface temperatures or between "tuna" catches and water clarity. Sea surface temperatures on the fishing grounds ranged from 18.0° C. to 29.5° C.

Twenty packages of frozen specimens were obtained from bait net hauls, night-light stations, and by hook and line. These have been processed and individuals saved for future study at the laboratory or sent to other scientific institutions.

Unusually poor fishing was encountered during the cruise. Poor fishing, in general, was experienced by the California tuna fleet operating in these areas.

Cans--Shipments for Fishery Products, January-February 1958

Total shipments of metal cans during January-February 1958 amounted to 12,756 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 13,382 tons in the same month a year ago. Canning of fishery products in January-February this year was confined largely to tuna, jack and Pacific mackerel, anchovies, and Gulf oysters.

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

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-MARCH 1958: Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, 1.7 million pounds (value $1.0 million) of fresh and frozen fishery products were purchased in March by the Military Subsistence Market Centers. This exceeded the quantity purchased in February by 3.9 percent and was 3.5 percent above the amount purchased in the same month a year ago. The value of the purchases this March was higher by 0.7 percent as compared with the previous month and higher by 13.9 percent from March a year ago.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Market Centers, March 1958 with Comparisons

QUANTITY				VALUE			
March		Jan.-Mar.		March		Jan.-Mar.	
1958	1957	1958	1957	1958	1957	1958	1957
(1,000 Lbs.)				($1,000)			
2,635	2,715	10,002	9,494	1,274	1,322	5,106	4,855

For the first three months of 1958 purchases totaled 5.0 million pounds, valued at $3.0 million--a decrease of 9.2 percent in quantity, but higher by 3.1 percent in value as compared with the same period of 1957.

Prices paid for fresh and frozen fishery products by the Department of Defense in March 1958 averaged 59.4 cents a pound, about 2.0 cents less than the 61.3 cents paid in February, but 5.4 cents higher than 54.0 cents paid during March a year ago.

Table 2 - Canned Fishery Products Purchased by Military Subsistence Market Centers, March 1958 with Comparisons

Product	QUANTITY				VALUE	
	March		Jan.-Mar.		March	Jan.-Mar.
	1958	1957	1958	1957	1958	1958
	(1,000 Lbs.)				($1,000)	
Tuna	96	573	412	841	54	218
Salmon	546	-	1,241	992	295	673
Sardine	3	8	24	19	1	8

Canned Fishery Products: Salmon and tuna were the principal canned fishery products purchased for the use of the Armed Forces during March.

NOTE: ARMED FORCES INSTALLATIONS GENERALLY MAKE SOME LOCAL PURCHASES NOT INCLUDED IN THE DATA GIVEN; ACTUAL TOTAL PURCHASES ARE HIGHER THAN INDICATED, BECAUSE IT IS NOT POSSIBLE TO OBTAIN LOCAL PURCHASES.

Fishery Marketing Specialist Examination GS 7-14

The U. S. Civil Service Commission announced on February 18, 1958 (Announcement No. 147B and Supplement), unassembled examinations for the position of Fishery Marketing Specialists, GS-7 through GS-14. The examination remains open until further notice.

The positions to be filled from this examination are located in the U. S. Fish and Wildlife Service of the Department of the Interior, and other Federal agencies in Washington, D. C., and throughout the United States, its Territories and possessions.

Announcement No. 147 B
Issued: February 18, 1958
No Closing Date
X-118 Modified

The U. S. Civil Service Commission announces an examination for

Agricultural Marketing Specialist

Fishery Marketing Specialist

$4,525 to $10,320 a year
(Grades GS-7 through GS-14)

Agricultural Market Reporter

$4,525 to $6,390 a year
(Grades GS-7 through GS-11)

File applications as directed on page 5

Fishery Marketing Specialists' work relates to fishery production and marketing. The duties involve investigation and market research concerning commercial fisheries or fishery commodities; also perform work relating to Fishery Market News reporting services. Persons appointed to any one of these positions will be required to write articles or reports for publication, radio, or the press.

To qualify for these positions you must have a responsible and successful experience in appropriate marketing specialties and activities. Except for the substitution of education as provided, the amount of experience required for each grade level is as follows: GS-7 ($4,525) 4 years; GS-9 ($5,440) 5 years; GS-11 ($6,390) 6 years; GS-12 ($7,570) 6 years; GS-13 ($8,990) 6 years; and GS-14 ($10,320) 6 years.

To be rated eligible at grades GS-12 through 14, at least 1 year of the experience must have been comparable in difficulty and responsibility to the work of the next lower grade in the Federal service; and for grades GS-7 through11, at least 1 year must have been comparable in difficulty and responsibility to the work of at least the second lower grade in the Federal service. Positions at the GS-12 through 14 are very few.

The total experience must have been of such scope and character as to demonstrate clearly that you are fully capable of performing the duties of the grade of the position for which you apply.

Undergraduate study satisfactorily completed in an accredited college or university, with specialization in appropriate subjects, may be substituted for experience at the rate of 1 full year of study for 9 months of the required experience, up to a total of 3 years of experience.

You must also show that you are a United States citizen; that you are physically able to do the work involved in the position for which you apply; and that you have reached your 18th birthday on the date of filing application. There is no maximum age limit for this examination.

All persons who attained eligibility under Announcement 6B and have been on the Fishery Marketing Specialist register for one year and have not received appointments may apply for the new examination. Registers to be established under Announcement 14B will supersede those currently in use under Announcement 6B. Those rated during the past year will have eligibilities transferred.

For full information on how to apply for this examination, write to the U. S. Civil Service Commission, Washington 25, D. C., or any of its field offices.

Fish Listed as Essential H-Bomb Survival Item

The Office of Defense Mobilization has listed fish as one of the six major groups of foods classified as "essential survival" items that would be needed to sustain life after a nuclear attack on the United States. It was announced that the list is

being used as a basis for supply-requirement studies, and that it may recommend Governmental stocking of these items in strategic and protected locations. The agency emphasized that many of the items might not be required in the first few days following an attack, but would be necessary during the first few months.

Fish Predators

BOUNTY PAYMENTS OPPOSED: The bounty system has not proved to be the most effective and practical way to control pest species, Assistant Secretary of the Interior Ross L. Leffler said on March 20, 1958, in submitting to Congress a report opposing enactment of Senate bill S. 2719. The purpose of the proposed legislation is to provide for the payment of bounties for the control of certain predators such as hair seals and sea lions in the fisheries of the Pacific coast and Alaska.

The Assistant Secretary stated that the U. S. Fish and Wildlife Service, backed by 40 years of experience, has found that bounties generally serve more as a means of harvesting an annual crop of the pest species being bountied, rather than as an effective measure of control of the predators. Under such a system, predators are taken where the task is easiest and least expensive, and not necessarily where their taking does the most good, he said.

For many years the Alaskan Territorial Legislature has authorized bounties on hair seals along most of the southern coast of Alaska. More recently the bounty has been applied to hair seals in the Bering Sea and part of Norton Sound. Many thousands of dollars have been spent on these bounties, however, without any appreciable benefit to the salmon or other fishery resources.

In preference to paying bounties, the Assistant Secretary declared that direct control measures which provide for the employment of professional hunters and trappers who concentrate their efforts in problem areas are much more effective and less expensive. In the Copper and Stikine River districts, for example, where hair seals prey on the salmon runs and also cause damage to fishing gear, the Alaska Department of Fish and Game has applied direct control measures which are proving to be far more practical than a bounty system.

The U. S. Fish and Wildlife Service is now conducting a vigorous restoration program to rehabilitate the Alaska salmon runs. Studies are being carried on in cooperation with the Fishery Research Institute of the University of Washington to ascertain what effect hair seals, sea lions, and other predators have on the abundance of salmon.

The Pacific halibut fishery is in a very productive condition, according to reports of the International Pacific Halibut Commission, and has yielded maximum catches in recent years. Assistant Secretary Leffler, in his report to the Congress, pointed out that the Commission has never made any attempt to control halibut predators.

Great Lakes Fishery Investigations

SEA LAMPREY LARVAE DESTROYED BY CHEMICAL: About a mile above the point where Michigan's Black Mallard River, Presque Isle County, empties into Lake Huron, a lamprey-killing chemical was fed into the 30-foot wide stream at a beaver dam to study effects on sea lamprey larvae. The treatment started

at 9 a. m. on April 15, and by 2 p. m. dead lampreys, most about four inches long, were beginning to appear downstream.

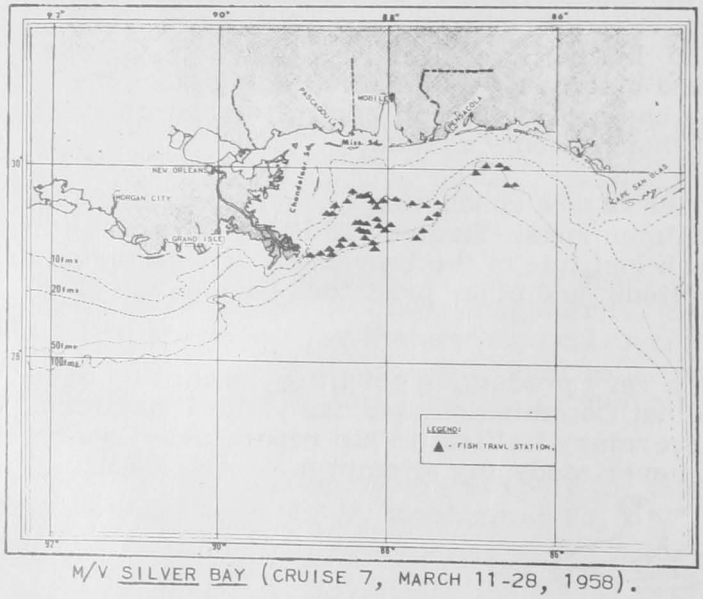
The river was chosen because of its proximity to the Bureau of Commercial Fisheries Hammond Bay laboratory, where work against the lamprey has been under way for several years. The river was stocked with 500 brook and rainbow trout prior to the test. The chemical later made many of these fish groggy, but apparently did not kill them. A similar test last fall on nearby Elliott's Creek showed the same results.

Officials from a Michigan chemical firm, the Fisheries Research Board of Canada, and the U. S. Fish and Wildlife Service's Bureau of Commercial Fisheries coordinated efforts in this project. The work was aimed at ironing out difficulties in analysis of water samples and in use of the chemical. It was not designed as a full-scale management procedure.

A full report of the work was not expected immediately, but it was obvious the chemical had harvested close to 100 percent of lampreys in the stream. Further work, both tests and management, is expected on Lake Superior streams later this year. Lake Superior still has a remnant lake trout population and officials are hopeful the chemical will help save the remaining trout.

Gulf Exploratory Fishery Program

EXPLORATORY FISHING FOR RED SNAPPER WITH ROLLER-RIGGED OTTER TRAWL (M/V Silver Bay Cruise 7): The hard bottom areas 15-60 fathoms in the northeast Gulf of Mexico extending from the Mississippi Delta to 86° 30' W. (south of Destin, Fla.) were fished with a roller-rigged otter trawl by the U. S. Bureau of Commercial Fisheries chartered exploratory fishing vessel Silver Bay during a March 1958 cruise. The primary objective was to discover if red snappers could be found in commercial quantities on bottom too rough for otter trawls.



M/V SILVER BAY (CRUISE 7, MARCH 11-28, 1958).

Red snapper were taken in small quantities in 20 of the 44 tows made with the roller-rigged trawl. No areas were found which produced red snapper in commercial quantities. Several attempts at fishing on or adjacent to known red snapper "lumps" resulted in tear-ups, but no gear was lost. The trawl functioned without mishap on some rough bottom areas avoided by local commercial trawlers.

A series of tows on broken bottom south of Mobile Bay in 20-35 fathoms yielded catches of mixed species of up to 3,000 pounds per 90-minute tow, using a roller-rigged trawl constructed of $4\frac{1}{2}$-inch braided nylon. The principal species caught were croaker (Migropogon), spot (Leiostomus), porgy (Stenotomus), and white sea trout (Cynoscion).

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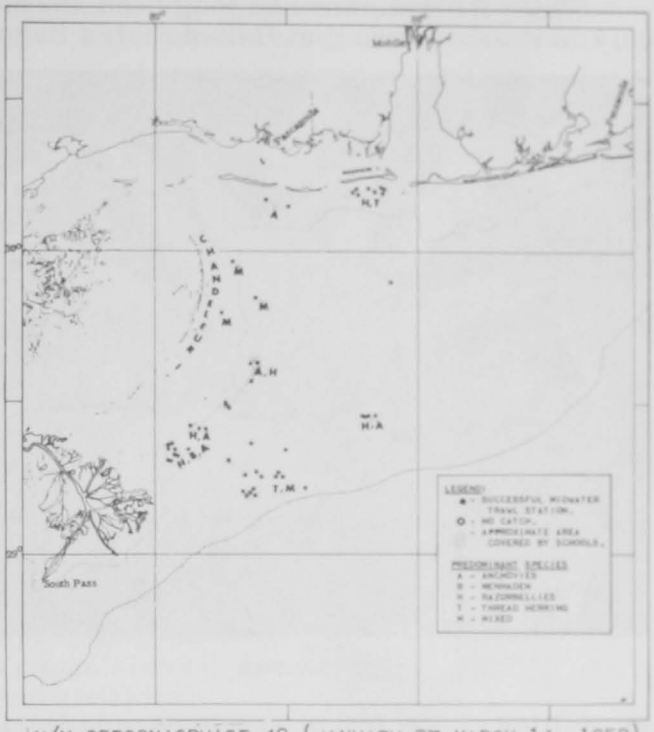
MIDWATER TRAWLING EXPLORATIONS BETWEEN MISSISSIPPI DELTA AND CAPE SAN BLAS (M/V Oregon Cruise 48): Samples of fish ranging from 10 to 1,369 pounds were obtained in 36 midwater tows by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon during a cruise made between January 27 to March 14, 1958. Fifty-two exploratory midwater trawling tows were made between the Mississippi Delta and Cape San Blas during the cruise to count, sample, and identify midwater fish schools and to test midwater trawls of varying mesh sizes.



M/V OREGON CRUISE 48 (JANUARY 27-MARCH 14, 1958).

Trawl sets were made on depth recorder indications of midwater schools and the samples obtained indicated concentrations of many species of clupeoids. Eighteen of the schools sampled were predominantly razorbellies (Harengula pensacolae) and nine were 5 to 6 inch anchovies (Anchoa hepsetus). Other scattered schools contained mixtures of thread herring, chub mackeral, round herring, anchovies, scad, gizzard shad, and alewives. Menhaden (Brevoortia patronus) made up the bulk of the catch in two tows off Pass a Loutre. One tow (January 30) contained 1,290 pounds of menhaden in ripe spawning condition.

Two 40-foot square midwater trawls with mesh sizes tapering from 3" to $1\frac{1}{4}$" and 2" to $1\frac{1}{4}$" were used for midwater sampling. A single set on three dense school indications with an 88-foot nylon trawl resulted in the loss of all the netting.

Recorder indications of subsurface schools were numerous both preceding and following the cold wave during the middle of February. Schools were noticeably diminished during the cold wave.

King Crab

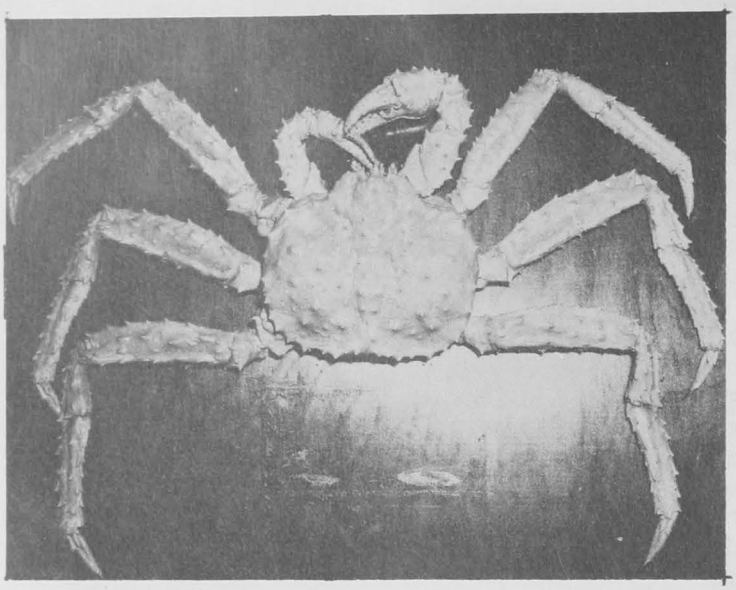
BUREAU FISHERY BIOLOGISTS STUDY LIFE HISTORY: Literally foot by foot the king crab utilizes its six walking legs to wend its way here and there in its favorite habitat in the Bering Sea and in other places in the North Pacific Ocean where the water is from 30 to 70 fathoms deep.

Records in the U. S. Bureau of Commercial Fisheries show that this crustacean has migrated along the ocean floor as much as 300 miles. Migrations of 50 to 100 miles are common. Recently the Bureau reported that one king crab was taken 122 miles from point of release, one year and ten days after tagging.

The king crab, a walker and not a swimmer, is one of Alaska's many contributions to the tables of many nations. In the eastern Bering Sea, which is the center of United States interest and activity, there are an estimated 20 million commercial-size king crabs. This estimate is based upon a July 1957 sampling project at 77 fishing stations covering an area of 31,000 square miles of ocean north of the Alaska peninsula. "Commercial size" is not less than $6\frac{3}{4}$ inches across the top of the

body. The king crab often measures as much as 5 feet from leg tip to leg tip; it weighs usually from 7-10 pounds with a record weight of 22.3 pounds.

While its tastiness has long been known to the United States consumer, it is only in recent years that United States fishermen have made systematic attempts to harvest the resource. Much of harvesting can be done in "off seasons" when fishing boats are not otherwise engaged.



KING CRAB

Japan has been harvesting the king crab for a long time. With United States fishermen now becoming active in the harvest, the advantage of joint conservation practices is becoming apparent. Hence, the United States section of the International North Pacific Fisheries Commission has asked the Bureau to make as thorough a study as possible of this resource. Through the Saltonstall-Kennedy Act of 1954 for the improvement of the domestic commercial fishing industry, $31,000 has been made available for the current research program, in addition to $39,000 of regularly-appropriated funds.

If the resource is to be managed properly (that is if maximum sustained yield is to be realized) the researchers must accumulate a considerable amount of data on the life history of that shellfish--its spawning habits and areas, its natural enemies, conditions of optimum development, strong and weak spots in the life cycle, the rate of growth, its habitat, and numerous other things. The basis of such a study depends upon being able to identify individual members of the population to be studied.

One of the toughest problems which the research biologists working on the king crab have been asked to solve is the matter of tagging. Because the king crab periodically just walks out of his old shell a tag attached to the shell sooner or later is separated from the crab.

But the biologists finally found a spot under the shell--in an area which in humans might be called the sacroiliac--where a "spaghetti" or ribbon tag can be permanently attached. Last year 15,570 king crabs were tagged. Information on their recapture is secured from both Japanese and United States fishermen.

* * * * *

STUDIES TO BE CONTINUED BY ALASKA FISHERIES BIOLOGIST IN KODIAK-AFOGNAK AREA: King crab investigations will be the principal activity of a fishery biologist who recently joined the staff of the Alaska Department of Fish and Game, that agency's Director announced in April 17.

The biologist will continue king crab research, which was started in the Kodiak-Afognak area in 1954 by the Alaska Department of Fish and Game. The Department's former biologist made an important contribution to the study of king crabs--the development of a tag that would stay on the crab after its shell was shed during molting. Since then the tag has been widely used by other fishery agencies engaged in king crab research.

Working in close cooperation with fishermen and processors, the biologist will continue the Department's tagging program for additional data on king crab growth and migrations. These studies have been greatly facilitated by the installation of a large marine aquarium by the Department, which is now in operation at Kodiak. This will enable the biologist to conduct controlled experiments on growth and molting.

"The king crab fishery," the Department's Director says, "has expanded into a most important industry and gives promise of surpassing salmon in the Kodiak area in value to the Territory." Kodiak now calls the city "The King Crab Capital of the World" and plans to stage an annual king crab festival.

Maine Sardines

CANNED STOCKS, APRIL 1, 1958: Distributor's stocks of Maine sardines totaled 293,000 actual cases on April 1, 1958--2,000 cases or less than 1 percent lower than the 295,000 cases on hand April 1, 1957. Stocks held by distributors on January 1, 1958, amounted to 230,000 cases, and on November 1, 1957, totaled 298,000 cases, according to estimates made by the U. S. Bureau of the Census.

Canners' stocks on April 1, 1958, totaled 476,000 standard cases (100 $3\frac{3}{4}$-oz. cans), 11,000 cases above stocks held on the same date last year, and considerably less than the 1,111,000 cases reported on hand on January 1, 1958.

Shipments of canned Maine sardines from April 15, 1957, to April 1, 1958, amounted to 2,067,000 standard cases as compared to 1,877,000 cases for the same period the previous season.

Table 1 - Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks April 1, 1958, with Comparisons

Type	Unit	1957/58 Season			1956/57 Season			
		4/1/58	1/1/58	11/1/57	7/1/57	6/1/57	4/1/57	1/1/57
Distributors	1,000 Actual Cases	293	230	298	212	230	295	347
Canners	1,000 Std. Cases 1/	476	1,111	1,337	895	416	465	879

1/ 100 $3\frac{3}{4}$-OZ. CANS EQUAL ONE STANDARD CASE.

* * * * *

OFFICIAL STATE GRADE STANDARDS FOR CANNED SARDINES ESTABLISHED: Maine's Commissioner of Agriculture on March 28,1958, promulgated official State grades for canned sardines in oil and hailed the action as a "most vital forward step towards quality control, market development and the future success of this important industry." The promulgation becomes effective on April 15, which is the legal opening date of the 1958 packing season.

The action was taken, at the request of the industry, after three years of extensive research and actual experience on a voluntary basis with the Commissioner's organization participating in the development phases.

Under the program all lots of quarter-oil ($3\frac{1}{4}$ oz.) sardines packed in the future will be graded, under the State's supervision, and given a rating commensurate with the degree of quality produced.

It further provides for the issuance of official State certificates of grade to any packer who requests this service and eliminates the introduction into trade channels of any sardines that do not conform to minimum standards.

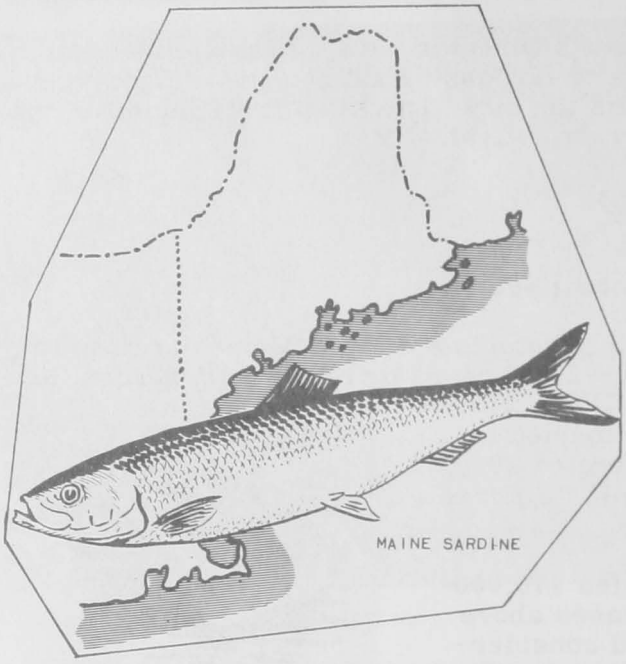
Each lot will be rated either fancy, extra-standard, standard, or substandard, according to the manner in which it survives the rigid grading examination.

The Commissioner said that research was being conducted for the inclusion of mustard and tomato-sauce packs, along with the oil pack, at a future date.

Maine sardine packers produce a large share of the world's sardines with an annual pack of approximately 2,225,000 cases (100 cans to the case).

The Chairman of a Maine sardine industry committee which has been active in development of the program,

described the promulgation as "the most commendable and progressive move ever made by any segment of the American seafood industry, on its own initiative...." He predicted that it would have far-reaching effects towards improvement of the per capita consumption ratio and marketing of Maine's sardine pack.



Administration of this activity comes under the Maine Department of Agriculture, as that Department is charged by law, with the responsibility of policing and enforcing all State regulations dealing with grading, inspection, growing, and processing of foodstuffs. Much work along these lines is now being done on poultry, potatoes, blueberries, eggs, milk, and other products.

The grading operation will be performed by employees of the Department of Agriculture, under the direct supervision of the Assistant Chief of Inspection, at the industry's Bangor Laboratory.

Samples of each lot packed will be taken daily by State Inspectors, stationed at the individual plants, and shipped directly to the laboratory. The examinations and testing will then be speedily carried out so as to eliminate any unnecessary delay in getting the reports of the results back to the canners.

Grades will be based on a number of factors, including appearance, texture, flavor, odor, oil or sauce quality, moisture, and water content. The Department will take over a number of graders who have been training for this work for three years.

The laboratory was established and equipped with Maine Sardine Council funds at a cost of more than $75,000 and was officially opened by the Assistant Secretary of the Interior Ross L. Leffler two years ago. Previously the development work was carried on at a laboratory on the University of Maine campus. In addition to the grading and quality control program, the laboratory houses other sardine research activities.

Activities that finally resulted in the official grading were launched in 1952 when the U. S. Bureau of Commercial Fisheries was engaged to conduct pilot studies.

Prior to promulgation the Commissioner presided at a public hearing, which was attended by most of the Maine's sardine canners, and an outline of the plan of action was received by the group without opposition.

* * * * *

PACKING SEASON OPENED ON APRIL 15, 1958: The 1958 Maine sardine packing season legally opened on April 15, 1958, but industry leaders predict that production will not begin until late May or early June.

The Maine Sardine Council's Executive Secretary said that the mid-April opening date has been nothing more than a legal definition for the past ten years. Not only have the old time early runs of fish failed to show up, but none of the plants are ready for operation so early.

He said that there was nothing to indicate whether there would be an abundance or scarcity of fish this season, but if the trend since 1951 prevailed, the latter situation might be the story.

Starting with 1951 when fish were very scarce, all season the industry had alternate high and low production years until 1956 and 1957 which were two good fish years in a row. Unless the trend is broken a shortage of sardines could crop up again.

It was expected that several less plants would be in operation in 1957. Two plants have been dismantled and there are reports of others not planning to operate.

The industry is anxious to know just what effect recently-promulgated official Maine State grade standards will have on the pack and the market picture.

Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, SPRING-SUMMER 1958: United States civilian consumption of fishery products in the next few months is expected to be about the same as a year earlier. Average retail prices of these products this spring, judging from Bureau of Labor Statistics wholesale prices, may top the year-earlier high levels.

Commercial fishing operations are now on a seasonal upswing which will continue until early or mid-summer. Weather permitting, landings of food fish and shellfish may be heavier this spring than last since the level of prices may encourage commercial fishermen to make more trips, especially for groundfish.

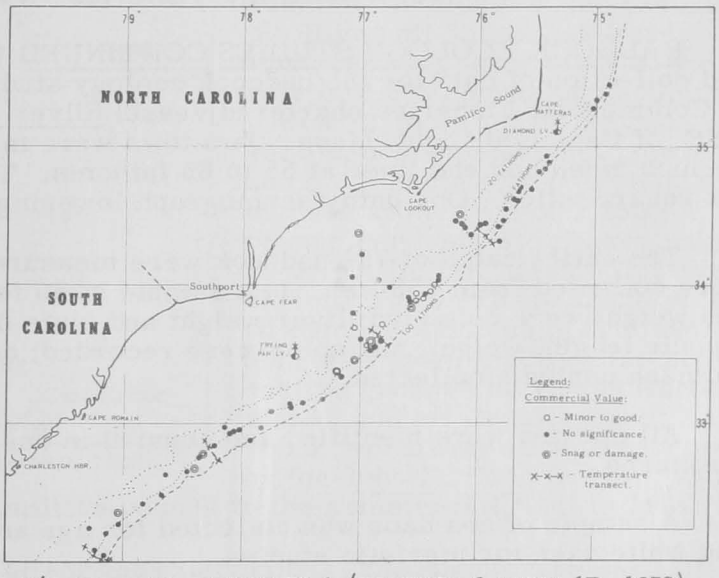
Stocks of fishery products in cold storage in the continental United States last winter--particularly groundfish fillets and blocks--were rather low in volume and high in price. The seasonal build-up in storage stocks which begins in the spring may be a little heavier this year than last.

Imports of fishery products during the next few months will be a little larger than a year earlier if supplies are available abroad. In the past year world supplies of groundfish fillets and blocks, important items in international trade in edible fishery products, have been relatively tight. Some reduction in exports from the spring 1957 total is likely since our supplies of canned fish are much smaller this year.

This analysis appeared in a report prepared by the Agricultural Marketing Service, U. S. Department of Agriculture, in cooperation with the Bureau of Commercial Fisheries, U. S. Department of the Interior, and published in the former agency's May 2, 1958, release of The National Food Situation (NFS-84).

North Atlantic Fisheries Exploration and Gear Research

CONTINENTAL SHELF OFF THE CAROLINAS SURVEYED FOR COMMERCIAL FISH (M/V Delaware Cruise 58-1): Concentrations of commercially marketable fish were not common in the offshore Continental Shelf areas off North and South Carolina surveyed from February 23 to March 17, 1958, by the U. S. Bureau of Commercial Fisheries research vessel Delaware. But several of the catches showed promise, and significant information on bottom conditions and commercial species not associated with the area was obtained. During the cruise 78 trawl stations and 4 oceanographic transects were completed.



M/V DELAWARE CRUISE 58-1 (FEBRUARY 3-MARCH 17, 1958).

Trawling explorations were made with a no. 41 manila otter trawl (79 foot headrope, 100 foot footrope, $4\frac{1}{2}$-inch mesh body, $2\frac{1}{2}$-inch cod-end) with roller or chain footrope. A 100-foot Gulf of Mexico flat shrimp trawl was used on several occasions to investigate areas in the deeper water--only rock shrimp were caught.

The most important catch, by present-day commercial standards was when one tow at 33°52 N. latitude and 76°29' W. longitude yielded approximately 700 pounds of two species of snapper (Lutianus vivanus and Rhomboplites aurorubens). Other areas gave indications that substantial quantities of industrial fish may be available (39°41' N. latitude and 77°03' W. longitude and 33°09' N. latitude and 77°35' W. longitude).

At 35°26' N. latitude and 74°54' W. longitude and 35°19' N. latitude and 74°59' W. longitude menhaden were trawled in considerable numbers (600 pounds) at a depth of 45 fathoms. A single common mackerel (Scomber scombrus) was taken ten miles SE. of Cape Lookout in 20 fathoms. Considerable scientific data on sharks was obtained during the cruise. One specimen of a deep-water shark (Deania sp.), reported previously only from the Eastern Atlantic, Pacific, and Indian Oceans, was taken, and the second known specimen of the deep-water shark Etmopterus bullisi was captured. Over 200 specimens of the sand bar shark (Eulamia milberti) were taken on one tow south of Cape Hatteras, indicating that this area may be the wintering area for this species.

Bottom traces were indicated in many areas with the echo-sounder, and from all indications anchovies may have been the species contributing to these traces.

As in previous exploratory operations in this area, the bottom was found to be trawlable, with gear damage on only 10 stations; a severe snag at 33°27' N. latitude and 77°04' W. longitude resulted in loss of port trawl door and the No. 41 net with roller gear.

Four oceanographic transects (see charts) were made to investigate the occurrence of warm bottom water along the edge of the Continental Shelf, south of Cape Hatteras. This condition was checked with reversing bottom thermometers and bathythemograph casts. As indicated by data collected by the Woods Hole Oceanographic Institution, the bottom water was considerably warmer in a depth of 75 fathoms than it was either inshore or offshore. A more tropical fauna was found to be present in this area, as several species of butterfly fish and southern forms of rays were taken.

North Atlantic Fisheries Investigations

HADDOCK ECOLOGY STUDIES CONTINUED (M/V Silver Mink): Observations and collection of data for the haddock ecology study were conducted by the Bureau of Commercial Fisheries chartered vessel Silver Mink on April 11, 1958, in an area NNE. of Cape Cod Light, Mass. Two tows were made with an otter trawl having a $1\frac{1}{2}$-inch mesh cod end liner at 55 to 65 fathoms. The area fished was approximately six square miles. One bathythermograph lowering was made during the trip.

The entire catch of 764 haddock were measured for length, and scale samples were collected from 153 fish. In a sample of 50 female and 50 male haddock, length and weight were collected; liver weight and state of development noted; drumming muscle length, weight, and color were recorded; and scale samples, fin rays, and stomach contents collected.

All species were identified and counted in one tow and important species were measured.

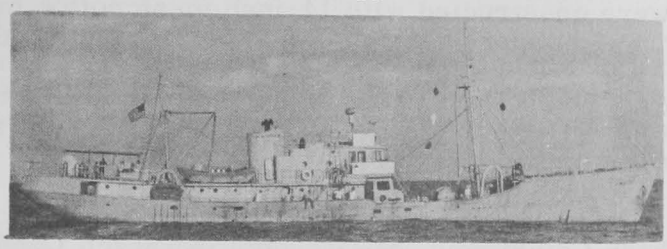
A sample of sea dabs was collected for age and growth studies and red (ling) and white hake for meristic studies.

Red hake predominated in the two tows, followed by sea dabs, haddock, and dogfish. An increased abundance of one- and two-year old haddock was noted. About all the haddock taken in the catches were spawned out, indicating that the peak of spawning had occurred about the end of March.

* * * * *

HADDOCK TAGGING AND HYDROGRAPHIC CRUISE COMPLETED (M/V Albatross III): Thirty-two otter-trawl tows were made on Georges Bank, Browns Bank, and Jeffreys Ledge by the U. S. Bureau of Commercial Fisheries research

vessel Albatross III, between March 26, and April 9, 1958. A total of 1,219 haddock were tagged with the "spaghetti"-type tag and 8 halibut were tagged with Petersen-disc tags, in both cases just below the dorsal fins.



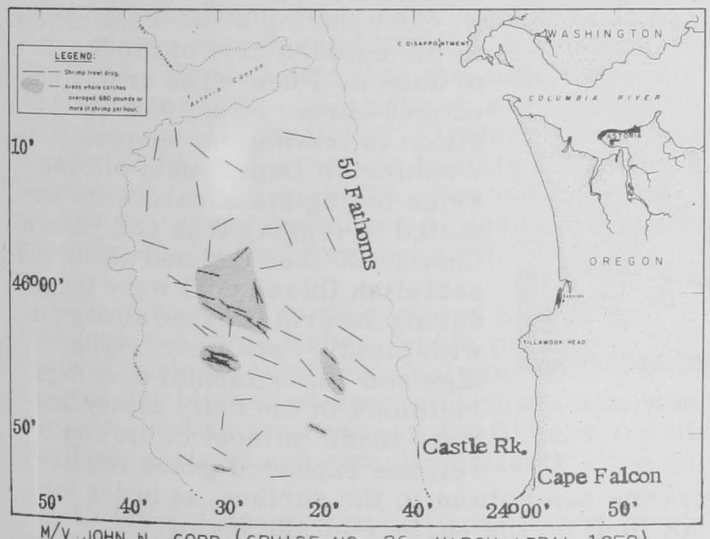
THE BUREAU OF COMMERCIAL FISHERIES RESEARCH VESSEL ALBATROSS III.

As part of the Bureau's participation in the International Geophysical Year (IGY) program, Nansen bottle water samples were collected and bathythermograph casts were made at 18 stations in the IGY section.

Two severe northeasters with hurricane-force winds at times reduced the time available to accomplish the objectives of the cruise.

North Pacific Fisheries Investigations

COMMERCIAL QUANTITIES OF PINK SHRIMP FOUND OFF NORTHERN OREGON (M/V John N. Cobb Cruise 36): Good commercial quantities of "cocktail size" pink shrimp were located off the northern Oregon coast by the U. S. Bureau of Commercial Fisheries' exploratory fishing vessel John N. Cobb during a four-week cruise which ended on April 11.



M/V JOHN N. COBB (CRUISE NO. 36, MARCH-APRIL 1958).

The best fishing areas were south of the mouth of the Columbia River off Tillamook Head where shrimp were taken at the rate of 2,800 pounds per hour with a 72-foot Gulf of Mexico semibaloon-type shrimp trawl and off Seaside where shrimp catches at the rate of 1,350 pounds per hour were taken with a 40-foot Gulf of Mexico flat-type shrimp trawl. These areas yielded catches which compare favorably with those made on the productive grounds off Grays Harbor, Wash., and off Copalis Head, Wash., when they were discovered by the John N. Cobb in 1956, and which subsequently yielded over 2 million pounds to the commercial fleet in 1957.

This was the first in a series of shrimp explorations scheduled for the Bureau's vessel for 1958 off the coasts of Washington and Oregon in cooperation with the State of Washington Department of Fisheries and the Fish Commission of Oregon.

The area explored during this trip extended from 10 to 28 miles offshore between the entrance of the Columbia River and Cape Falcon. Although tows were made at depths of 56 to 94 fathoms, the most productive grounds were found in 70 to 85 fathoms on green mud bottom.

Of the 63 tows (nearly all of 30-minute duration) completed during the trip, 43 were made with the 40-foot trawl and 15 with the 72-foot trawl. Both trawls were constructed with $1\frac{1}{2}$-inch mesh cotton netting. Indications are that the 72-foot trawl is approximately twice as efficient as the 40-foot trawl.

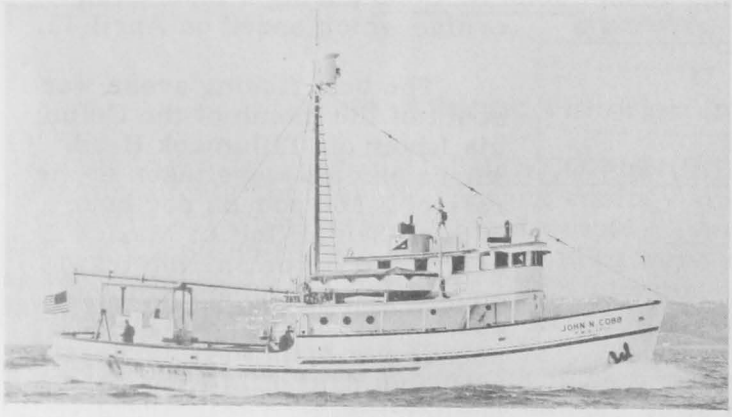
The bottom fished was excellent with net damage limited to a single tow. Mud was present in the net on only one occasion, and even then it was only a small amount.

Samples of shrimp were frozen from each tow for biological analysis at the Fish Commission of Oregon's Research Laboratory at Astoria. Considerable fishing time was lost because of adverse weather conditions.

The second of the 1958 series of shrimp explorations off the coasts of Washington and Oregon was started on April 28 and due to end on May 23, 1958. The objectives of this cruise (No. 37) were to determine the distribution of shrimp offshore from Willapa Bay, Wash., to the Columbia River and from Cape Flattery at the entrance to the Straits of Juan de Fuca to Destruction Island off the northern part of Washington.

* * * * *

MODIFIED ELECTRICAL DEPTH-TEMPERATURE TELEMETER TESTED AND TRUE COD TAGGED (M/V John N. Cobb Cruise 35): The modified electrical depth-temperature telemeter was tested for the first time in bottom trawling by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb during a two-week cruise to the eastern part of the Strait of Juan de Fuca. The cruise ended on February 28, 1958. In addition to testing the telemeter, Washington Department of Fisheries biologists aboard were assisted in tagging true cod. More than 1,100 true cod and about 100 sablefish (black cod) were tagged during the cruise by the biologists with plastic "spaghetti"-type tags and experimental dart tags. Incisions in the belly cavity had to be made in most of the cod to release expanded gases resulting from the changes in pressure from the sea bottom to the surface, in order for the fish to return to the bottom and not float on the surface after tagging.



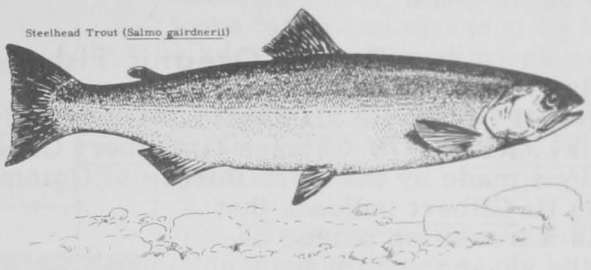
THE JOHN N. COBB, A VESSEL OPERATED BY THE SERVICE'S BUREAU OF COMMERCIAL FISHERIES.

A total of 54 bottom tows were made with a standard 400-mesh Eastern-type otter trawl between Port Townsend and Port Angeles at depths of 10 to 60 fathoms. True cod were found to be most plentiful off Port Townsend, but small catches were made of Port Angeles and west of Protection Island.

The depth-temperature telemeter, a device which transmits continuous trawl depth and water temperature data to the pilothouse through an electrified trawl cable, proved to be sufficiently accurate when operating. However, on several occasions the electrical conductors broke under the strain of towing, necessitating repairs aboard the vessel. The tests proved that a stronger type of termination for the sending unit will have to be developed if this instrument is to become a dependable aid in bottom trawl fishing.

Oregon

COMMISSION OPPOSES MOVE TO DECLARE STEELHEAD TROUT A GAME FISH: The Oregon Fish Commission, at its April 1958 meeting in Portland, unanimously went on record as being officially opposed to declaring steelhead a game species in Oregon waters. The Commission members viewed with particular disfavor and alarm a movement currently under way to place the steelhead issue on the November 1958 ballot.


Steelhead Trout (Salmo gairdneri)

Speaking on behalf of the Commission, the Chairman declared that after careful consideration of the many complex factors associated with the steelhead question, the Commission decided it had no alternative but to oppose the game fish measure. He stated, "We fail to detect any semblance of conservation involved in making steelhead a game fish in Oregon. To the contrary, enactment of the proposal being advanced would result in either a tremendous wanton wastage of highly palatable fish or complete abolition of commercial fishing in the Columbia River." He further stated that he could not see how either of these drastic consequences could be construed as sound conservation.

Elaborating on the reference to wastage, the Chairman said that the manner in which gill-net fishing has been conducted in the Columbia River for more than 100 years makes it impossible to fish for salmon without catching varying numbers of steelhead. He also said that the major share of salmon and steelhead taken commercially in the Columbia River are dead or severely injured when the fisherman pulls his net. He continued, "Under provisions of the proposed initiative, a commercial fisherman would be heavily fined for catching even a single steelhead either intentionally or by accident. You can't educate a steelhead to stay out of a net, and we fear that large quantities of dead or dying steelhead that inevitably would be caught would be thrown overboard."

The Chairman further stated that Oregon law prohibits the wanton wastage of both food and game fishes, which precludes any disposal of steelhead caught incidentally during a legitimate salmon fishing operation in the Columbia River except through established commercial channels. The State of Washington recognizes this fact and permits the commercial fishery and disposition of steelhead in the Columbia River district and actually collects a fee on the quantity of fish landed.

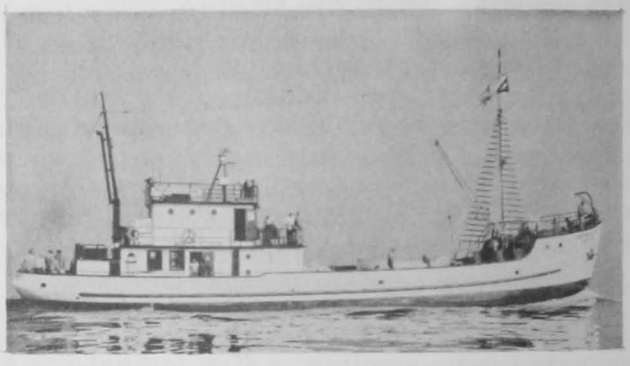
Citing the Oregon commercial fisheries code, he said that the Commission is obliged to manage the food fishery resources of Oregon on the basis of conservation, substantiated by investigations. "Scientific findings of our staff of highly qualified biologists indicate that Columbia River steelhead runs are in good condition." he stated. "All available evidence indicates that with continued proper management, these runs can maintain a sizable harvest by both sport and commercial fishermen. For all practical purposes, making steelhead a game fish in Oregon involves only the Columbia River. An initiative measure adopted in 1956 reserves all Oregon streams south of the Columbia River, except Tillamook Bay, for exclusive use by sport anglers as far as salmon and steelhead are concerned. A limited commercial fishery is still permitted for chum salmon in Tillamook Bay."

In conclusion, the Chairman of the Commission declared, "Both sport and commercial interests have suffered materially over the years as a result of these continual fish controversies that all too often have been based more upon emotion

rather than fact. It is lamentable that the energy generated by these conflicts has not been directed towards assisting our capable fisheries scientists in solving the very real problems of maintaining and increasing salmon and steelhead production in our streams."

Pacific Oceanic Fishery Investigations

ENUMERATION AND SAMPLING OF TUNA SCHOOLS IN THE MARQUESAS ISLANDS AREA (M/V Charles H. Gilbert Cruise 38): Sampling Tuna Schools: Observations made by the U. S. Bureau of Commercial Fisheries research vessel Charles H. Gilbert indicate that April is a transition period between the seasons of abundance and scarcity for skipjack tuna in the Marquesas Islands area. In the course of an 85-day cruise that ended on May 2, 1958, the Charles H. Gilbert explored the waters around the Marquesas Islands, Tuamotus, and as far south as Tahiti (French Oceania), and reported that skipjack were plentiful in those waters. Skipjack in the Marquesas area were uniformily small in size, measuring around 5 pounds, while fish farther to the south in the Tuamotua and Tahiti area were generally large fish, 15 to 20 pounds, and comparable in size to the Hawaiian season fish.



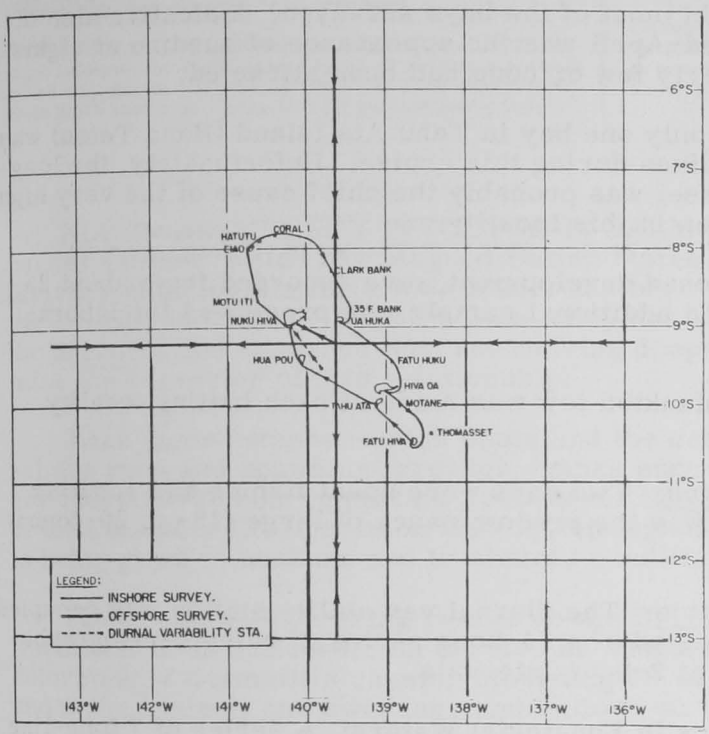
M/V CHARLES H. GILBERT

Of the total of 183 schools of fish sighted on the cruise, 61 schools were identified as skipjack tuna, 4 as yellowfin tuna, and 11 as mixed yellowfin and skipjack. The balance were unidentified. More than 1,300 skipjack were tagged, with a new plastic dart tag developed by the local laboratory, and released. Recapture of these tagged fish will provide valuable information on the movements of fish in French Oceania.

The Marquesas Islands are located about 2,000 miles southeast of Hawaii and 2,800 miles from the United States mainland, thus placing them within an exploitable distance of United States commercial fishermen, particularly the long-range segment of the West Coast tuna clipper fleet.

The vessel surveyed these virgin waters by visual scouting and live-bait fishing. The Marquesan sardine, a bait fish presently being introduced into Hawaiian waters by the U. S. Fish and Wildlife Service, was found to be an excellent bait for skipjack. Although rather large when compared to the local skipjack bait, the nehu, even the small skipjack of the Marquesas area were found to respond favorably to it. The vessel brought back 25 buckets of Marquesan sardines and released them off Ewa, making a total of about 55,000 fish of this species that have been released in Hawaiian waters. About one-half dozen sardines were taken by the sampan Buccaneer on May 1 in West Loch, Pearl Harbor, just prior to the most recent stocking. While these fish were probably survivors of earlier plants, they could have been progeny of spawnings.

Inshore Surveys: Two standardized inshore surveys, near the Marquesas Islands, were conducted during the cruise. The first survey, February 27 through March 8, revealed an abundance of skipjack schools in the area. Of the 90 schools sighted, 24 were identified as being composed of skipjack. Others were 3 yellowfin, 6 mixed (skipjack and yellowfin), and 57 unidentified schools. Many of the schools were large and attended by huge bird flocks. The skipjack were almost without exception small (4-8 pounds), and yellowfin were generally between 15 and 20 pounds each in weight.



TRACK CHART, CHARLES H. GILBERT CRUISE 38.

The second inshore survey, conducted between April 11 and 19, resulted in fewer sightings. Of 54 schools seen, 19 were skipjack, 4 were mixed (skipjack and yellowfin), and 31 were unidentified. Like the first survey, the fish were generally small.

While a fair portion (43 percent) of the schools worked during the first survey responded in some degree to chumming, the schools encountered during the second survey were extremely wild and "boat-shy"--only 25 percent of the schools responded in any way for fish to be taken.

Table 1 - Results of Other Inshore Surveys in Marquesas Islands are Given for Comparison with Results of Cruise 38

Period of Survey	Schools Seen
Mar. 11-19, 1958	54
Feb. 27-Mar. 8, 1958	90
Feb. 23-31, 1957	97
Jan. 25-31, 1957	74
Jan. 18-25, 1957	76
Nov. 24-30, 1957	41
Oct. 14-20,1957	37
Sept. 7-14, 1956	42

Table 2 - Results of Other Offshore Surveys in Marquesas Islands are Given for Comparison with Results of Cruise 38

Period of Survey	Schools Seen
Mar. 26-April 8, 1958	39
Jan. 27-Feb. 12, 1958	74
Oct. 24-Nov. 6, 1957	26

Offshore survey: The 12-day survey conducted between March 26 and April 8 resulted in total sightings of 39 schools (18 skipjack, 1 yellowfin, 1 mixed (skipjack and yellowfin), and 19 unidentified). This survey again revealed the absence of large skipjack in this area as without exception the fish seen or taken were around 5 pounds in size.

The Marquesan sardine (Harengula vittata) was generally scarce during the period of this cruise, particularly prior to mid-April. The previously reliable baiting grounds in Taiohae Bay, Nuku Hiva, yielded only a few scattered groups of sardines, while other bays in Nuku Hiva such as Taipi Vai and Anaho were notable for the absence of this bait fish. Surveys were made in all likely bays in Nuku Hiva and the general scarcity of bait was noted. Beginning around April 10 the sardines began to show up in fair quantities in Taiohae and Tai Oa Bays in Nuku Hiva.

Prior to April 10, a total of 40 sets were made in Nuku Hivan bays resulting in 218 buckets of sardine or 5.4 buckets per set. After April 10, 13 sets took 167 buckets or 13 buckets per set. Moreover, about 30 additional visual sweeps prior to April 10 showed no bait present in most of the bays surveyed. Indicative also of change in the bait situation after mid-April was the appearance of sardine at nights around the ship's light where formerly few or none had been attracted.

Of the other islands surveyed, only one bay in Tahu Ata Island (Hana Tetou) was found to have a fair quantity of sardines during this cruise. Unfortunately, the long haul from the baiting site to the vessel was probably the chief cause of the very high mortality experienced with bait taken in this locality.

The size frequency, sex, and gonad development were recorded from about 25 sardines at each baiting locality. An additional sample was preserved for laboratory examination.

A non-quantitative 10-minute plankton tow was made at each baiting locality employing a 45-cm. net.

Visual Surveys into the Tuamotus: Two days were spent fishing and scouting in the Tuamotus. Most noteworthy was the predominance of large (15- to 20-pound) skipjack in this area.

Diurnal Variability of Zooplankton: The diurnal variability station was occupied twice during the cruise. Each consisted of a 24-hour series of bathythermographs and 140-meter plankton tows taken at 2-hour intervals.

Deep-Swimming Tuna Resources in Equatorial Waters: A series of 7 long-line stations along 150° W. longitude between 5° N. and 1° S. latitude resulted in poor catches; the best day's catch was 8 yellowfin (3° N.). One big-eyed and 7 yellowfin tuna taken by long line were tagged and released.

Environmental Monitoring Survey in Waters Adjacent to Oahu: The Oahu monitoring survey, consisting of bathythermographs and collection of surface salinity samples at 12 localities, was conducted at the beginning of the cruise.

General Observations: Various oceanographic and productivity measurements were made during the cruise including 336 bathythermograph lowerings, 233 surface salinity samples, 204 phosphate samples, 14 Secchi disk and Forel observations, 71 0-140 m. oblique zooplankton and larval fish tows, and 12 surface plankton tows.

Blood samples for serological studies were obtained from big-eyed tuna (long-line caught) and skipjack.

Salmon

BIG FIELD TEST FOR ELECTRICAL GUIDING OF YOUNG FISH: A full-scale field experiment on the effectiveness of electrical apparatus in guiding young seabound salmon away from danger areas was begun in March 1958 and continues throughout the period of migration, the U. S. Bureau of Commercial Fisheries announced recently. The tests were started at Lake Taps on the White River, a tributary to Puget Sound, Wash.

The project is a result of the electrical guiding experimental program which the Bureau has been conducting for about seven years. It is the Bureau's first large-scale test on the use of electrical equipment to divert young fish from danger areas.

Two field tests on streams approximating 100 feet in width have been successful, as have numerous laboratory and aquarium tests. In the current test a 1,000-foot electrical fence will be used. A "fence" consists of a line of electrodes which hang in the water at specified intervals and which carry pulsating direct electric current supplied by a source on the shore.

As the small fish approach the electrical field they are guided into a trap for enumeration. An additional trap will be used to catch any fish which may get through the electrical field. In this way the effectiveness of the device under actual operation can be ascertained.

The electrical guiding experiments have been conducted to get solutions for four general types of problems relating to fish migrations: (1) guiding adult fish around barriers which block upstream migration; (2) guiding young fish safely around danger spots on their downstream migration; (3) separating wanted from unwanted fish; and (4) protecting young fish from predators.

The chief problem area for predation is in the lower Columbia River where hordes of squawfish are a final hazard for young salmon planted from hatcheries. Some progress has been made here but there is still much to be accomplished before this problem can be considered solved.

* * * * *

NIACIN DEFICIENCY INVOLVED IN SALMON SUNBURN: The case of the "sunburned salmon" which has plagued United States Fish and Wildlife Service fish culturists and biologists for a long while, has been partially solved, the Department of the Interior indicates. A niacin deficiency has been proved to be correlated with the sunburn, and research men are delving deeper to determine the character of this relationship.

Since circumstances--high dams and the destruction of salmon runs and spawning grounds--make successful hatchery operation a most important activity for the continuance of the Columbia River salmon fishery, biological attention is being given to sunburn and to kindred conditions associated with light.

Sunburn in salmon being reared in the Bureau's fish hatcheries in the Pacific Northwest is as noticeable on the fish as sunburn is on human beings. Distinct discoloration, a dermatitis causing sloughing off of the epidermis (which on a fish is under the scales), and swellings and lesions on the back are some of the evidences.

Salmon fry and small fingerlings also show evidence of the adverse effect of sun, or at least excess light. The death rate of young salmon being raised near sunny windows is much higher than in portions of the same brood raised farther back in the hatchery. The same thing applies to eggs. The hatch of salmon eggs kept in an area of sunlight is smaller than from eggs kept in darker portions of the room.

Experiments conducted by the Bureau's nutrition laboratory at Cook, Wash., indicate that diets deficient in the vitamin niacin are correlated with sunburn in salmon. Fish fed a niacin-deficient diet for 30 days have developed serious sunburn. Sunburned fish fed a complete diet for 60 days under the same light conditions have shown almost complete recovery. Further and more complete experimentation and analysis are planned for this spring.

Trout are also occasionally afflicted with "sunburn" in hatcheries, particularly in the states of the Southwest. Recognition of the cause will have far-reaching benefits in these areas, as well as in the salmon restoration program.

Fish in the wild, of course, are protected from sunburn by stream cover, deep pools, and a niacin-rich diet.

Shad

RECEIPTS AND TRENDS ON NEW YORK CITY'S FULTON FISH MARKET: Shad receipts on New York City's Fulton Fish Market for the past ten years ranged from a low of 1.4 million pounds in 1953 to a high of 2.9 million pounds in 1948 (see table 1). Shad receipts in 1957 dropped to 1.8 million pounds--22 percent below the 2.3 million pounds reported in 1956.

Most of the shad came from New York and New Jersey (Hudson River) during April and May and from Georgia, North Carolina, Virginia, and Maryland during January, February, and March.

Table 1 - Shad Receipts on New York City's Fulton Fish Market, 1948-1957

Year	Million Lbs.
1957	1.8
1956	2.3
1955	1.8
1954	1.7
1953	1.4
1952	2.1
1951	1.2
1950	1.7
1949	2.1
1948	2.9

Wholesale prices for shad reported in New York City's Fulton Fish Market for April 1955 and April 1957 are shown in tables 2 and 3.

Experienced observers in New York City's Fulton Market have noted a steadily diminishing demand for shad as a source of fish meat, but a firm and active market exists for the shad roe. As shad meat is richly-flavored and requires more than ordinary skill in cooking, it is understandable that the younger generations look for more easily-prepared fishery products.

Annually the drop in shad prices during the season corresponds very closely to the peak of the run of shad to the Hudson River and, as a rule, this is the time when the shad eating public begins to lose interest in this variety.

Table 2 - Daily Shad Prices Reported in New York City Market News Service "Fishery Products Reports," April 1955

April	North Carolina		Virginia		Maryland		New Jersey	
	Roes	Bucks	Roes	Bucks	Roes	Bucks	Roes	Bucks
1	53-55	12-12½	45	14	40-42	12½-14	50	15
4	57-58	15	42-45	12½-15	42-45	12½-15	T50	16-18
5	T55	-	43-45	12-15	43-45	12-15	T46-48	14-17
6	T55-58	12½-15	T45-48	T15-16	T45-48	T15-16	T45-48	15-16
7	T52-55	-	T45	11-12	T45	11-12	T40-45	-
8	T50	T11	35-40	7-8	35-40	7-8	T40-42	10-11
11	T45-48	T11-12	30-35	8-10	30-35	8-10	T35	11
12	-	-	25-30	8-9	25-30	8-9	T28-30	8-10
13	37-40	8-10	-	-	28	7-8	-	-
14	38	8-9	25-27	6-7	25-27	6-7	T28-30	7-9
15	35	-	20-22	5	20-22	5	T25-27	6
18	30	6	20-22	5-6	20-22	5-6	T23-24	6
19	-	-	20	-	20	-	T21-25	5-5½
20	27-30	4-5	20	4	20	4	T20	5
21	-	-	20	4	20	4	-	-
22	-	-	-	-	-	-	-	-
25	30-33	5	-	-	-	-	20-22	5
26	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	25	5

NOTE: T= TRAP

There are several other factors that affect shad prices at New York. Although New York City is an excellent market for the shad roe, the market for shad meat is poor; therefore, when the supplies of buck shad are heavy there is no market at all in New York and the New York dealers will consign buck shad and "cut" roe shad to other cities at a loss. The profits from the shad roe will usually make up the losses and yield a profit.

With New York City loaded up with buck shad and cut roe shad and ready to sell at low prices, the prices paid for Maryland and Virginia bucks are forced downward. As a rule after the middle of April all East Coast shad markets become oversupplied with shad.

Also, as the roe shad from the Hudson River become more mature they are less valuable as a source of roe.

These adverse factors have been apparent for years, but they seem more pronounced in recent years due to a slowly-diminishing market for shad as a source of fish meat.

Table 3 - Daily Shad Prices Reported in New York City Market News Service "Fishery Products Reports," April 1957

April	North Carolina		Virginia		Maryland		New Jersey	
	Roes	Bucks	Roes	Buck	Roes	Bucks	Roes	Bucks
1	40-45	11-12	35	12	35-38	12	40	10
2	40-45	10-11	-	-	35	9-10	40	10-12
3	45-50	10	38-40	12	40	-	42	11
4	48-53	11-14	38-42	12	38	-	40-42	10-11
5	43-51	11-12	38-40	9-12	38-40	9-12	40	10
8	45-50	14	38-42	12-13	38-42	12-13	45-47	14-15
9	50-53	12-12½	35-40	10-11	35-40	10-11	45-47	12-13
10	45	12½	37-42	-	45	12½	-	-
11	50-55	12	42-45	-	45	14	48-52	15-16
12	45-53	12	40-42	12-12½	45	12½	48-50	13-14
15	50-55	-	45	-	40-43	12-14	-	-
16	53-55	-	40-45	10	42-45	10	45-47	10-11
17	50-55	-	40-43	10	42-43	10	43-45	10
18	-	-	40	8	40	8	40	8
19	50	-	40-42	-	40-42	-	38-42	6
22	30	5	25	5	25	5	36	5
23	30	-	20-22	3	20-22	3	20-22	3
24	25	4	15-18	2	15-18	2	15-18	2
25	-	-	-	-	-	-	14-16	1½
30	-	-	15-16	1-2	-	-	15-16	1-2

Another factor which has had an ever-increasing effect on shad prices at New York City is the contamination of Hudson River shad with oil and other waste products. At times perfectly fresh shad are so contaminated with oil that they are unsalable as a source of shad meat. The public has become increasingly conscious of this oily flavor in Hudson River shad.

Still another factor to be considered when judging the market and price for shad is the unusual difficulties encountered in preparing shad meat for the table. Modern consumers are extremely conscious of fish bones and shad have many very fine bones. The methods of boning shad are good, but costly in terms of labor. This practice of boning shad has been one factor that has helped to maintain the market for shad, but fish cutters who make good shad-boners are scarce. The seasonal nature of the fishery tends to keep skilled fish cutters out of the shad-boning business.

Shrimp

GOOD CATCHES TAKEN OFF TAMPA BAY, FLORIDA: Sizable catches of Gulf shrimp were taken from waters close to the mouth of Tampa Bay during the last half of April 1958, the U. S. Bureau of Commercial Fisheries fishery marketing specialist at Tampa reported on May 1.

The shrimp catches are the first taken from waters close inshore in this area since 1954. Catches weighing close to 3,000 pounds were taken by many of nearly 70 trawlers working the area. A trip usually consists of from 3-5 days, with all trawling done at night.

The current shrimp run began when several Fort Myers shrimpers trawled experimentally in the area west to north west of Egmont Key. Shrimping has been best from the entrance to Tampa Bay to off Blind Pass at St. Petersburg Beach, about 12 miles north. The best shrimp catches were taken 3-5 miles offshore at depths of 18-42 feet.

In the past shrimp boats operating out of Florida west coast ports have seldom found shrimp in commercial numbers in the Tampa Bay area. Past shrimp runs close by have usually faded within a short time or been abandoned in favor of better

fishing elsewhere. Best known west coast Florida shrimping grounds are in the Tortugas area, near Key West, and off Fort Myers Beach. Tampa is a major base for seagoing vessels which cross the Gulf to shrimp on the Campeche grounds off the Mexican coast. Shrimp is the number one dollar-value fishery in the United States and a multi-million dollar business in Florida.

United States Commercial Fisheries Decline in 1957

The U. S. Bureau of Commercial Fisheries' preliminary review of the United States commercial fisheries for 1957 shows a decline in the landings, a decline in the pack of fish used for human food, an increase in the canned pet food pack with fish as an ingredient, a decline in the number of fishing craft used, a decrease in the number of fishermen, and a slight increase in the number of shore installations handling the products. The per capita consumption remained steady at about 10.2 pounds.

LANDINGS: The United States landings for 1957 were 4.75 billion pounds as compared with 5.25 billion pounds in 1956. (The data on quantity represent fish in the round or as landed except for mollusks which are reported in pounds of edible meats instead of weight in the shell.) Declines were noted in both the food fish and industrial fish landings. Menhaden (the chief industrial fish) landings were down 20 percent, or 400 million pounds, and were responsible for the lower landings in this group. The 1957 catch of industrial fish was 2.2 billion pounds as compared with 2.6 billion pounds in the previous year. The food fish catch dropped from 2.7 billion pounds to 2.5 billion pounds.

Among the species taken in smaller quantities in 1957 were cod, haddock Pacific halibut, Atlantic ocean perch, salmon, tuna, oysters, and shrimp. The catch of herring, flounders, mackerel, pollock, scallops, and lobsters was up somewhat while the 40.6-million-pound Dungeness crab harvest and the whiting catch of 132.8 million pounds established new high records.

EMPLOYMENT AND VESSELS: The fishing boats were manned by 142,000 men, down 2,000 from 1956; in the shore establishments, estimated employment was 100,000. The estimated number of boats used in the commercial fisheries totaled 84,000.

EX-VESSEL PRICE AND VALUE: The average ex-vessel price for the 1957 landings was 7.39 cents a pound as compared with 7.03 cents a pound for the 1956 landings. But because of the decreased catch, the total value of the 1957 harvest was below that of 1956. The following figures show the estimated values of the 1957 catch at the various trade levels with 1956 values in parentheses: producer (fisherman)--$351,000,000 ($369,018,000); processor--$592,000,000 ($622,000,000); wholesaler--$836,000,000 ($879,000,000); retailer--$1,091,000,000 ($1,147,000,000).

LEADING PORTS: San Pedro, Calif., continued to be the Nation's No. 1 port in both landings and ex-vessel value of landings; the 354.4 million pounds of principally tuna, mackerel, and sardines brought $25.4 million ex-vessel. Lewes, Del., was second in landings with 286.2 million pounds of menhaden, and Reedville, Va., was third with 256.8 million pounds of menhaden. Gloucester, Mass., was fourth in total landings, but second in landings of food fish with 248.9 million pounds. Other important ports included Beaufort-Morehead City, N. C.; Boston, Mass.; San Diego, Calif.; New Bedford, Mass.; Portland and Rockland, Maine; and Astoria, Ore.

LEADING SPECIES: Tuna led the food fishes in pounds landed with 295.6 million pounds. Salmon was next with 257.2 million pounds, followed by shrimp with

204.4 million pounds. The Maine herring catch was 153.6 million pounds, most of which was canned for human consumption. Haddock and ocean perch landings were almost identical, each being more than 133.0 million pounds. The whiting catch was 132.8 million pounds. The menhaden harvest was 1.7 billion pounds, accounting for 35 percent of the total catch.

The ex-vessel value of several of the food fish was higher in 1957 despite the fact that some of the catches were smaller than in the previous year. The shrimp harvest was down 20 million pounds, but the ex-vessel value was $74 million, or $3 million above 1956. The value of the salmon catch was $39,300,000. The value of the tuna catch (down 33 million pounds) was $38.4 million, or $5 million below 1956. The value of menhaden taken in 1957 was $22.1 million, or $6 million below 1956.

CANNING: The quantity of fish canned for human food in 1957 was 644.7 million pounds as compared with 657.6 million pounds in 1956. There were 342.3 million pounds of pet food (with fish as an ingredient) and bait canned in 1957 as compared with 321.8 million pounds in 1956. The value of the 1957 pack of all canned fishery products was $334.8 million; that of the 1956 pack was $349.5 million. There was a $15-million drop in food canned for human use and a slight rise in the value of fish canned for pets.

Tuna led the field in number of pounds canned with a record 232.5 million; salmon was next with 152.9 million; mackerel was third with 59.7 million; Maine sardines were next with 46.0 million pounds; and then clam chowder with 36.6 million pounds. There were 342.3 million pounds of pet food processed. The 1957 packs of tuna, Maine sardines, mackerel, and pet food were higher than those of 1956; the packs of salmon and clam chowder were lower.

UTILIZATION: Thirty percent of the commercial fisheries landings, or 1.4 billion pounds, went into the channels of trade as fresh or frozen fish; 24 percent was canned; and 2 percent was cured. A total of 2.1 billion pounds, or 44 percent of the landings, was used for byproducts (oil, meal, and solubles) and as pet or animal food and bait.

AREA DISTRIBUTION: Fifty-four percent of the 1957 production (2.6 billion pounds) was taken by Atlantic Coast fishermen. Fishermen from the Gulf States and the Pacific Coast each took 17 percent of the total; Alaskans caught 8 percent; and the fishermen operating in the Great Lakes and the Mississippi River system caught 4 percent. Most of the fishing was done in waters off the shores of the United States and Alaska but nearly 0.5 billion pounds, or about 10 percent of the catch was taken on the high seas off foreign shores. More than half of this catch off foreign shores was tuna.

STATISTICAL PUBLICATIONS: The 1957 review (Fisheries of the United States and Alaska, 1957--A Preliminary Review), Fishery Leaflet 393, differs from previous ones in that it contains more complete and current domestic data and is available to the public and to the industry some weeks earlier than usual. In addition to data on production, processing, prices, and supplies of the domestic catch, there is considerable information on the fishery imports and exports and on world fisheries. Related bulletins also available are Packaged Fish--1957, C.F.S. 1755, and Canned Fish and Byproducts--1957, C.F.S. 1756.

United States Fishing Fleet 1/ Additions

FEBRUARY 1958: A total of 50 vessels of 5 net tons and over were issued first documents as fishing craft during February 1958--19 more than in February 1957. The Gulf area led all others with 19 vessels, followed by the Chesapeake area with 10, the South Atlantic with 8, the Pacific with 7, the Middle Atlantic and the Great Lakes with 2 each, and the New England area and the Virgin Islands with 1 each.

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft, by Areas, February 1958

Area	February		Jan.-Feb.		Total
	1958	1957	1958	1957	1957
	(Number)				
New England	1	2	2	3	19
Middle Atlantic	2	3	3	5	23
Chesapeake	10	9	17	17	104
South Atlantic	8	3	23	11	130
Gulf	19	9	35	10	166
Pacific	7	3	13	5	102
Great Lakes	2	-	2	-	8
Alaska	-	2	-	6	48
Puerto Rico	-	-	-	-	1
Virgin Islands	1	-	1	-	-
Total	50	31	96	57	601

NOTE: VESSELS HAVE BEEN ASSIGNED TO THE VARIOUS SECTIONS ON THE BASIS OF THEIR HOME PORTS.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft, by Tonnage, February 1958

Net Tons	Number
5 to 9	18
10 to 19	8
20 to 29	8
30 to 39	12
40 to 49	3
50 to 59	1
Total	50

1/ INCLUDES BOTH COMMERCIAL AND SPORT FISHING CRAFT.

U. S. Fish Stick Production

JANUARY-MARCH 1958: The United States production of fish sticks during the first quarter of 1958 amounted to 16.9 million pounds, an increase of 2.5 million pounds or 17 percent as compared with the first quarter of 1957.

Table 1 - U. S. Production of Fish Sticks, January-March 1958 1/

Month	Cooked	Raw	Total
	(1,000 Lbs.)		
January	5,008	470	5,478
February	5,496	437	5,933
March	5,142	384	5,526
Total 1st Quarter 1958	15,646	1,291	16,937
Total 1st Quarter 1957 2/	13,171	1,312	14,483
Total 1st Quarter 1956	14,700	1,900	16,600

1/ PRELIMINARY. 2/ REVISED.

The Atlantic Coast States led all areas with 14.1 million pounds or 83 percent of the total. The Interior and Gulf States were in second place with nearly 1.5 million pounds or 9 percent of the total, followed by the Pacific Coast States with 1.4 million pounds or 8 percent.

Table 2 - U. S. Production of Fish Sticks by Areas, January-March 1958-1957

Area	1958 1/		1957 2/	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	24	14,070	26	11,682
Interior and Gulf States	5	1,452	4	1,522
Pacific Coast States	11	1,415	11	1,279
Total	40	16,927	41	14,483

1/ PRELIMINARY. 2/ REVISED.

Cooked fish sticks (15.6 million pounds) accounted for 92 percent of the first quarter total, while the remaining 1.3 million pounds or 8 percent consisted of uncooked fish sticks.

Production was greatest during February with 5.9 million pounds. Close to 5.5 million pounds were packed during each of the other two months in the quarter, January and March.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW APRIL 1958, P. 38

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, FEBRUARY 1958: Imports of edible fresh, frozen, and processed fish and shellfish into the United States during February 1958 were down about 7.9 percent in quantity and 6.2 percent in value as compared with January 1958. Compared with February 1957, the imports this February were higher by 13.2 percent in quantity and 15.8 percent in value. The imports in February

Table 1 - United States Foreign Trade in Edible Fishery Products, February 1958 with Comparisons

Item	Quantity			Value		
	Feb.		Year	Feb.		Year
	1958	1957	1957	1958	1957	1957
	(Millions of Lbs.)			(Millions of $)		
Imports:						
Fish & shellfish:						
Fresh, frozen, & processed 1/	62.3	55.0	837.0	18.3	15.8	248.4
Exports:						
Fish and shellfish:						
Processed only (excluding fresh & frozen) 1/	2.8	8.3	69.7	0.8	1.7	16.8

1/ INCLUDES PASTES, SAUCES, CLAM CHOWDER AND JUICE, AND OTHER SPECIALTIES.

1958 were lower than in January 1958 for other fillets, frozen tuna, shrimp, canned salmon, and canned sardines. These decreases more than offset higher imports of canned tuna. Imports of edible fishery products in February this year were up from the same month in 1957 for groundfish fillets, shrimp, and canned sardines and tuna. These increases in February 1958 were partially offset by decreases in the imports of lobster and spiny lobster tails, frozen tuna, and canned bonito.

United States exports of processed fish and shellfish in February 1958 were higher by 8.3 percent in quantity and 33.3 percent in value as compared with January 1958. Compared with the same month in 1957, the exports in February 1958 were down by 66.8 percent in quantity and 52.9 percent in value. The sharp decreases in both quantity and value this February as compared the same month in 1957 were due, primarily, to a shortage of the usual exportable types of canned fish.

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GROUNDFISH FILLET IMPORTS, MARCH 1958: Imports of groundfish (including ocean perch) fillets and blocks totaled 10.2 million pounds in March 1958. Compared with the same month in 1957, this was an increase of 1.0 million pounds (11 percent). Increases of 1.1 million pounds of groundfish and ocean perch fillets from Denmark and 1.3 million pounds from Canada accounted for the over-all increase.

Canada continued to lead all other countries exporting groundfish and ocean perch fillets to the United States with 7.6 million pounds during March 1958.

Denmark was next with 1.5 million pounds. Imports from Iceland, the United Kingdom, the Netherlands, West Germany, Japan, Miquelon and St. Pierre, and the Union of South Africa accounted for the remaining 1.1 million pounds.

Imports of groundfish and ocean perch fillets and blocks into the United States during the first three months of 1958 totaled 31.9 million pounds, a decline of 3.4 million pounds (10 percent) as compared with the same period in 1954. Canada accounted for 72 percent of the January-March imports, followed by Iceland with 17 percent, and Denmark 7 percent. Norway, United Kingdom, the Netherlands, West Germany, Japan, and Miquelon and St. Pierre made up the remaining 4 percent.

NOTE: SEE CHART 7 IN THIS ISSUE.

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IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA, JANUARY 1-MARCH 29, 1958: The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1958 at the 12½-percent rate of duty has been established as 44,693,874 pounds. Any imports in excess of this established quota will be dutiable at 25 percent ad valorem.

Imports from January 1-March 29, 1958, amounted to 8,352,090 pounds, according to data compiled by the Bureau of Customs.

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VALUE OF IMPORTS AND EXPORTS OF FISHERY PRODUCTS, 1957: The value of all United States fishery imports in 1957 increased almost 5 percent over 1956, continuing the steady climb begun in 1949. Fishery products imports were valued at $294.5 million, according to preliminary data compiled by the U. S. Bureau of Commercial Fisheries from the Bureau of the Census records. Edible fishery imports were worth $250.2 million, 7 percent more than the previous year; nonedible products were worth $44.3 million, almost 8 percent less than in 1956 and the lowest since 1950.

Trend in Value of Principal United States Fishery Imports and Exports, 1957 Compared with 1956

Principal Products	Value		Percentage Change from 1956
	1957	1956	
	(Million Dollars)		%
Imports:			
Groundfish fillets	17.8	18.7	- 5
Groundfish blocks	9.6	7.3	+ 32
Other fish fillets	21.7	19.9	+ 9
Tuna, frozen	16.8	15.3	+ 10
Tuna, canned	16.8	15.0	+ 12
Bonito, canned	3.7	3.3	+ 12
Salmon, canned	9.5	11.7	- 19
Sardines, canned	9.3	7.1	+ 31
Swordfish, fresh or frozen	7.0	6.4	+ 9
Shrimp	35.5	33.0	+ 8
Lobster and spiny lobster (fresh or frozen)	36.8	34.3	+ 7
Crab meat, canned	6.3	5.3	+ 19
Fish meal	9.7	11.5	- 16
Exports:			
Sardines, canned	2.8	6.5	- 57
Salmon, canned	4.7	3.6	+ 31
Mackerel, canned	2.1	0.3	+ 600
Shrimp		3.9	0
Fish oil, inedible	11.0	13.0	- 15

The value of most of the major fishery products imports was higher in 1957 than in 1956. The import value was up for groundfish blocks, canned sardines, canned crabmeat, canned tuna, frozen tuna, swordfish, shrimp, and lobster. The import value was down for groundfish fillets, canned salmon, and fish meal.

Exports of fishery products decreased 9 percent in value in 1957 as compared with the previous year. The total value of fishery exports was $35.9 million; edible products were worth $20.5 million; and nonedible products $15.4 million. The value of edible products were 10 percent less than in 1956, and nonedible products 7 percent less. Of the major fishery products exported in 1957, the value of canned sardines and fish oil decreased; the value of shrimp exports remained almost the same. Increased export values were recorded for canned mackerel and canned salmon.

Virginia

FISH KILLS MORE COMMON IN SPRING VIRGINIA BIOLOGISTS STATE: Dead or dying fish on Chesapeake Bay and ocean beaches are a common sight in the spring, the Director of the Virginia Fisheries Laboratory, stated in an April 24, 1958, news release. Prior to the last week in April the Laboratory received reports of dead anchovies in large numbers at Virginia Beach, and dead striped bass or rockfish in the Piankatank River.

Fish kills are not always caused by pollution or other human activities, the biologists report, for most deaths are caused by natural forces, disease, storms, and the like.

Every year, in spring, just as the water begins to warm, dead and dying anchovies are often seen along the beaches inside and outside Chesapeake Bay. In 1957 the kill was unusually large, and included young croaker, spot, menhaden, and other species. There are at least two possible causes of such kills, a disease that reaches its peak in April, or physical damage by winds and moving sand in shallow water.

Winter diseases are known to kill other animals in Chesapeake Bay. Each year in early spring an increase in oyster mortality usually is observed. The oyster biologist at the Laboratory has made careful observations of the phenomenon, and almost every spring received complaints from oystermen that their oysters are dying. Preliminary studies suggest that this is caused by a microscopic animal that enters oysters in winter and thrives in cold weather.

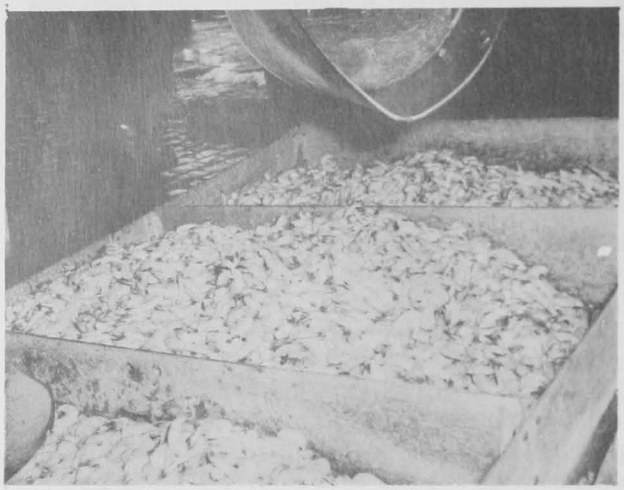
Recent observations at the Virginia Fisheries Laboratory also have shown that oyster drills or screwborers begin dying in April.

Striped bass often contract diseases that are associated with dietary deficiencies. These sometimes cause an eye condition similar to cataracts in humans. Lack of adequate food in winter probably deprives the fish of vitamins they require for good health, and by the end of winter some are so weak they succumb.

Anchovies and other fishes remain in deep water in the Bay or migrate south in winter. In spring, as the water warms, they move in close to the beaches, where more food is available. If a storm catches them in these shallow waters, they may be killed by suspended sand, which can remove their protective coating of slime and can damage their gills. Later, as the water becomes warmer, and more food has appeared farther offshore, they move out into areas where storm damage is less of a threat.

Determining cause of death in marine animals is difficult, because very little is known about fish diseases and symptoms. Biologists at the Laboratory urge fishermen and Chesapeake Bay tidewater residents to report all kills they observe, giving if possible the kinds and numbers of animals seen, the extent and location of the area affected, and any other pertinent details. Such information is useful to biologists in diagnosing causes of death

Wholesale Prices, April 1958



FRESH EAST COAST SHRIMP ON DISPLAY AT ONE OF THE STANDS IN THE NEW YORK CITY FULTON FISH MARKET.

The edible fish and shellfish (fresh, frozen, and canned) wholesale price index (122.4 of the 1947-49 average) declined 1.9 percent from the preceding month, but was higher by 2.5 percent as compared with April 1957. The decline is a seasonal one that usually occurs in the spring because landings of fish increase with good weather and improved fishing conditions.

Wholesale prices for the drawn, dressed, and whole finfish subgroup from March to April 1958 declined about 2.2 percent due to lower prices for the fresh-water varieties and fresh drawn haddock at Boston. A decrease in the wholesale prices of these products is normal for this period of the year because the Great Lakes production improves and haddock catches reach a peak level in April. Increases of 5 to 6 percent in frozen dressed halibut and salmon wholesale prices failed to offset the price declines for the remaining products in this subgroup. Wholesale prices for drawn, dressed, and whole finfish in April this year were 3.0 percent higher than in the same month of 1957 because higher wholesale prices for frozen dressed halibut and salmon offset lower prices for fresh haddock fillets and fresh-water fish.

During April 1958 the fresh processed fish and shellfish subgroup wholesale prices declined 1.8 percent from the preceding month due to lower fresh haddock fillet and

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, April 1958 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49=100)			
			Apr. 1958	Mar. 1958	Apr. 1958	Mar. 1958	Feb. 1958	Apr. 1957
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					122.4	2/ 124.8	126.9	119.4
Fresh & Frozen Fishery Products:					136.4	2/ 141.1	144.9	132.2
Drawn, Dressed, or Whole Finfish:					123.6	2/ 126.4	137.0	120.0
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.08	.09	80.9	91.2	149.7	110.0
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.34	.32	104.7	99.0	97.5	92.3
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.66	.63	149.2	2/ 142.4	141.0	134.8
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.74	.75	183.4	185.9	148.7	229.3
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.68	.80	136.5	161.8	128.4	227.5
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.31	.70	72.7	158.3	164.1	75.0
Processed, Fresh (Fish & Shellfish):					142.0	144.6	144.6	140.4
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.32	.35	107.2	119.1	165.0	120.8
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.94	.96	148.5	151.7	150.1	143.8
Oysters, shucked, standards	Norfolk	gal.	5.63	5.63	139.2	139.2	133.0	142.3
Processed, Frozen (Fish & Shellfish):					132.4	140.9	141.1	130.9
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.40	.41	103.4	106.0	103.4	103.4
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.35	.40	109.9	125.6	125.6	92.6
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.30	.30	118.8	118.8	118.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.88	.94	135.8	144.3	145.8	145.8
Canned Fishery Products:					103.1	101.8	101.3	101.2
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	23.00	23.00	120.0	120.0	120.0	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.65	11.50	84.0	82.9	81.8	80.8
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	9.75	9.75	113.8	113.8	113.8	105.0
Sardines, Maine, keyless oil, No. 1/4 drawn (3 3/4 oz.), 100 cans/cs.	New York	cs.	7.50	6.99	79.8	74.3	74.3	81.9

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.

2/ Revised.

shrimp prices. Compared with April a year ago, the April 1958 index for this subgroup was down by 1.1 percent because lower prices this April for fresh haddock fillets (down 11.3 percent) and shucked oysters (down 2.2 percent) were only partially offset by a 3.3-percent increase in fresh shrimp wholesale prices at New York.

Frozen processed fish and shellfish prices were down by 6.0 percent in April 1958 as compared with the preceding month. Lower prices for frozen fillets of haddock (down 12.5 percent), ocean perch (down 2.5 percent), and shrimp (down 5.9 percent) accounted for the drop in the index between the two months. From April a year ago to April this year the frozen processed fish and shellfish subgroup index rose 1.1 percent due to higher wholesale prices for haddock (up 18.7 percent) and ocean perch (up 3.5 percent) fillets. These increases more than compensated for a drop of 6.9 percent in the wholesale price for frozen 26-30 count shrimp at Chicago.

Canned fishery products prices in April this year as compared with the preceding month and the same month in 1957 continued to rise (up 1.3 percent). Prices of both canned tuna (up 1.3 percent) and Maine sardines (up 7.4 percent) were firmer this April as compared with the preceding month. Wholesale canned fish prices in April 1958 increased by 1.9 percent over the same month a year ago due to a 4.0 percent rise in canned tuna prices and an 8.4-percent increase in California sardine prices.

On the other hand, Maine sardine wholesale prices this April were still 2.6 percent below those that prevailed in April 1957.