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FISH AND WILDLIFE SERVICE
JOHN L. FARLEY, DIRECTOR

COMMERCIAL FISHERIES REVIEW

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

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Mailed free to members of the fishery and allied industries. Address correspondence and requests to the: Director, Fish and Wildlife Service, U.S. Department of the Interior, Washington 25, D. C.

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CONSTRUCTION DETAILS OF TUNA LONG-LINE GEAR USED BY PACIFIC OCEANIC FISHERY INVESTIGATIONS

By Edwin L. Niska*

INTRODUCTION

This is a description of the long-line gear used at present by the Pacific Oceanic Fishery Investigations (POFI) to capture tunas in the central Pacific. The basic design is that employed by Japanese and Hawaiian fishermen (June 1950, Shapiro 1950), modified for ease of operation and standardization of component parts. In the past POFI has used different types of long-line gear (Murphy and Shomura ms.), and we anticipate that the design will be further changed in the future. The gear described in this report is, however, a thoroughly tested and practical gear for catching tunas and marlins up to several hundred pounds in size.

The basic unit of gear is the "basket," so called because it was originally stored in a split bamboo basket. This unit consists of a main line with a supporting float line at one end, and bearing six branch lines, each with a single hook.

MATERIALS AND COSTS

The following list of materials contains all the items that are necessary to make up one basket of POFI long-line gear:

Item	Quantity	Cost
Seine twine, cotton, No. 261 thread, hard lay	23.4 lbs.	$23.00
Preservative--"Net Life" or copper napthenate	½ gallon	.60
"Sekiyama," prefabricated No. 8 thread, Irish Linen, 12 strands, 22 ft. long	6 each	13.50
Wire rope, leader, .066" dia., 1 x 7 rt. lay, galv. mild plow, 6 ft. long	6 each	.36
Hooks, No. 9/0 or 8/0 "Mustad flatted tuna"	6 each	1.08
Sleeves, copper, "Nicopress" No. 18-1-C for 1/16" cable	12 each	.40
Snap, with swivel, Kolstrand, No. 9 AK	7 each	2.45
Rubber tubing, 1/8" I.D., 3/8" O.D., 6" long	6 each	.45
Pole, bamboo, 14-16 ft. long, butt dia. 1¼-1½ inches	1 each	.70
Strap, "Band-It," stainless steel, 3/8" width	2 feet	.12
Buckle, "Band-It," stainless steel, 3/8"	4 each	.24
Bunting, flag, Indian Head cloth, 8" x 11½"	2 each	.24

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	Quantity	Cost
Rubber, air hose, 1-1/8" I.D., 5/16" wall, 14" section	1 each	.80
Tank, stainless steel, internal volume 2100 cu. inches (Army surplus)	1 each	4.75
Eye bolt, 3/8" stock 4½" long, galv.	1 each	.55
Bushing, 1/4" x 1/8" hex head, galv.	1 each	.34
Canvas skid	1 each	2.07
Manila line, 3/8" dia. med. lay	5 feet	.15
Cotton line, 1/4" dia. med. lay	14½ feet	.60
Wire rope thimbles, 3/8" galv.	1 each	.10
Misc. cotton thread, No. 6 cord, sail wax, sealing compound		.10
		$52.60

In addition, the following special tools are needed:

"Nicopress" tool No. 51-C-887	$20.00
"Band-It" tool for 3/8" strap stock	12.00
Die OS 1/8" - 27 NPT	3.00
Die ratchet	6.65
	$41.65

It should be pointed out that the prices quoted on the above list have been derived from government bid quotations as delivered in Honolulu and, because of fluctuations in market prices and shipping costs, are only estimates. The cost of $52.60 to make up one basket of long-line gear does not include the cost of labor. It requires about 10 man-hours to assemble one basket of gear.

PREPARATION OF THE LINES

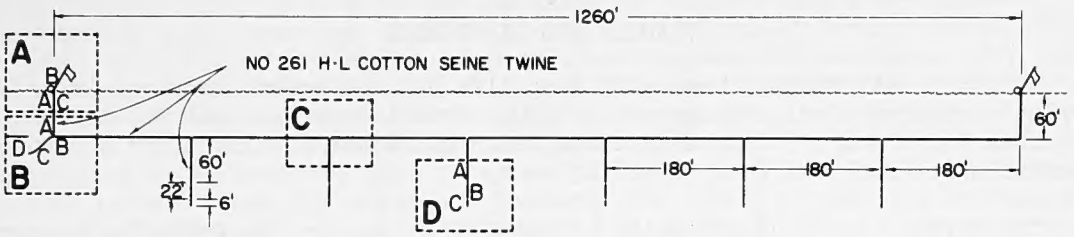
Before cutting, each skein of line is straightened and stretched to remove the kinks. Seven main-line sections, each 180 feet long, are cut and a 12-inch eye splice is made on the ends of each length.

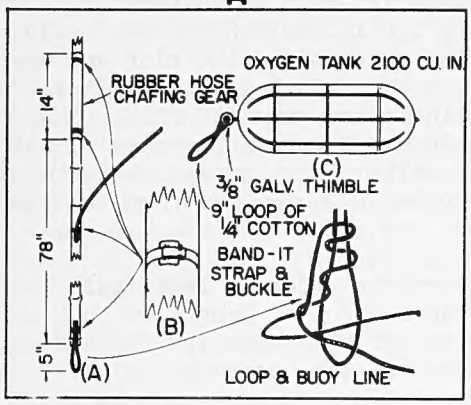
The six branch lines are cut in 60-foot lengths. A No. 9 AK snap is attached to one end by a 1½-inch eye splice through the swivel ring. The standing end is stoppered with a Matthew Walker knot (as shown in part D of figure 1) in order to facilitate making a compact, readily breakable sheetbend around the eye of the "sekiyama."

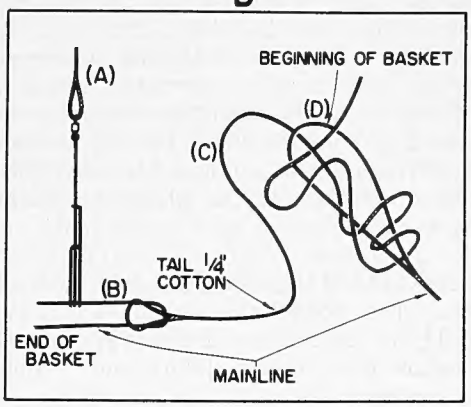
The "sekiyama" contains 12 strands of No. 8 linen twine wound with No. 6 cotton thread. It is 22 feet long and has a 3-inch eye on each end. The eyes are served with No. 6 cotton wrapping twine with a lock stitch at the base of each eye, the wrapping continuing 3 inches beyond this junction. The purpose of the "sekiyama" is to serve as an additional leader which is very strong, stiff enough to be non-kinking, and yet easy on the hands. A large fish on the hook can be worked and boated safely because the winding thread on the "sekiyama" forms a good gripping surface. The "sekiyama" also can be bent on the rail of the vessel, whereas ordinary line would soon wear out by abrasion.

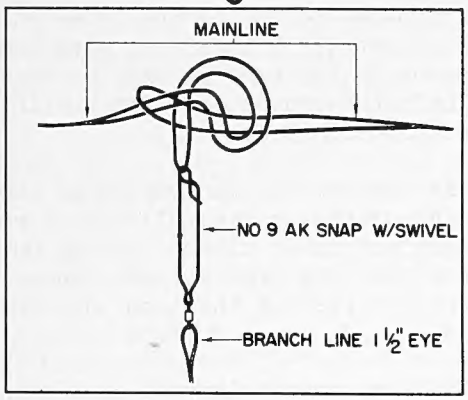
Leaders are fashioned of 6-foot lengths of 1 x 7, .066-inch diameter, galvanized wire. A 3-inch loop in the end of the leader is fitted with a section of rubber tubing to reduce chafing on the "sekiyama," the loop itself being secured with a Nicopress sleeve. A flattened No. 9/0 tuna hook is attached to the leader by a 1-inch loop made with a Nicopress sleeve.

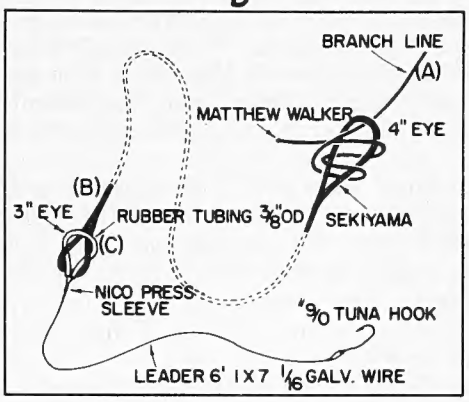
DIAGRAM OF POFI LONG-LINE GEAR

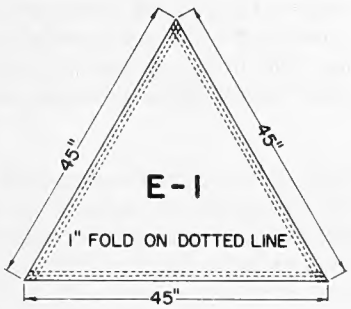


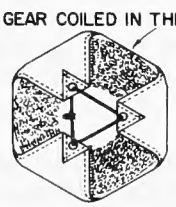












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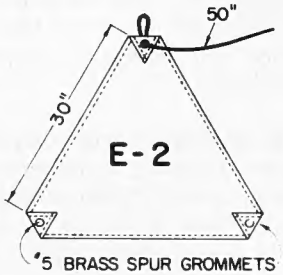

A 60-foot buoy line is made up for each basket. This is secured to the main line loop at the end of the basket. The surface end is fastened to the base of the flag pole (see parts A and B of figure 1).

FLOATS AND FLAGPOLES

The most satisfactory buoy with long life and sufficient buoyancy is an Army surplus stainless-steel oxygen tank of 2100 cubic inches internal volume. It is 25 inches long, and 38½ inches in circumference. There is a standard ¼-inch outlet fitting on each end (part A of figure 1).

The oxygen tanks are remodeled to serve as floats in the following manner: The outlet fittings are removed, and one end is sealed by a threaded ¼-inch galvanized plug. The opposite end is fitted with a 3/8-inch galvanized eye bolt with a 2-inch shank that has been threaded into a 1/4 x 1/8-inch hex head galvanized pipe bushing. As an additional waterproofing precaution, the plug and bushing threads are coated with Permatex sealing compound. An 8-inch grommet is formed from a length of 1/4-inch diameter cotton line. The grommet is first looped through the eye bolt, then secured to a 3/8-inch galvanized wire rope thimble, which prevents chafing of the cotton line by the eye bolt. This harnessing method makes the float easy to pull in when the gear is being retrieved and simple to detach for storage.

Poles with flags are attached to the buoys in order to facilitate locating the gear. The poles are select bamboo, 14 to 16 feet in length, with a butt diameter of 1¼ to 1½ inches and a tip diameter of about 5/8 inch. They are cut 2 inches below the lowest joint and 3 inches beyond the uppermost joint.

The poles are protected from chafing on the float by a 15-inch section of air hose. This is slit lengthwise and pressed onto the pole with the lower end 6 feet 6 inches from the butt. It is secured by Band-It straps 1 inch from each end, with the buckles fixed over the cut. The attachment to the buoy is made so that the buckles are turned away from it presenting only the smooth band for chafing. The air hose is rather expensive, but can be used indefinitely.

A 5-inch loop of 1/4-inch cotton line is fastened at the bottom of the pole for attaching the float line. This loop is held in place as follows: A rosette is made in each end of the line and a "Band-It" strap is clamped midway on the rosette, which serves as a cushion preventing the loop from slipping under the band. The ridge at the lower joint of the pole tends to prevent the loop and band from slipping off the butt of the flagpole.

The float is tied to the flagpole by a 4-foot cotton lanyard of 1/4-inch cotton line, which is secured to the flagpole just below the chafing gear by a Band-It strap. It is important that this line be fixed 90 degrees from the concave side of the bamboo so that on lifting the pole from the water the weight of the tank will be borne by the bamboo in the direction of its greatest strength. This position is 180 degrees from the slit in the chafing hose. On setting the gear, the free end of the lanyard is joined to the grommet of the float by a reverse sheet bend with bow.

Bunting flags are attached to the top of the flagpoles by waxed doubled cotton thread ties fixed to the corners of the flags. Different combinations of colors are used to identify various portions of the set, such as the ends and center.

LONG-LINE CONTAINER

The original split bamboo basket which was formerly used to hold a "basket" of gear has been replaced by a canvas container or "skid" (part E of figure 1). This is made of No. 4 duck cut in the shape of an equilateral triangle, 45 inches on a side. It has a 1-inch table size seam that has been folded twice. The corners are turned in 3 inches with No. 5 grommets punched in the center. A 3/8-inch Manila becket 50 inches long is laced through the grommets. A 3-inch loop is spliced on one end, and the standing end is securely whipped. The loop is secured on one grommet by an overhand knot immediately behind the eye splice. The standing end is laced through the other two grommets and passed through the eye to form a bight. A slip knot is then made, thus securing the long-line within the confines of the canvas skid.

TREATING LINES WITH PRESERVATIVES

When in use the gear remains wet for weeks at a time and a preservative is necessary for all of the cotton parts. It is not necessary to treat the "sekiyamas." Among the several types of preservatives that have been used, "Net Life" and a copper napthenate compound have produced satisfactory results. The skeins of line are cold-dipped for a period of 15 to 20 minutes, after which they are removed from the preservative tank, allowed to drain, then placed on a rack to dry in the shade. Essentially, a preservative dip for long lines should be one that will penetrate the line and leave no gummy residue on the surface when dry.

ASSEMBLY OF LINES FOR SETTING

Prior to setting, the main lines and branch lines are joined as shown in part C of figure 1 and the gear is carefully coiled, branch lines alternating with sections of main line. The float line is attached to the main line and coiled on top of the basket. In setting, a float and the float line are attached to the flagpole. This assembly is then pitched overboard from the moving vessel, and the main line and baited branch lines are thrown out with plenty of slack. In the meantime the second basket is attached by joining the two main lines as shown in figure 1B. This is done with a 3-foot tail of 1/4-inch medium lay cotton line with a 3-inch eye splice in one end and the other whipped. The loop is attached to the main line of one basket and the free end is tied to the loop in the end of the main line of the next basket, another buoy and pole assembly is attached, and the setting process is repeated.

Hauling is done by means of a Japanese line hauler (Shapiro 1950, Shimada 1951). This has sheaves through which the main line is hauled and automatically coiled on a skid placed below the machine on a platform of suitable height. Float lines and branch lines are detached as they come on board. The buoys and flags are removed and stowed, and the float lines and droppers are coiled by hand. As the main line is coiled under the line hauler, float lines and droppers previously coiled by hand are attached in the proper places so that the "basket" is ready for use the following day.

DISCUSSION

Long-line gear is the best means at present known for catching deep-swimming tunas. It is uniform, easy to work, and readily constructed. The component main lines, branch lines, and buoy lines are all made from the same material. Uniform length of branch lines eliminates confusion in assembly and replacement during the pick-up. The fishing depth can be regulated as desired by altering the length of the buoy lines and the amount of sag in the main line. Tangling of adjacent branch

lines is not frequent because the distance between any two branch lines is more than twice their length. The use of one large float between baskets, instead of two or more smaller floats, reduces the amount of handling and expedites operations. Snaps with swivels placed at the uppermost part of the branch lines minimize twisting when a hooked fish is threshing about. The snaps allow for instantaneous assembly or disassembly of the branch lines or buoy line with the main line. The manner of construction lends itself to mass production methods.

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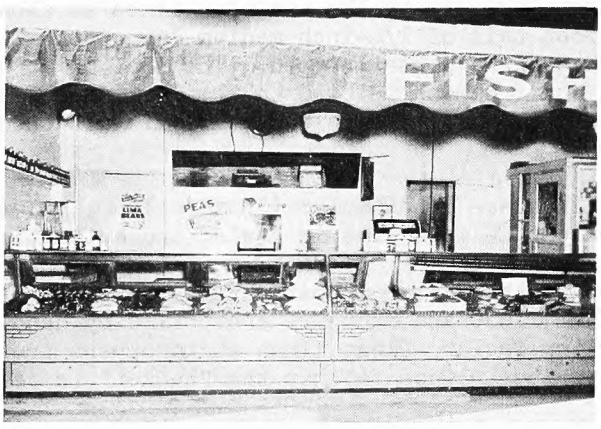
FISH CONSUMPTION ONLY SLIGHTLY AFFECTED BY DAYS OF WEEK

Friday is not necessarily "fish day" in the majority of United States households. Neither do the seasons, including the Lenten period, greatly influence the frequency with which fish is served. These are two of the findings of a U. S. Fish and Wildlife Service survey on the fish and shellfish preferences of household consumers.

Nationally, over 60 percent of the persons interviewed said there was no particular day on which fish was served, whereas only about one-third of the households indicated that they served fish more often on Friday. New Englanders were found to be an exception to the national rule, since 53 percent of the households consume fish particularly on Friday. However, the importance of Friday as "fish day" in New England was offset nationally by the Southern states, where only about 25 percent of the people reported that they preferred fish on that day.



It was found that about 70 percent of the people have no seasonal preference for serving fresh fish, and that 82 percent had none for serving frozen fish. Surprisingly, most of those who do serve more fresh fish in a certain season said they did so in the summer. This was particularly true in the North Central states, where 22 percent said they serve fresh fish more often during this season. Of the comparatively small group who indicated particular seasons when they served more frozen fish, no specific season was clearly singled out over the others. Only 7 percent said they consumed more frozen fish in winter, while 5 percent selected spring, and 4 percent divided their choices between the summer and fall months.

Results of the survey are contained in Part I--National Summary (FL-407) and Part II--Regional Summary (FL-408) of the series Fish and Shellfish Preferences of Household Consumers--1951. Copies are available free from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

OYSTER GROWTH AS AFFECTED BY LATITUDINAL TEMPERATURE GRADIENTS[1/]

By Philip A. Butler*

INTRODUCTION

The complexity of growth processes in animals makes necessary the use of many different yardsticks for a critical evaluation. The word growth itself is difficult to define but is interpreted, usually, as meaning permanent changes in length or volume. In oysters, growth is especially difficult to study since the body is hidden between the valves. Body size fluctuates seasonally; even the shell may decrease in length under special environmental conditions. Specimens taken from upper Chesapeake Bay after a prolonged period of low salinity showed that the occupied portion of the valves had decreased by an inch. Under such adverse conditions there is considerable body shrinkage and the oyster forms new valve margins within the old shell thus decreasing its total length by as much as one-third. This negative, or reductional, growth is common to many animals and frequently occurs in oysters. Most often the valves do not reflect these transitory body changes and body size cannot be determined without opening the shell. Measurement of growth in oysters is further complicated by the absence of a definitive size and by the fact that sexual maturity may be attained at shell sizes varying from $\frac{1}{2}$ to 2 inches.

For these and other reasons biologists and fishermen are prone to accept shell length as a valid criterion for oyster growth, and certainly it is the easiest measurement to use. State laws regulating oyster harvesting follow suit and the $2\frac{1}{2}$ or 3-inch "market" oyster is a legal standard in most areas where oysters are harvested commercially. However, since the amount of meat in an oyster rather than the size of the shell determines the profit, we find that private oyster growers do not necessarily use the 3-inch standard to determine the harvesting time for their crop. Under most conditions, the private planter determines the harvesting period by the number of pints of meat produced from a bushel of oysters rather than on whether or not the oysters will pass the minimum legal standard. In some areas too, the commercial canner does not purchase oysters on the basis of length but rather on how many cans of meat he can process per barrel of shell stock. Shell growth is, of course, intimately associated with body growth, but the relation between these two is by no means directly proportional. Investigators have recognized these facts for a long time. But, unfortunately, there are occasional reports of rapid increases in shell length which, with or without the writer's intention, are interpreted as meaning rapid meat production. The reading public has been educated to consider shell growth as synonymous with meat growth.

LENGTH VERSUS WEIGHT-VOLUME FOR DETERMINING GROWTH

The difficulty in determining oyster growth from length measurements becomes apparent on examining the results of some of the many experiments we have conducted during the past four years. For example, observations on growth under average conditions show that during the summer months of their first year oysters grow up to 60 mms. in length; during their second summer they may increase from 1 to 10 percent. During the summer months of their third year there is virtually no increase in shell length, although weight and volume may increase from 10 to 20 percent. Obviously, during this third summer the oysters are growing despite the lack of increase in length. Length increases do take place in the third year of course, but during the

1/ BASED ON A PAPER PRESENTED AT THE NATIONAL SHELLFISHERIES ASSOCIATION CONVENTION IN ATLANTIC CITY, N. J., AUGUST 14, 1952.

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colder months. In contrast, oysters in the colder waters of New England add 70 percent of their annual length increment during the four summer months when mature Gulf oysters are not growing appreciably.

Location	Mean annual temp. 0° C.	Calendar months to grow select oyster			Months in hiber-nation	Average no. of growing months	Oz.-yield per bushel (USFWS statistics)	Oz.-yield per bushel (biologists' estimate)	Oz.-yield per calendar month	Oz.-yield per growing month
		Poor area	Best area	Average area						
CANADA	6	84	48	66	5	46	-	120	1.8	2.6
LONG ISLAND SOUND	10	80	42	52	4	36	122	120	2.3	3.4
CHESAPEAKE BAY	15	60	18	30	3	24	72	96	3.2	4.0
SOUTH CAROLINA	20	48	18	30	0	30	42	76	2.5	2.5
GULF OF MEXICO	22	48	18	30	0	30	66	72	2.4	2.4

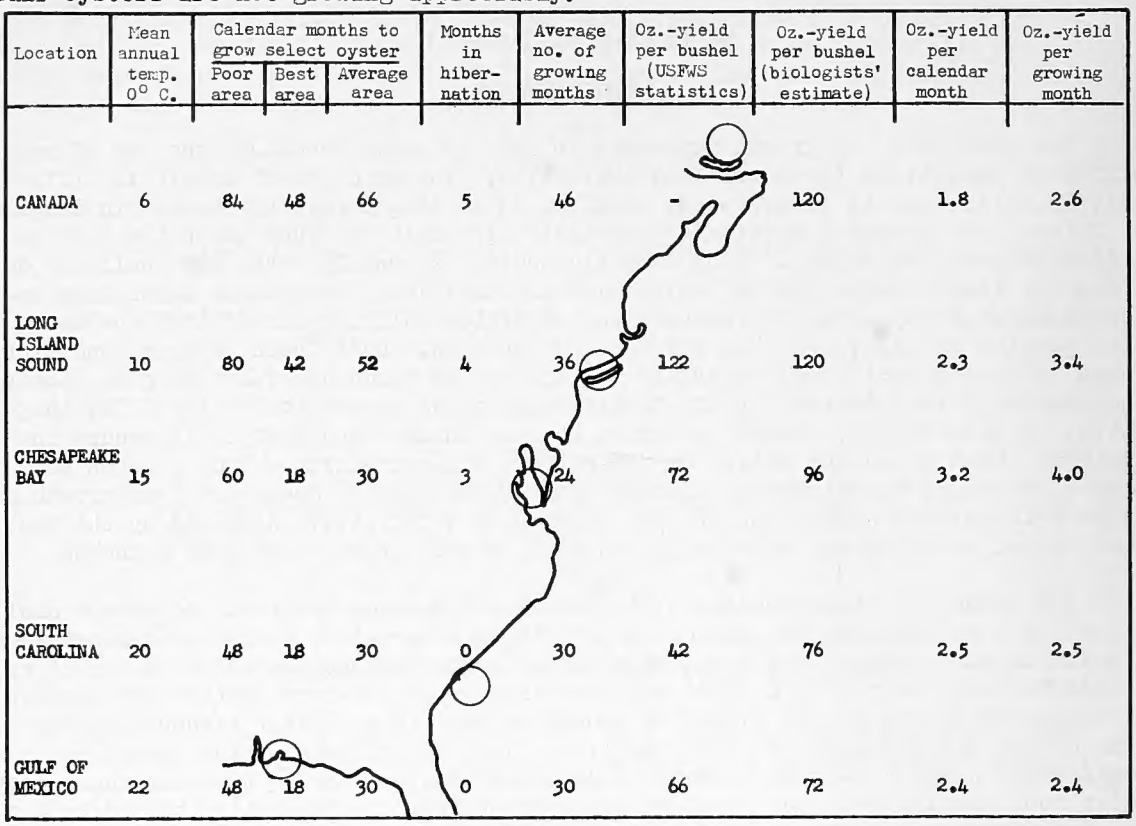

FIGURE 1 - ESTIMATED AVERAGE GROWING TIME AND MEAT YIELD FOR SELECT 3-INCH OYSTERS AT DIFFERENT LATITUDES. YIELD PER MONTH IS DERIVED FROM BIOLOGISTS' ESTIMATE OF YIELD PER BUSHEL.

Interesting changes in growth rates may be obtained experimentally by simulating the tidal conditions to which many oysters are normally exposed. At Pensacola we compared oysters growing under these conditions with control oysters held continuously below the water surface. In the first six months of observations, control oysters gained 35 percent in length and width while experimental oysters showed no gain; control oysters increased 160 percent in weight and experimental oysters 100 percent in weight. In another series of observations we separated oysters growing under very crowded conditions and placed them in individual trays. In the following six months these oysters increased in length only 1 percent, showed no change in width, but increased 40 percent in volume.

It is apparent that under a variety of environmental conditions essentially no changes in length and width may occur while substantial gains are being made in weight and volume, in other words, when the oyster is growing. Our observations in Florida show that significant increases in weight and volume occur each month throughout the year, whereas increases in length and width follow a well-defined seasonal pattern after the first year and occur primarily in the winter months. The regularity of volume increases during all of the growing months as compared to periodic length and width increases has been reported also for New England oysters (Loosanoff 1949). I suspect it is a characteristic of this oyster wherever it grows. For these reasons, the measurement of volume is a far more critical yardstick in the measurement of growth than is the measurement of length. There are certain disadvantages in the use of volume measurements as criteria for oyster growth. It is more time consuming and requires

more equipment, but the data obtained are of much greater value for interpreting growth changes under both experimental and natural conditions.

RELATIVE VALUE OF GROWING AREAS

The oyster biologist is interested not only in growth rates in a given environment, but also is frequently concerned with the relative value of two or more growing areas. It may be possible to examine such areas only briefly. In these circumstances, the use of the total volume measurement by itself is of little value in assaying the growth potential of the oyster population. The reasons for this are obvious considering the striking differences found in the character of the shell. In areas infested with boring sponge and clams, the valves may be massive and yet enclose relatively little meat. Conversely, in areas of rapid growth, with the production of thin shells and relative thin oysters, the meat yield may be quite high. Even in circumscribed areas, variations in population density and types of cultch radically influence shell thickness and thus affect the relationship of total oyster volume to meat yield. We have several series of data illustrating these differences and our results parallel those obtained by H. F. Moore in his experimental plantings in Louisiana at the turn of the century (Moore 1910). Moore found in seed plantings of similar age that crowded oysters averaged greater length but only half the meat production of uncrowded oysters; that oysters growing on clam shell cultch produced the same amount of meat per bushel as larger and longer oysters growing on oyster shell cultch in the same area. Thus, in comparing oyster samples even from adjacent reefs, neither greater length nor greater volume is necessarily an index of greater meat yield.

TOTAL OYSTER VOLUME TO SHELL VOLUME INDICATES POTENTIAL YIELD

It is a simple operation to shuck measured samples of oysters from one or several locations and determine the relative yield at harvest time. However, for the biologist who may wish to determine the potential yield of a particular area or type of culture technique, it is much more difficult. He must sample oysters both in and out of season, when they are spawning and when they are hibernating. Under varied seasonal conditions, the yield from a sample may have little bearing on what those same oysters would produce under the optimum conditions found at harvest time. For example, we determined the yield of similar-aged oysters growing as "singles" and another group growing under crowded conditions. In May, the single oysters produced 30 percent more meat than did the crowded oysters. Two months later the yield ratio had reversed and the crowded oysters produced nearly 25 percent more than the singles. This change in meat production was not due to any sudden improvement in the crowded oysters but simply to the fact that they were heavy with spawn while the single oysters had all completed the spawning process. There are still other local conditions which may contribute to such misleading results, and it is essential for the biologist to have some yardstick usable at any time to evaluate the potential yield from an oyster population at its peak of condition.

We have found in our work that the ratio of total oyster volume to shell volume provides such a yardstick. Under poor growing conditions, where meat yield is low, this ratio approaches but, of course, never reaches 1.0. As oysters improve in meat-yielding capacity, this ratio approaches and may surpass 2.0. In other words, the larger the body space in proportion to shell, the higher the ratio. In the Pensacola area, the best oysters have a total volume:shell volume ratio of about 1.8 and the poorest oysters have a ratio of about 1.2.

This ratio has many convenient uses, some of which I shall indicate briefly: since it is based on the total internal capacity which the oyster has at some time created for its body, this ratio reflects the volume of oyster meat when the animal

is, or was, at peak size; this ratio is independent of meat volume at the time of examination and hence is not affected by seasonal fluctuations in meat quality, or by variations due to spawning, etc.--it can even be used on the intact shells of oysters long dead; it eliminates the subjective impressions gained from rapid shell growth and over-all large-appearing oysters; when used in conjunction with meat volume, the ratio helps to evaluate the effects on body size of disease, pollution, and semi-permanent environmental changes.

We have found this ratio useful in comparing oysters grown under different experimental conditions in adjacent environments, and it should be equally useful in comparing oysters which have grown in environments widely separated geographically.

Since distinctive differences in the meat yield per bushel exist in the commercial production of oysters at different geographical locations, it is of interest to learn whether these differences have a biological foundation based on the oysters' ability to grow or whether they are artificial differences based on harvesting techniques.

The U. S. Fish and Wildlife Service in compiling production figures for the several oyster-growing areas makes use of certain factors for converting bushels of oysters harvested to pounds of meats produced (Anderson and Peterson 1952). These conversion factors vary from over 7 pounds per bushel in New England to less than 3 in South Carolina. These figures indicate to some extent the quality of the oysters, but they reflect primarily the harvesting methods used in the different states. In order to estimate the meat-yielding capacity of oysters from different geographical areas, it is necessary to determine the meat yield and age of a standard-size oyster. I have selected for this purpose the 3-inch "market" oyster, taking into consideration the number of calendar months necessary to produce such an oyster and in how many of these months the oyster actually grows. (Many biologists have contributed helpful information for my use in compiling these data, and I wish to express here my appreciation for their assistance.[2/] I wish to emphasize, too, that any faults in the interpretation of this material are entirely my own.)

DIFFERENTIAL OYSTER GROWTH AT DIFFERENT LATITUDES

Although some of the data are quite meager, I believe that a clear-cut differential in oyster growth does exist at different latitudes. The Chesapeake oyster produces the greatest volume of meats in unit time on the basis of both calendar months and growing months. If we consider rate of growth from the biological point of view, rather than the commercial, and eliminate the hibernation months, oysters in the warmest areas produce the least amount of meats in unit time, and the other regions considered are intermediate.

The relatively poor growth of the southern oyster suggests that the Gulf of Mexico is on the periphery of the geographical distribution for this species, Crassostrea virginica. It suggests too, that parts of the Gulf may be classified as a distinctly marginal environment. Although there is clear evidence for the existence of enormous populations here in the recent past, we have no knowledge of the annual recruitment in these populations. It may well be that in the presence of static population levels overfishing by man has been the decisive factor in causing the rapid decline of the species in such areas as the Texas coast. This hypothesis may explain man's failure to restore barren areas by small-scale plantings. It is reasonable to assume that in marginal areas and in the presence of many enemies the oyster can perpetuate itself only when the adult population is very large. Admittedly,

2/R. R. LOGIE, FISHERIES RESEARCH BOARD OF CANADA; G. F. BEAVEN, DEPARTMENT OF RESEARCH AND EDUCATION, MARYLAND; J. G. GLANCY, BLUE POINTS COMPANY, NEW YORK; J. B. ENGLE, U. S. FISH AND WILDLIFE SERVICE, MARYLAND; G. R. LUNZ, BEARS BLUFF LABORATORY, SOUTH CAROLINA.

there are other areas in this latitude which provide an excellent environment for oyster populations. This situation merely emphasizes the fact that the suitability of an environment is dependent on the interaction of many ecological factors. Any single factor, such as the temperature gradient, is rarely a limiting factor in the survival of the species, although it may have far-reaching effects on the quality of the individuals making up the population.

These conclusions are not contradicted by reports of rapid shell growth in southern oysters (Ingle 1950). Although 3- to 4-inch oysters are frequently grown in the Gulf States in a year's time and 6-inch oysters in 30 months are not rare, oysters occasionally attain a length of 3 inches in 6 months in the Chesapeake Bay and 6-inch specimens have been reported that were only 17 months old (Beaven 1952). Because of the hibernation period at this latitude, these 6-inch specimens represent approximately 15 months of growing time. Surprise has been expressed in the literature (Gunter 1951) that Gulf oysters may increase as much as 0.3 mms. per day in shell length, but this may be compared with the 6-inch Chesapeake Bay oysters which must have grown at similar or faster rates. All of these examples describe a few unusual oysters or oysters growing under exceptional circumstance, and hence do not present a true picture of average growth rates. Moreover, oyster-shell length is of only relative importance in determining meat yield. In South Carolina, for example, clustered reef oysters with an average length of 3 inches are harvested when 2 years old and yield approximately 42 ounces of meats per standard bushel. Select single oysters growing in this area may require 3 years to attain the same length, but yield up to 120 ounces of meats per bushel.

In discussing the reasons for the apparently greater meat yield of oysters grown in colder waters, we need not consider the obvious differences resulting from the harvesting of cultivated oysters in the North as contrasted with the harvesting of clustered reef oysters for canning purposes in many southern areas. I should like to mention, however, that harvesting techniques may be of greater importance than the environment in determining the meat yield from oysters as well as from any other aquatic farm crop.

Oysters in northern areas are harvested primarily at or near hibernation temperatures when they have naturally accumulated the maximum amount of food reserves. In southern areas, where hibernation temperatures are the exception, the oyster does not build up large food reserves in its tissues and during the harvesting season its energy requirements are supplied by daily food consumption. As a result, the meats are smaller on the average than meats from oysters harvested in colder waters. This hypothesis is corroborated by circumstances occasionally found in the South. In some years sudden increases in water temperatures well above the level necessary for mass spawning may exist for some time before any spawning takes place in the spring (Hopkins 1935). In my opinion this is because the oysters, having little stored glycogen available, require days or even weeks to accumulate sufficient food material for the maturation of the gonads. Geographical differences in oyster-meat production have in the past been attributed to salinity differentials in the growing areas, i.e., greater production from more saline waters. However, I suggest that the effects of the temperature gradient offer a more logical explanation for these production differences.

We should recognize why oysters living in cold waters are able physiologically to store more food reserves than warm-water animals. The reasons underlying this condition justify the conclusion that northern oysters grow faster than southern oysters. Scientists have learned that the rates of many biological processes are dependent on temperature. The temperature coefficient for such biological processes, or Q_{10} as it is called, is approximately 2. This means that for each 10-degree rise in temperature within the tolerance levels of the animal, the speed of metabolic ac-

tivity is approximately doubled. In the case of the oyster, we may interpret this to mean that month by month throughout the year, minimum food and oxygen requirements of the southern oyster are about twice as great as for the northern oyster. Since this greater food requirement is accompanied by a presumed decrease in food availability in the South, it appears reasonable that southern oysters have to devote much more of their energies to the problem of existing. Although water pumping and feeding rates may be similar at different temperature levels, the percentage of food consumed which can be devoted to body building, that is to growth and to storage, must be significantly greater in New England, for example, than it is in the South Atlantic and Gulf areas.

SUMMARY

1. Field and experimental observations indicate that volume rather than the customary length measurements provide a more critical evaluation of growth in the oyster.

2. The ratio of total oyster volume to shell volume provides a useful single index for estimating the meat-yielding potential of an oyster population when continuing observations are impractical.

3. Oyster growth varies geographically, responding to differences in the latitudinal temperature gradient.

4. Oysters in the latitude of Chesapeake Bay tend to grow faster and produce more meat in unit time than oysters growing north or south of this region.

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Progress on Projects, May 1953

BYPRODUCTS: Vitamin Content and Nutritive Value of Fishery Byproducts: Analyses were made of samples of tuna and herring meal for niacin content. The results were:

Sample	Number of Samples	Moisture (Percent)			Fat (Percent)			Niacin (Micrograms per gram on moisture-and-oil-free basis)		
		Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Tuna Meal	17	9.60	3.18	6.17	10.20	7.08	9.06	201	120	153
Herring Meal	4	11.44	10.65	11.14	9.92	9.76	9.85	79	63	70

(Seattle)

* * * * *

FEEDING STUDIES WITH MENHADEN OILS: During the past few years there has been considerable interest in the possibility of adding animal or vegetable oils and fats to poultry and swine feeds. This has been partially due to the relatively large quantities of oils and fats available on the market, and also because oil or fat added to manufactured mixed feeds would make them less dry and dusty. The latter would encourage greater consumption of feed and greater production of meat, eggs, or other products within a given time.

Several feeding experiments have been reported showing that it is possible to add vegetable oils and certain animal fats to diets without adversely affecting the health of the animals or birds. It was believed that fish body oils could be fed in like manner so a program of feeding studies with broilers was started late last fall at the Fishery Technological Laboratory, College Park, Maryland.

The studies were limited to feeding commercially-hatched cross-bred broilers in battery brooder cages a modified broiler diet recommended by the U. S. Department of Agriculture (Circular 788, February 1948). This basal diet (No. 2) consisted of ground yellow corn, 60.4; soybean meal, 22.0; fish meal, 5.0; meat meal, 6.0; alfalfa meal, 5.0; steamed bonemeal, 1.0; manganized salt, 0.4; vitamin A and D feeding oil, 0.2; and riboflavin concentrate, 0.05; all by weight to equal 100 parts. The groups were fed centrifuged menhaden oil, settling menhaden oil or corn oil at levels of 0, 2, 4, 6, or 8 percent in replacement of an equal weight of ground yellow corn in the basal diet. No adjustment was made to equalize the small differences in the protein content of the diets. Additional comparable groups receiving 0, 6, and 8 percent centrifuged menhaden oil were fed diets to which was added 2 milligrams of niacin and 5 milligrams of alpha tocopherol per pound of feed, and $2\frac{1}{2}$ percent of dried brewer's yeast replaced an equal weight of ground yellow corn. These vitamin additions were based on recommendations made by Dr. M. L. Scott of Cornell University to prevent the formation of enlarged hocks of turkeys and ducks.

Each cage measuring 24 by 28 inches contained about 19 birds at first. It was necessary to thin the chickens out from time to time as they grew until finally at 7 weeks most of the chickens were killed and dressed. The groups receiving 0, 2, and 8 percent centrifuged menhaden oil, 8 percent settling menhaden oil, and 8 percent corn oil were kept for 12 weeks. These groups were kept in order to find out what effect the highest levels of oil had over the period that commercial broilers are usually fed.

The total average live weights for the 16 groups during the 7-week period and 6 groups for the 12-week period were:

	Grams	Pounds
Initial	35	.08
Four weeks	360	.8
Six weeks	624	1.4
Seven weeks	778	1.7
Twelve weeks:		
Cockerels	1776	3.9
Pullets	1415	3.1

These data indicate that the growth rate of the chickens was satisfactory. A study of the weights of individual chickens indicates that there were probably no significant differences between groups except possibly for the one that received 8 percent of settling menhaden oil. Even so the average for this group was only 35 grams lower than the total average at 4 weeks, 50 grams lower at 7 weeks, and about 200 and 100 grams lower, respectively, for cockerels and pullets at 12 weeks. These lower weights were apparently due to eating less feed since the pounds of feed per pound gain, namely, 2.4 for 7 weeks and 2.7 for 12 weeks (all gains made by the chickens) were very good. The range for all groups was from 2.4 to 3.1. The group receiving no oil had the highest feed requirement at 12 weeks, namely, 3.1; the requirement for this group was 2.5 pounds of feed per pound of gain at 7 weeks. The additional niacin, alpha tocopherol, and yeast did not affect either the growth or efficiency of utilizing feed.

There were no significant differences between groups in respect to deaths, lameness, feathering, or color of skin and shanks that could be ascribed to the diets fed. About 5½ percent of the chicks died from all causes. There were from 2 to 5 lame birds in each group, and these had one or both legs affected with hock disability. This was probably partly due to the ½-by-½-inch screen floor that was used which permitted the hocks of young chicks to get caught in the meshes. There was only one cripple after about the fifth week. There was only one case of what appeared to be encephalomalacia, and this bird happened to be in the group that was fed no added oil. The color of the skin and shanks was very satisfactory.

So far as the live chickens were concerned, the results looked very good for feeding the fish body oils. When the chickens were eaten there was another story. Even the lowest amount feed, namely, 2 percent of centrifuged or settling menhaden oil, gave a fish flavor to the meat. This flavor was not limited to the fat, but was actually present in the lean meat of the breast and legs. It was not an off-flavor due to oil since all of the chickens receiving corn oil, irrespective of the level fed, were rated as satisfactory. The fish flavor was due to some flavor ingredient in the menhaden oil. Even though some of the taste-testers did not agree and thought that chickens receiving even the higher levels tasted all right, it is not commercially safe to recommend even the lowest level which was fed.

Feeding experiments are now under way in which levels of centrifuged menhaden oil from 2 to 0 percent by ½-percent increments are being fed. The results of this

test should determine a safe level which may be recommended. Of course, there is also a possibility that the fish oils may be treated so as to remove the flavor ingredient, but this would increase the cost of the oil and reduce the likelihood of it being used. (College Park)

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REFRIGERATION: Freezing Fish at Sea, Defrosting, Filleting, and Refreezing the Fillets: VESSEL: The brine-freezer machinery was completed and installed in the new brine tank. Preliminary mechanical tests did not indicate any serious defects; however, extensive dockside trials will be conducted before the first test-fishing operation. (Boston)

CRAB MEAT IS FAVORITE FOR SUMMER MEALS

Crab meat, which has long been recognized for its distinctive flavor and its variety of uses, is in plentiful supply in the food markets during the summer.

"Ready-to-use" crab meat--fresh cooked, frozen, or canned--is especially in demand for summer salads and crab cakes.

Several species of crabs are taken by American fishermen. In New England the rock crab is the commercial variety, while the blue crab is found from New York to Texas and is the most important crab on the Atlantic Coast. On the Pacific Coast, the dungeness crab is the best known. From northern Alaska waters come the giant king crabs.

Crab meat from blue crab is packed in the following forms: "Lump meat" is the white from the large muscles in the back; "flake meat" is the remaining white body meat; and "claw meat" is the brownish meat from the claws. White meat is preferred for salads, while the darker meat is usually used in crab cakes or patties. From the other varieties of crabs the meat from all parts is usually packed together.

Here's a recipe for a delicious and nutritious salad developed and tested by the home economists of the U. S. Fish and Wildlife Service.

CRAB RAVIGOTE

1 POUND CRAB MEAT
2 TABLESPOONS CHOPPED SWEET PICKLE
2 TABLESPOONS LEMON JUICE
¼ TEASPOON SALT
DASH PEPPER
1 HARD-COOKED EGG, CHOPPED
1 TABLESPOON CHOPPED PARSLEY
2 TABLESPOONS CHOPPED ONION
¼ CUP MAYONNAISE OR SALAD DRESSING
2 TABLESPOONS CHOPPED STUFFED OLIVES
¼ TEASPOON PAPRIKA
PIMIENTO

Remove any shell or cartilage from the crab meat. Combine pickle, lemon juice, seasonings, egg, parsley, onion and crab meat. Fill 6 crab shells or individual casseroles with mixture. Combine mayonnaise, olives and paprika; spread over tops of shells. Chill. Garnish with pimiento strips. Serves 6.

TRENDS AND DEVELOPMENTS

California

"N. B. SCOFIELD" STUDIES TUNA IN EASTERN PACIFIC (Cruise No. 1 of 1953): Investigations on the presence and relative abundance of deep-swimming yellowfin and big-eyed tuna were made in waters near the tuna-fishing grounds in the eastern Pacific by the State of California's research vessel N. B. Scofield. The 54-day cruise was completed at Los Angeles on March 18. In addition, investigation of the oceanography of the eastern Pacific, especially as it may affect the tunas, was continued; and biological data was collected to aid in identifying the stocks of tunas. This cruise was conducted jointly by the Inter-American Tropical Tuna Commission, the Marine Fisheries Branch of the California Department of Fish and Game, and the Scripps Institution of Oceanography of the University of California. The U. S. Fish and Wildlife Service also participated through technical assistance and loan of certain essential equipment.

The Japanese fishing operations in the western Pacific Ocean, and more recently the experimental fishing conducted by the U. S. Fish and Wildlife Service's Pacific Oceanic Fishery Investigations in the central Pacific have demonstrated in those waters the presence of deep-living yellowfin and big-eyed tuna, of larger size than normally taken at the surface. The more recent experimental fishing has demonstrated this distribution of tuna as far east as longitude 120° W. This gives rise to the question of whether or not there are to be found, in areas adjacent to the present eastern Pacific fishing grounds, similar, if not part of the same, populations of tunas not now available to present commercial fishing methods. The solution of this problem has important implications on the future of the eastern Pacific tuna fishery, reports the California Department of Fish and Game in an April 28 release.

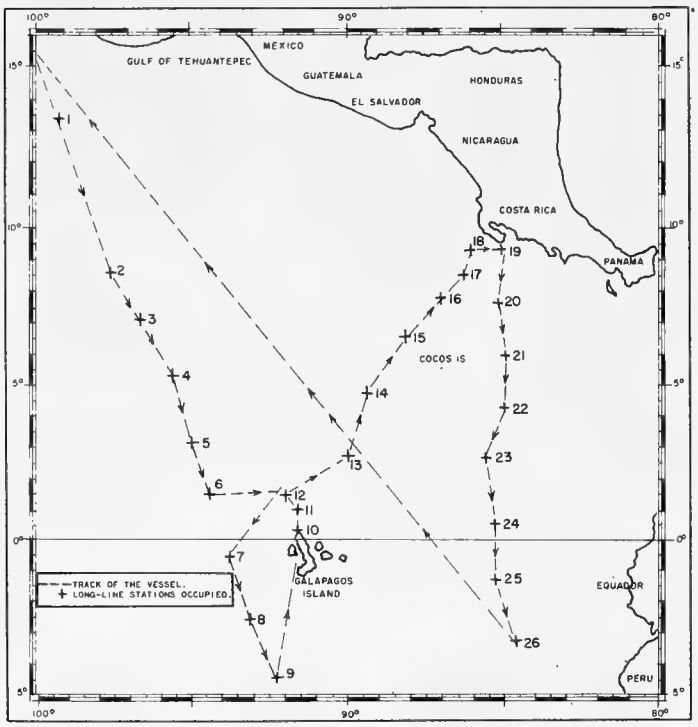


FIGURE 1 - SHOWS THE AREA COVERED BY THE CALIFORNIA RESEARCH VESSEL N. B. SCOFIELD FROM JAN.23-MAR.18,1953.

The N. B. Scofield departed Los Angeles on January 23 and occupied the first station eight days later. After crossing the equatorial current system and completing Station No. 9, at 4°28' S. on February 10, the vessel put in at the Galapagos Islands. Two days were spent there preparing for the second leg. On February 13 fishing was

begun on the second leg, a northeasterly track traversing the area between the Galapagos Islands and the mainland. Upon completion of the second leg at Station No. 19 on February 22, the vessel entered Puntarenas, Costa Rica, for fuel. The third and last leg, comprising seven stations, was begun on February 26 off the coast of Costa Rica and completed on March 4 off the coast of Ecuador. After an emergency stop at Acapulco, the vessel returned to Los Angeles Harbor on March 18 (see figure 1).

Fishing Results: Long-line gear developed by the Japanese was employed by the expedition. A basket of long-line gear is illustrated in figure 2. The only

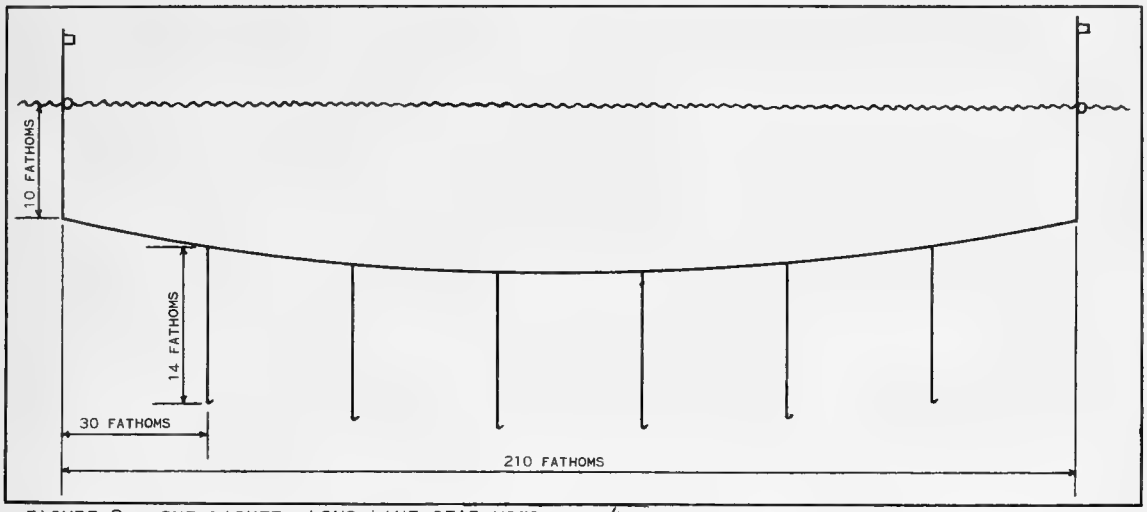


FIGURE 2 - ONE BASKET; LONG-LINE GEAR USED BY M/V N. B. SCOFIELD IN A 54-DAY CRUISE COMPLETED ON MARCH 18.

modification of the gear made on the expedition was replacement of the 10-fathom float lines with 5-fathom float lines after Station No. 7. No measurable difference was observed in the effectiveness of the gear subsequent to this change.

Fifty baskets of gear were set at most stations. The long-lines, baited with large frozen sardines, were set at daybreak and allowed to soak for about six hours. Retrieving the gear was no problem except in areas of strong currents, such as the Galapagos Islands, where the long-lines were badly fouled. Otherwise, fishing operations in general were conducted under ideal weather and sea conditions.

In all, a total of 1,180 baskets (7,080 hooks) were fished. The average rate was 45 baskets (270 hooks) per station. The total catch consisted of 76 yellowfin tuna, 16 big-eyed tuna, 78 spearfishes (marlins and sailfish), 236 sharks, and 18 fish of miscellaneous species. The over-all catch per 100 hooks fished per day was 5.99 fish. The breakdown of the catch ratio by kind of fish was as follows:

	Fish Per 100 Hooks
Yellowfin tuna	1.07
Big-eyed tuna	0.23
Spearfishes	1.10
Sharks	3.33
Miscellaneous	0.25

Tuna were caught at 11 of the 26 fishing stations. They appeared to be most abundant in outlying oceanic waters judging from the catches made on the first leg, which accounted for 82 percent of all the tuna caught by the expedition. The largest number of tuna were taken transverse to the equatorial current system west of

the Galapagos Islands, from Stations 4 thru 9, where the catch of tunas averaged 4.32 fish per 100 hooks. This rate of catching compares favorably with that of the Japanese in the western Pacific, and with that of Pacific Oceanic Fishery Investigations in the central Pacific, at the same season and similar latitudes. The greatest tuna catches were made at Stations 5 and 9, where 6.67 tunas were caught per 100 hooks. The remaining two legs of the cruise were singularly unproductive of tunas. Contrary to expectations, very poor fishing was encountered at the stations close to the Galapagos Islands, a very productive area for surface-fishing tuna vessels.

The big-eyed and yellowfin tuna captured were in general very large, with most of the fish over 1,400 millimeters (55 inches) in fork length and weight in excess of 150 pounds. The size range of the yellowfin was 796-1,720 millimeters (31-68 inches) in fork length, while that of the big-eyed was 991-1,835 millimeters (39-72 inches) in fork length.

Damage to the tunas by sharks was relatively extensive; one tuna in every four was mutilated to some degree.

Oceanographic Observations: Bathythermograph casts were discontinued shortly after departure due to equipment failure. However, by improvising it was possible to take these observations at each of the 26 long-line stations occupied.

In order to obtain a qualitative picture of the current structure in the upper layers of the ocean, current cross measurements were made to depths of 200 meters wherever long lines were fished.

The geomagnetic electrokinetograph, commonly abbreviated "GEK" or "jog-log," is a recently developed instrument which records the apparent direction and velocity of surface currents. In order to obtain a more complete picture of the surface circulation of the eastern Pacific region, "GEK" observations were made at two-hour intervals from Cape San Lucas south across the equator on the first leg, and from the Galapagos Islands northeast to Costa Rica on the second leg. Failure of the instrument precluded further observations after starting the third leg.

Samples of phytoplankton were taken at each station, for qualitative analysis of the over-all pattern of phytoplankton distribution, and to relate the production of phytoplankton to chemical nutrients found in sea water.

Surface salinity samples were collected, and surface temperature observations were made at two-hour intervals during the cruise. The 223 samples and observations will provide additional information about surface density distributions in the eastern Pacific.

Twenty-six quantitative plankton hauls were made (one at each station) with a one-meter net towed obliquely from a depth of 300 meters to the surface. Analysis of these samples will provide a basis for a study of the relationship between tuna abundance and the abundance of zooplankton.

Biological Observations: Samples of whole blood for serological studies which may lead to a new method of distinguishing between tuna species and races were obtained from 10 yellowfin, 3 big-eyed, and 1 oceanic skipjack tuna. An effort was made to collect these samples over a wide area, but the failure to catch tuna in quantity after the first leg restricted this sampling.

The development of a new chemical technique called paper chromatography which may permit the separation of the races of a particular species of fish is under way.

Material for this study was obtained from 9 yellowfin, 2 big-eyed, 1 oceanic skipjack, and 1 black skipjack tuna.

Thirteen yellowfin and 5 big-eyed tuna were examined for condition of sexual maturity. Most of the reproductive organs of these fish, male and female alike, were in an advanced ripening stage, and a few individuals possessed ripe gonads. One male big-eyed tuna caught at Station No. 26 had apparently just spawned, or was in the last stages of spawning, judging from the condition of its testes.

Measurements of body proportions were made of four big-eyed tuna.

The distribution of tunas may be related to the available food. To investigate the feeding habits of the yellowfin and big-eyed tuna in the tropical eastern Pacific region, of which little is now known, stomachs from as many of these fish as practicable were retained and preserved for study ashore. Preliminary examination of the 8 yellowfin and 4 big-eyed tuna stomachs collected indicate that at the time of their capture these fish were feeding mainly on frigate mackerel, squid, and red crabs. The stomach contents were fairly uniform in composition, and there appeared to be no marked difference in food preference of the two species.

Two striped marlin, two sailfish, and one black marlin were returned for vertebrae studies. The only black marlin taken by the expedition weighed over 625 pounds.

The presence of the white-tipped shark, heretofore believed restricted in distribution to the Atlantic Ocean, was recently reported from the eastern Pacific Ocean. Since knowledge of the life history and habits of the species in this region is fragmentary, observations were recorded wherever the white-tipped shark was encountered. Twelve of these sharks were caught by long lines at five different stations. Body measurements were taken of one fish; another specimen was frozen whole for examination ashore.

* * * * *

TUNA TAGGING BY "N. B. SCOFIELD" LIMITED BY POOR FISHING CONDITIONS: Tuna tagging by the California Department of Fish and Game's research vessel N. B. Scofield was limited by poor fishing conditions to only 50 fish on a 24-day cruise completed at Los Angeles on May 15. The cruise (53-5-2) was made off the west coast of Baja California, Gulf of California, as far north as Guaymas, the west coast of Mexico, and south to Acapulco, a May 27 report from the Department of Fish and Game states.

The 50 fish were tagged between Manzanillo and Acapulco, and consisted of 26 yellowfin, 23 skipjack, and 1 black skipjack tuna. The vessel was prepared to tag with two tagging crews, but tuna fishing during the trip was poor. The fishing in the Gulf of California was especially bad, and the heavy concentrations of tuna there earlier in April were not to be found.

A full load of bait (anchovettas) was caught at Guaymas, Mexico. The vessel then proceeded southward, and since the fishing in the Gulf of California was still poor, a course for more southern fishing grounds was set. Numerous schools of yellowfin and skipjack were encountered on the trip south, but extreme difficulty was experienced in getting the fish to come to the boat.

A limited number of night-light specimens was collected at night while the vessel was drifting on fishing grounds.

* * * * *

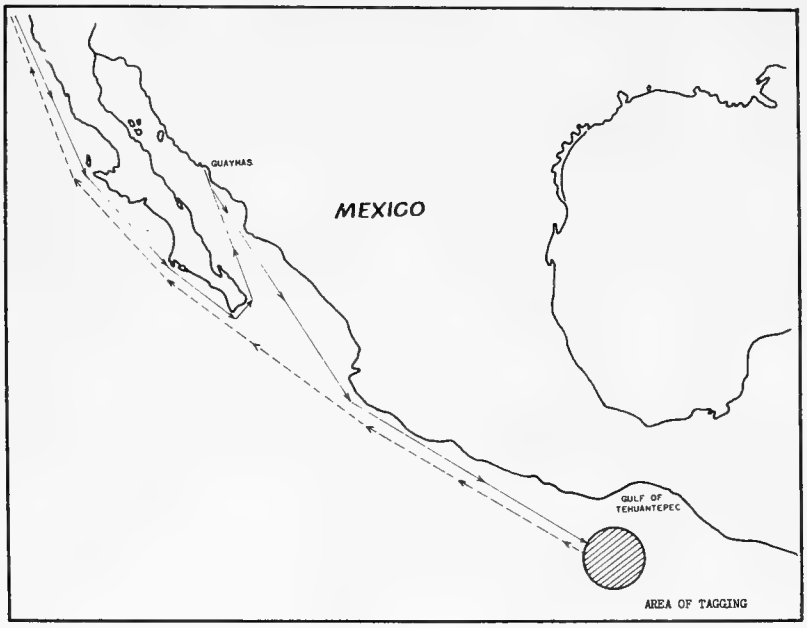
"N. B. SCOFIELD" TO EXPLORE SHRIMP AND BOTTOM FISH GROUNDS: Deep-water explorations for Dover and petrale sole and large shrimp in commercial quantities off the Morro Bay-Santa Barbara coast will be a one-month project of the N. B. Scofield, a California Department of Fish and Game research vessel.

The cruise commenced early in June with two main objectives: (1) a trawl survey of the region's mid and deep waters to determine if bottom fish and large shrimp exist in the commercial quantities that preliminary research has indicated; and (2) to experiment with new mid-water trawl gear using a single boat.

The California biologists expect to trawl at 500 fathoms and hope--with good weather conditions--to make a mile-deep drag. If successful, this will be the deepest commercial-type drag in history, an April 29 release from the California Department of Fish and Game reports.

* * * * *

TUNA TAGGING CONTINUED: A total of 157 yellowfin tuna and 61 skipjack tuna were tagged by California Department of Fish and Game biologists aboard the commercial tuna clipper Southern Pacific on a 37-day cruise completed at San Diego on April 17. The vessel cruised in the area of Baja California, the Gulf of California, and off the coast of Mexico to the Gulf of Tehuantepec. All the fish were tagged off the Gulf of Tehuantepec, reports the Department of Fish and Game in an April 28 report.



SHOWS ROUTE OF THE RESEARCH VESSEL SOUTHERN PACIFIC ON ITS CRUISE FROM MARCH 11-APRIL 17, 1953.

Of the fish tagged, 110 were tagged with the type "G" tag and 108 with the type "F" tag. As observed during previous tagging operations, the type "G" appears to be the most efficient to apply to the various modifications used.

Two night-light collections were made in the area of tagging. These collections yielded 190 juvenile frigate mackerel (Auxis sp.).

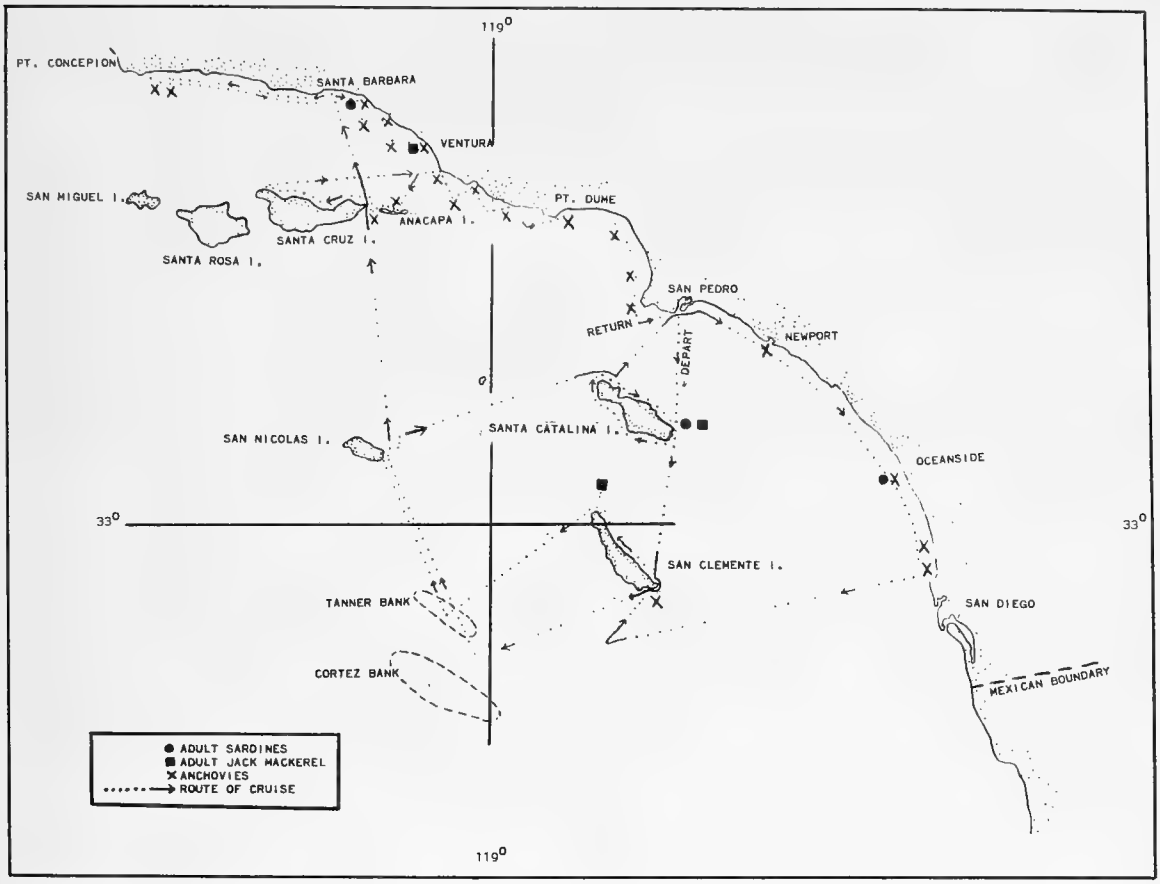
Other major objectives were to gain experience in commercial tuna-fishing methods; and to further delineate the spawning range of yellowfin and skipjack tuna by collecting post-larval specimens under a night light.

* * * * *

SPAWNING SARDINE AND ANCHOVY ABUNDANCE STUDIED BY "YELLOWFIN" (Cruise No. 4 of 1953): The abundance and age composition of spawning adult sardines and anchovies were measured in inshore and offshore waters off California by that State's research vessel Yellowfin on a 6-day cruise completed at Los Angeles on April 22.

The area covered included the Southern California coastal area between San Diego and Pt. Concepcion and the area around the offshore islands and banks.

A total of 317 miles were scouted in 16 nights and 49 visual schools of fishes were sighted. Of the two schools sampled, one proved to be jack mackerel and the



SHOWS THE AREA COVERED BY THE RESEARCH VESSEL M. V. YELLOWFIN APRIL 6-22, 1953. EACH MARK REPRESENTS ONE SAMPLE.

other anchovy. The remaining 47 schools were estimated as 38 of anchovies, 8 of sauries, and one of jack mackerel.

Forty-eight light stations were occupied yielding three samples of sardines, two of jack mackerel, and 21 of anchovies. Scales, gonads, stomachs, and chromatographic samples of muscle tissue for population studies were taken from sardine and anchovy samples. Gonads, stomachs, and otoliths were taken from the jack mackerel samples. A sample of large sardines collected at Avalon harbor, Santa Catalina Island, consisted of gravid and ripe adults. A sample of adult sardines from near Oceanside consisted of smaller fish, most of which were in resting or immature stages of sexual maturity. One sardine collected near Santa Barbara was a gravid male. Most of the anchovies collected were in advanced stages of maturity with several of the females having ripe eggs.

The weather was unsettled with fairly steady and sometimes strong northwest winds--especially in the offshore area.

Surface sea temperatures ranged from 10.0° C. (50.0° F.) near Pt. Concepcion to 15.0° C. (59.0° F.) at Wilson's Cove, San Clemente Island. Sardines were found in waters in which surface temperatures ranged from 13.5° C. to 14.0° C. (56.3° F. to 57.2° F.).

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

Total shipments of metal cans for fish and sea food in January-March 1953 amounted to 13,882 short tons of steel (based on the amount of steel consumed in the manufacture of cans), 1 percent more than the 13,634 short tons shipped in the similar period in 1952. This is based on a May 21 report issued by the Bureau of the Census.

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

Dr. John L. Kask Resigns as Fish and Wildlife Service Assistant Director

Secretary of the Interior Douglas McKay announced on June 11 the resignation, effective July 7, of Dr. John L. Kask, assistant director of the Fish and Wildlife Service. Kask has accepted the position of chairman of the Fisheries Research Board of Canada, with headquarters located in Ottawa.

Kask became assistant director of the Fish and Wildlife Service on April 1, 1952, filling the vacancy created by the retirement of Milton C. James. Prior to that he had been chief of the Service's Office of Foreign Activities and assistant director of the Pacific Oceanic Fishery Investigations at Honolulu, T. H.

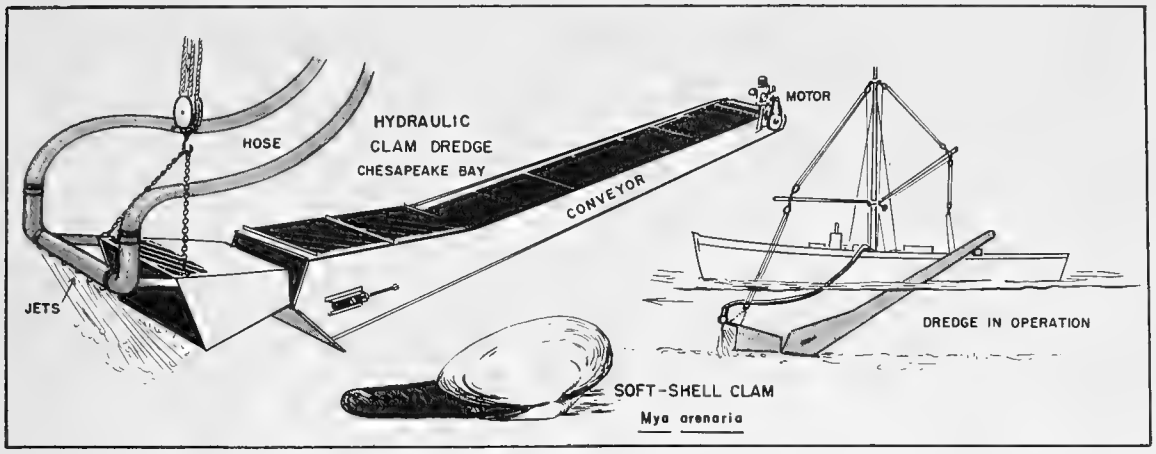
Kask has also resigned as one of the three United States Commissioners of the International Commission for the Northwest Atlantic Fisheries, and from the Inter-American Tropical Tuna Commission, the International Commission for the Scientific Investigation of Tuna, and as Deputy Commissioner of the International Whaling Commission, to which posts he had been appointed by the President.

Maryland's Soft-Shell Clam Fishery Developing Fast

The soft-shell clam (Mya arenaria L.) in Maryland is fast developing into a promising new Chesapeake Bay fishery, reports the May 1953 Maryland Tidewater News of the State Department of Research and Education. Traditionally this clam is a product chiefly of New England's tidal flats, where it is dug by hand at low tide. In Chesapeake Bay the normal range of the tides is little more than a foot, and bottoms where the "maninose" (as this soft-shell clam is known locally) is found seldom ebb dry. Until recently very little commercial exploitation of the soft-shell clam had been attempted in Maryland.

An Easton waterman in 1950 developed and patented a hydraulic dredge which harvests clams efficiently at depths up to eight feet. The minimum depth of operation is limited only by the draft of the boat on which the rig is carried. The dredge consists essentially of an endless chain-link conveyor belt at the lower end of which is hinged a sled-like structure with an adjustable blade, and a hydraulic system which directs numerous small jets of water backward toward the blade conveyor. The dredge is swung alongside the boat from booms. As the boat moves forward slowly, the jets of water loosen the bottom ahead of the dredge blade. Clams, shells, and debris are picked up by the blade and carried upward on the conveyor belt. At the upper end of the conveyor a crewman picks out the marketable clams, and the remainder of the catch falls overboard astern.

Some 40 boats equipped with hydraulic dredges are now operating in Eastern Shore waters, chiefly in Eastern Bay, the Chester River, and the Miles River.



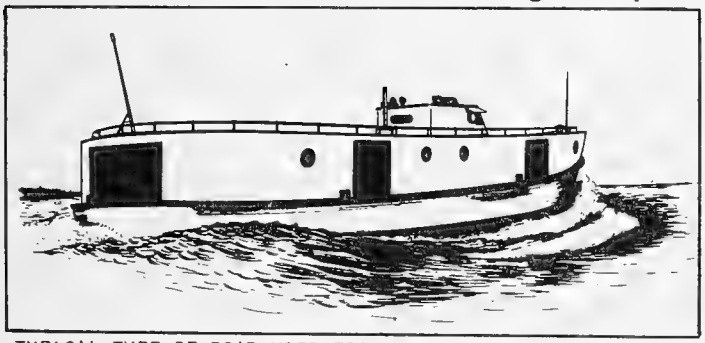
TYPE OF GEAR USED IN MARYLAND'S SOFT-SHELL CLAM FISHERY.

Thus far no measures have been taken to regulate the exploitation of what is proving to be a very valuable sea-food resource. Clams are being harvested in large numbers in every month of the year, and concern is felt in some quarters for the future of the industry unless sound management policies are established and enforced.

There recently was initiated at the Chesapeake Biological Laboratory a study of the soft-shell clam in Maryland waters, for the purpose of obtaining basic information to be supplied to the Commission of Tidewater Fisheries. More recently, a Resolution passed the General Assembly asking that such a study be carried through to completion. Thus, this problem has the interest and concern of the State Legislature, the Department of Tidewater Fisheries, and the Department of Research and Education, all seeking information concerning this long dormant resource. It is also hoped that through judicious utilization of the new industry it may not only reach a high peak of production but that sustained yields may be obtained.

Michigan's Great Lakes Commercial Fish Production, 1952

Michigan's commercial fishermen landed more than 29 million pounds of freshwater fish from the Great Lakes during 1952 (table 1), reports the Michigan Department of Conservation in a recent news bulletin. This is about 3 million pounds above the average for the past 31 years. However, there was evidence that the important lake trout and whitefish populations are dwindling even further because of the sea lamprey. The year 1952 marked an all-time low in the catch of both these species. Also, the 1952 yellow pike catch was the lowest recorded since 1926.



TYPICAL TYPE OF BOAT USED FOR FISHING ON THE GREAT LAKES. GILL NETS ARE THE MAIN TYPE OF GEAR USED.

The 1952 production was an increase of 17 percent over the 25 million pounds landed in 1951 (table 2). Catches of the smaller less valuable species (such as

Table 1 - Michigan's Great Lakes Commercial Fish Production, 1952[1] by Lakes

Species	Lake Michigan	Lake Superior	Lake Huron	Lake Erie	Total
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Lake herring	5,677,576	3,446,010	1,847,345	-	10,970,931
Smelt	4,023,604	-	216,917	-	4,240,521
Chubs	3,285,913	72,852	63,429	-	3,422,194
Carp	36,356	91	1,619,012	884,494	2,539,953
Lake trout	418	2,070,300	36	-	2,070,754
Whitefish	1,474,982	198,106	167,570	729	1,841,387
White and redhorse suckers	442,238	40,158	1,180,180	27,231	1,689,807
Yellow perch	506,467	586	494,228	40,691	1,041,972
Yellow pike	298,894	1,117	162,208	285,130	747,349
Catfish	1,443	-	303,442	27,668	332,553
Longnose suckers	45,757	3,853	42,773	265	92,648
White bass	40	-	8	62,868	62,916
Menominee whitefish	41,101	5,641	13,030	-	59,772
Northern pike	21,866	251	22,754	1,910	46,781
Sheepshead	9,030	-	3,504	32,362	44,896
Bullheads	2,977	-	9,288	16,123	28,388
Bowfin	-	-	18,921	1,200	20,121
Rock bass	673	-	10,433	3,140	14,246
Sturgeon	2,905	230	2,003	-	5,138
Saugers	1,327	105	775	802	3,009
Gizzard shad	-	-	1,119	1,070	2,189
Burbot	85	334	89	-	508
Mooneyes	-	-	-	442	442
Blue pike	-	-	-	248	248
Total	15,873,652	5,839,634	6,179,064	1,386,373	29,278,723

1/PRELIMINARY.

herring, smelt, chubs, and carp) were large. Herring landings jumped nearly 2 million pounds from the 1951 catch, while the smelt landings increased by more than one million pounds. Chubs and carp also increased. There were also nominal increases in the catches of yellow perch, catfish, longnose sucker, white bass, pickerel (northern pike), bowfin, rock bass, sturgeon, gizzard shad, and blue pike.

In addition to decreases of lake trout and whitefish, there were declines in the catches of white and redhorse suckers, yellow pike, menominee whitefish, sheepshead, bullheads, saugers, burbot, and mooneyes.

The total catch in Lake Michigan increased about 3 million pounds--the largest increase of all the lakes. Herring, smelt, and chubs made up most of this increase. The catch from Lake Superior decreased about ½ million pounds, but there were increases of about ½ million pounds for each of lakes Huron and Erie.

Table 2 - Michigan's Great Lakes Commercial Fish Production, 1951 by Lakes

Species	Quantity					Landed Value
	Lake Michigan	Lake Superior	Lake Huron	Lake Erie	Total	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	$
Lake herring	4,917,115	2,828,849	1,378,600	-	9,124,564	451,864
Chubs	2,839,120	68,344	114,160	-	3,021,624	518,928
Smelt	2,442,913	1	217,631	-	2,660,545	136,900

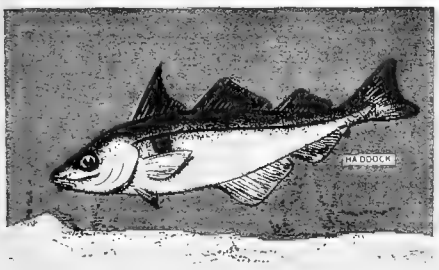
(TABLE 2 CONTINUED ON NEXT PAGE)

Table 2 - Michigan's Great Lakes Commercial Fish Production, 1951 by Lakes (Contd.)

Species	Quantity					Landed Value
	Lake Michigan	Lake Superior	Lake Huron	Lake Erie	Total	
	Lbs	Lbs.	Lbs.	Lbs.	Lbs.	$
Carp	23,420	165	1,677,130	671,652	2,372,367	102,635
Lake trout	2,207	2,173,953	25	-	2,176,185	879,039
White and redhorse suckers	729,439	72,124	1,180,326	31,167	2,013,056	111,364
Whitefish	971,098	244,435	142,647	70	1,358,250	645,855
Yellow pike	537,639	2,580	153,857	247,813	941,889	310,434
Yellow perch	340,861	3,297	363,496	41,815	749,469	150,605
Catfish	278	-	227,047	24,594	251,919	61,036
Sheepshead	2,406	-	1,447	81,234	85,087	2,677
Menominee whitefish	51,086	11,830	18,299	-	81,215	18,345
Longnose suckers	31,386	11,060	16,958	-	59,404	3,133
White bass	13	-	87	36,332	36,432	3,814
Bullheads	994	-	6,261	22,884	30,139	4,007
Northern pike	6,233	966	5,793	4,105	17,097	2,506
Bowfin	5	-	7,165	8,186	15,356	454
Rock bass	995	-	9,421	3,087	13,503	2,012
Saugers	171	-	442	9,420	10,033	2,112
Burbot	214	370	33	395	1,012	51
Sturgeon	226	149	520	-	895	827
Mooneyes	-	-	1	620	621	93
Gizzard shad	-	-	35	-	35	3
Total	12,897,819	5,418,123	5,521,381	1,183,374	25,020,697	-
Total Landed Value	$1,610,571	$1,128,279	$552,664	$117,176	-	$3,408,693

North Atlantic Fishery Investigations

HADDOCK EGGS AND LARVAE COLLECTED BY "ALBATROSS III" (Cruise No. 48): The distribution of haddock eggs and larvae, temperature salinity, and the general circulation pattern of the water in the Gulf of Maine and Georges Bank area were studied by the Service's research vessel Albatross III on a cruise completed at Woods Hole, Mass., on May 8. Data collected on the cruise, which commenced April 24, will be compared with similar information collected during March. The data have not yet been analyzed, but a very complete coverage of the area was made.



Approximately 4,000 miles of continuous plankton tows were made at the surface and at 10-meter depths with Hardy Plankton Recorders. Continuous salinity and temperature records were obtained with the S.T.D. A total of 250 bathythermograph lowerings, and 23 surface tows with a standard meter net were made. Twenty samples of eggs were hatched out for identification purposes. A total of 972 drift bottles were released throughout the area.

The greatest concentration of haddock eggs was found on Browns Bank, while cod and haddock larvae were found in subareas O & H. Flounder eggs were very abundant and were found in most locations sampled.

* * * * *

HADDOCK ESCAPEMENT THROUGH VARIOUS PARTS OF TRAWL NETS STUDIED BY "ALBATROSS III" (Cruise No. 49): The escape of haddock through various parts of trawl nets and the relation between haddock catch and length of tow were investigated by the Service's research vessel Albatross III on a 7-day cruise completed at Woods Hole, Mass., on May 21. Operations were carried out on the southwest and southeast parts of Georges Bank. Very good results were obtained on all phases of the cruise due to optimum abundance and size of fish available, excellent weather conditions, and near-perfect functioning of gear.

Sixty-five tows were completed with cod ends of 3-, 4-1/2-, and 4-7/8-inch mesh (inside measurement). Covers were used to determine the escape of fish through the belly and cod end of the trawl. Engine revolutions were varied to determine the effect of vessel speed upon escapement. Bull hides were removed for many tows to investigate the escape of small haddock through the underside of the cod end.

Tows of 20, 40, 60, and 80 minutes were made to investigate the relationship between length of tow and size of catch.

On the last two sets (15-minute duration) live haddock were captured for return to the Woods Hole Station. Approximately 125 1-, 2-, and 3-year-old haddock were taken.

About 200 haddock stomach samples were taken on the cruise, and numerous 1-year-old haddock were preserved for food studies, Maturity observations, girth measurements, and vertebral counts were collected.

* * * * *

"ALBATROSS III" DISCOVERS JELLYFISH PROTECT HADDOCK FRY (Cruise No. 50): Large concentrations of young haddock fry (approximately 2 months old) were found living commensal with the common red jellyfish (Cyanea) in the South Channel and off Nantucket Island. This discovery was made by the Service's research vessel Albatross III on a 9-day cruise completed at Woods Hole, Mass., on June 3. Apparently the young haddock carry out their longest journeys while drifting with the jellyfish, which also tend to shield them from enemies. It has not yet been determined if this association acts to increase the survival of haddock through protection, or increases the loss of young fish from the fishing banks.

The vessel operated on Georges Bank, in the Gulf of Maine, and on Southern New England Banks to determine the distribution of haddock eggs and larvae, temperature salinity, and the general circulation pattern of water in the Gulf of Maine and on Georges Bank.

Approximately 2,000 miles of continuous plankton tows were made at the surface and 10 meters with Hardy Plankton Recorders. Continuous salinity and temperature records were obtained with the S.T.D.; 150 bathythermograph lowerings, 18 surface tows with a standard meter net were made; 10 samples of eggs were hatched out for identification purposes. A total of 530 drift bottles were released throughout the area.

The Albatross III is operated by the North Atlantic Fishery Investigations of the Service's Branch of Fishery Biology.

North Pacific Exploratory Fishery Program

"JOHN N. COBB" TO STUDY NORTH PACIFIC SALMON IN OFFSHORE WATERS (Cruise No. 16): To gather data on the biology of North Pacific salmon in offshore waters, and to test and evaluate the effectiveness of various types of gear for catching salmon on the high seas, will be the main objectives of the Service's exploratory fishing vessel John N. Cobb on this cruise. The vessel sailed from Seattle, Washington, on May 18 and is due to return on July 31. Methods of capturing salmon in a lively state suitable for tagging experiments will be studied, but no actual tagging will be done on this trip. Data on the distribution, abundance, life history, racial composition, etc., of the North Pacific salmon will be collected. The cruise will cover the offshore waters of the North Pacific, north and south of the Aleutian Islands, in an area centered at 175° W. longitude.

Fishing will be carried on at various locations using a variety of standard and experimental gear, including gill net, seine, floating trap, trolling, long line, and pole and line. Scientific data, such as morphometric measurements, meristic counts, degree of maturity, and stomach analyses will be collected on as large a sample of salmon as possible.

This work is a part of the preliminary salmon research begun in the summer of 1952 by the U. S. Fish and Wildlife Service in connection with the International Convention for the High Seas Fisheries of the North Pacific Ocean. Planning and execution of the work involves three Branches of the Service: Commercial Fisheries, Fishery Biology, and Alaska Fisheries. A biologist from the Fisheries Research Institute at the University of Washington will also participate in the research.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, P. 19.

Pacific Coast Halibut Fishery

FISHING REGULATIONS FOR 1953 ANNOUNCED: The Pacific Coast halibut fishing season this year opened at 12:01 a.m. (P.s.t.), May 17. In 1952 the season opened on May 14, and in 1951 and 1950 on May 1. Prior to 1950 the halibut season opened regularly on May 1.

The 1953 regulations for the Pacific halibut fishery as recommended by the International Pacific Halibut Commission were approved by the President of the United States and the Governor General of Canada, the Commission announced on May 11. These regulations apply to the catching and landing of halibut on the Pacific coast of the United States, Canada, and Alaska.

Except as to periods of fishing, the 1953 regulations are almost identical to those of 1952.

Regulatory Areas: The regulatory areas are the same as in 1952 and are approximately as follows:

Area 1A - South of Cape Blanco, Oregon.
Area 1B - Between Cape Blanco and Willapa Harbor, Washington.
Area 2A - Between Willapa Harbor and Cape Spencer, Alaska, excluding Areas 2B and 2C.
Area 2B - Off the east coast of Moresby Island in southern Hecate Strait off British Columbia (see figure 1).

Area 2C - Off the west coast of Dall and other Islands between Cape Addington and Dixon Entrance off Southeastern Alaska (see figure 2).

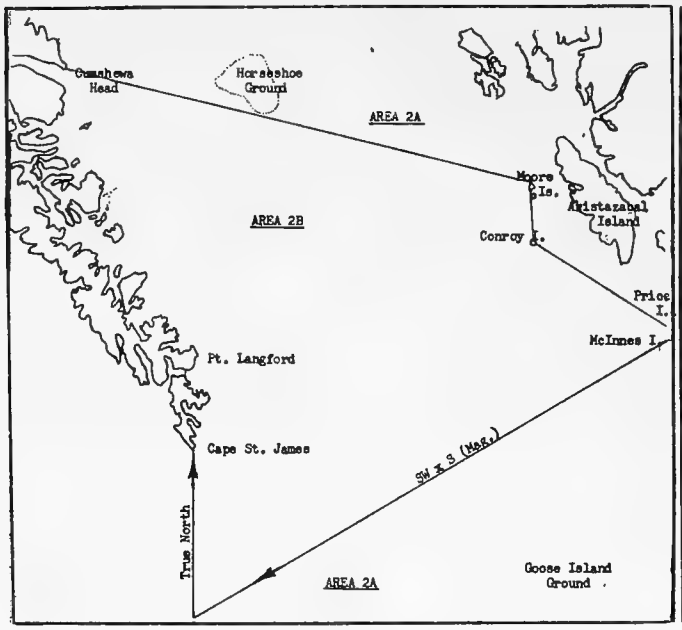


FIGURE 1 - AREA 2B. SHALL INCLUDE ALL CONVENTION WATERS IN THE SOUTHERN PART OF HECATE STRAITS OFF THE COAST OF BRITISH COLUMBIA WITHIN THE FOLLOWING BOUNDARY: FROM THE EASTERN EXTREMITY OF CUMSHEWA HEAD ON MORESBY ISLAND, APPROXIMATELY LATITUDE 53°02'00" N., LONGITUDE 131°36'20" W., TO THE NORTHERN EXTREMITY OF THE SECOND LARGEST ISLAND OF THE MOORE ISLANDS GROUP, APPROXIMATELY LATITUDE 52°40'05" N., LONGITUDE 129°25'32" W.; THENCE TO THE NORTHERN EXTREMITY OF CONROY ISLAND, APPROXIMATELY LATITUDE 52°32'05" N., LONGITUDE 129°24'15" W.; THENCE TO MCINNES ISLAND LIGHT ON MCINNES ISLAND, APPROXIMATELY LATITUDE 52°15'45" N., LONGITUDE 128°43'22" W.; THENCE SOUTHWEST BY SOUTH APPROXIMATELY 99 MILES TO A POINT APPROXIMATELY LATITUDE 51°28'55" N., LONGITUDE 131°00'56" W.; THENCE TRUE NORTH THROUGH CAPE ST. JAMES LIGHT TO A POINT ON THE SOUTHERN END OF KUNGHIT ISLAND, APPROXIMATELY LATITUDE 51°56'42" N., LONGITUDE 131°00'54" W.; THENCE ALONG THE EASTERN SHORE OF KUNGHIT ISLAND TO MOORE HEAD, APPROXIMATELY LATITUDE 52°09'02" N., LONGITUDE 131°03'00" W.; THENCE TO POINT LANGFORD, APPROXIMATELY LATITUDE 52°09'48" N., LONGITUDE 131°02'36" W., ON MORESBY ISLAND; THENCE ALONG THE EASTERN SHORE OF MORESBY ISLAND TO THE POINT OF ORIGIN ON CUMSHEWA HEAD.

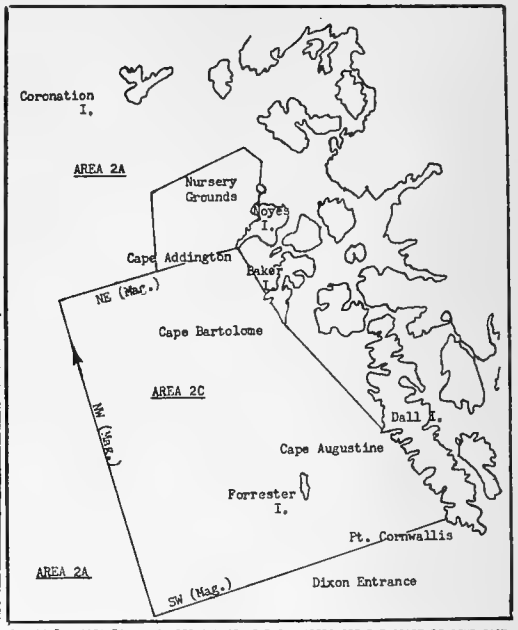
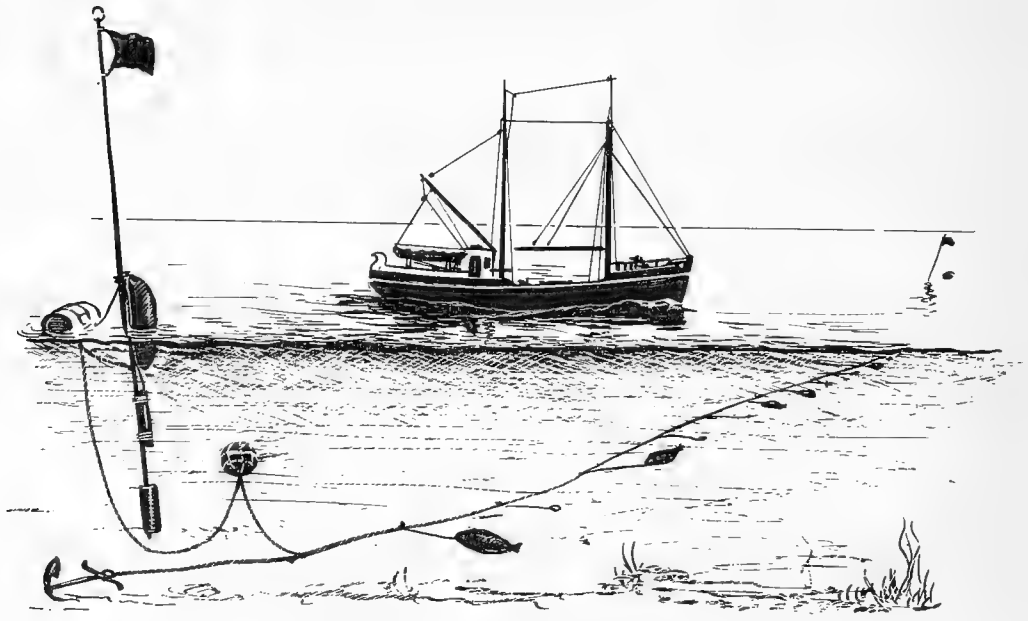


FIGURE 2 - AREA 2C. INCLUDES ALL CONVENTION WATERS OFF THE COAST OF SOUTHEASTERN ALASKA WITHIN THE FOLLOWING BOUNDARY: FROM THE SOUTHERN EXTREMITY OF CAPE ADDINGTON, NOYES ISLAND, LATITUDE 55°26'11" N., LONGITUDE 133°49'12" W., TO THE SOUTHERN EXTREMITY OF GRANITE POINT, APPROXIMATELY LATITUDE 55°18'57" N., LONGITUDE 133°41'25" W., ON BAKER ISLAND; THENCE ALONG THE SOUTHERN SHORE OF BAKER ISLAND TO CAPE BARTOLOME, APPROXIMATELY LATITUDE 55°14'13" N., LONGITUDE 133°36'42" W.; THENCE TO CAPE AUGUSTINE, APPROXIMATELY LATITUDE 54°56'56" N., LONGITUDE 133°09'58" W., ON DALL ISLAND; THENCE ALONG THE SHORE OF DALL ISLAND TO POINT CORNWALLIS, APPROXIMATELY LATITUDE 54°42'03" N., LONGITUDE 132°52'30" W.; THENCE SOUTHWEST FIFTY MILES TO A POINT APPROXIMATELY LATITUDE 54°27'20" N., LONGITUDE 134°14'10" W.; THENCE NORTHWEST FIFTY THREE MILES TO A POINT APPROXIMATELY LATITUDE 55°17'43" N., LONGITUDE 134°40'00" W.; THENCE NORTHEAST TO THE POINT OF ORIGIN ON CAPE ADDINGTON.

Area 3A - Between Cape Spencer and a line running S. 3/4 E. (mag.) from Bold Cape through Caton Island of the Sanak Islands group.

Area 3B - Between the Bold Cape-Caton Island line and a line running true west from Cape Sarichef on Unimak Island (see figure 3).

Area 4 - Bering Sea north of the Cape Sarichef line.



TYPICAL VESSEL AND GEAR USED FOR HALIBUT FISHING IN THE NORTH PACIFIC.

Catch Limits and Seasons: Catch limits are placed on Areas 2A (25,500,000 pounds) and 3A (28,000,000 pounds) only, the same as in 1952. No catch limits have been set for Areas 1A, 1B, 2B, 2C, 3B, and 4.

The 1953 fishing season opened at 12:01 a.m. (P.s.t.) on May 17 in Areas 1A, 1B, 2A, and 3A. Areas 2B and 2C are scheduled to be opened to fishing for 10 days beginning July 31; and Areas 3B and 4 for 25 days beginning August 5. Vessels were not permitted to depart for halibut fishing in Areas 1A, 1B, or 2A until 12:01 a.m. (P.s.t.) of May 15; and in Area 3A from places inside that area until 12:01 a.m. of May 15, but from places outside Area 3A three days earlier--after 12:01 a. m. (P.s.t.), on May 12.

United States and Canadian Landings of Pacific Halibut, 1951-52

Port	12 Months 1952			12 Months 1951		
	U.S. Vessels	Canadian Vessels	Total	U.S. Vessels	Canadian Vessels	Total
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Alaska:						
Juneau	2,655,000	84,000	2,739,000	2,392,000	55,000	2,447,000
Ketchikan (includes Craig & Taku)	7,735,000	-	7,735,000	5,376,000	-	5,376,000
Pelican City	2,356,000	474,000	2,830,000	2,264,000	267,000	2,531,000
Petersburg (includes Tyee)	3,048,000	208,000	3,256,000	2,808,000	-	2,808,000
Sitka	2,035,000	141,000	2,176,000	2,064,000	42,000	2,106,000
Central Alaska (Ports west of Cape Spencer)	2,699,000	47,000	2,746,000	3,729,000	218,000	3,947,000
Other Alaska Ports (Wrangell, etc.)	587,000	-	587,000	496,000	-	496,000
Total Alaska	21,115,000	954,000	22,069,000	19,129,000	582,000	19,711,000
British Columbia:						
Prince Rupert (includes Namu, Butedale, Klemtu, and others)	3,006,000	19,316,000	22,322,000	4,383,000	15,399,000	19,782,000
Vancouver (includes Vancouver Island, New Westminster, etc.)	32,000	3,992,000	4,024,000	8,000	5,485,000	5,493,000
Total British Columbia	3,038,000	23,308,000	26,346,000	4,391,000	20,884,000	25,275,000
Washington:						
Seattle	11,224,637	74,111	11,298,748	9,640,524	-	9,640,524
Other Washington Ports	2,081,000	-	2,081,000	1,439,000	-	1,439,000
Total Washington	13,305,637	74,111	13,379,748	11,079,524	-	11,079,524
Oregon	321,000	-	321,000	282,000	-	282,000
Total	37,779,637	24,336,111	62,115,748	34,881,524	21,466,000	56,347,524

NOTE: INCLUDES INCIDENTALLY-CAUGHT HALIBUT.

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

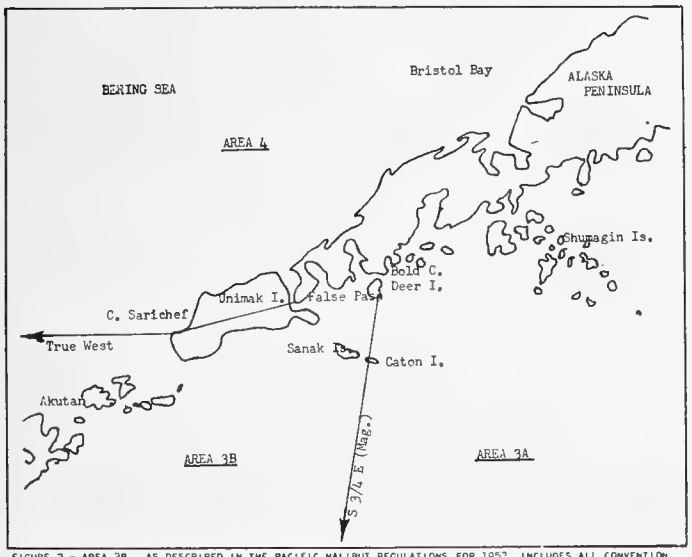


FIGURE 3 - AREA 3B. AS DESCRIBED IN THE PACIFIC HALIBUT REGULATIONS FOR 1953, INCLUDES ALL CONVENTION WATERS OFF THE COAST OF ALASKA THAT ARE BETWEEN A STRAIGHT LINE RUNNING APPROXIMATELY S. 3/4 E. FROM THE ALASKA PENINSULA, NEAR BOLD CAPE, THROUGH THE HIGHEST POINT ON DEER ISLAND AND THROUGH THE HIGHEST POINT ON CATON ISLAND AND A LINE RUNNING FROM THE LIGHT ON CAPE KABUCH AT THE HEAD OF IKATAN BAY TO CAPE SARICHEF LIGHT AT THE WEST END OF UNIMAK ISLAND, THENCE TRUE WEST. THE EXACT LOCATIONS OF THE ABOVE MENTIONED POINTS ARE GIVEN IN THE REGULATIONS.

CATCH AND SEASONS, 1951-52: The United States and Canadian Pacific halibut catch in 1952 totaled 62,115,748 pounds, compared with 56,347,524 pounds in 1951, and 57,018,010 pounds in 1950 (see table). The 1952 season for halibut fishing opened on May 14 in Areas 1A, 1B, 2A, and 3A.

Areas 3A and 1A in 1952 were open to halibut fishing for 60 days (May 14 through July 12). This was the first season in many years that the total number of fishing days for these areas increased, since progressively for the past few years the quota had been attained in a shorter period. In 1951 the season for these areas was 56 days long, compared with 66 days in 1950, 73 days in 1949, 72 days in 1948, and 109 days in 1947.

Prior to 1951 the closure of Areas 3A and 1A meant the end of all halibut fishing in the Pacific, except for halibut caught incidentally. However, 1951 regulations established subdivisions of other areas to increase the production of halibut on some recently underfished banks. In 1951 two sections (Areas 2B and 2C) of Area 2 were given the status of separate areas, and these same subdivisions were included in the 1952 regulations. A section (Area 3B) of Area 3 was also given the status of a separate area in 1952.

AREAS 1B AND 2A CLOSED JUNE 9: The International Pacific Halibut Commission announced May 30 that Pacific halibut Areas 2A and 1B would be closed at 11:59 p.m. (P.s.t.) June 9, 1953, to all halibut fishing, except that provided for under the incidental fishing regulations. The Commission estimated that by that date the quota of 25,500,000 pounds for Area 2A would have been filled. No quota was established for Area 1B, but this area was scheduled to close with Area 2A. The 1953 open season for Areas 2A and 1B lasted only 24 days, compared with 26 days in 1952, and 28 days in 1951.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, PP. 39-40; MARCH 1953, PP. 71-72; JULY 1952, P. 29; JUNE 1952, P. 28; MAY 1952, PP. 21-25.

Pacific Oceanic Fishery Investigations

SEA-WATER CHANGES STUDIED BY "CHARLES H. GILBERT" (Cruise No. 9): A study of the changes in the temperature and chemical content of the sea water about the Hawaiian Islands just prior to and during the beginning of the aku or skipjack tuna season was made by the Service's research vessel Charles H. Gilbert. The 6-weeks' cruise was completed at Pearl Harbor at the end of April. A study was made of the number of schools of skipjack present around the Hawaiian Islands and of their apparent movements in local waters by Pacific Oceanic Fishery Investigations personnel. In connection with the vessel cruise, observations were also made from an airplane through the cooperation of the Barbers Point Naval Air Station.

Large numbers of skipjack, including fish of up to 20 pounds in weight, were sighted both north and south of Oahu. The greatest number of schools were found from 100 to 200 miles west of the island of Hawaii.

This cruise was followed by another during May. These cruises are part of the Hawaiian tuna program instituted jointly by the Territorial Division of Fish and Game and the Pacific Oceanic Fishery Investigations within the last year to attempt to locate skipjack during the offseason months and extend the range of the fishery.

Proposals Again Invited for Lease of American Samoa Fish Cannery

The Government of American Samoa again offers for lease the fully equipped fish cannery in American Samoa. Bidders must be United States citizens or nationals; or if a corporation, 75 percent of its stock or interest must be held by United States citizens or nationals. The cannery facilities consist of 4 buildings (each about 200' x 50') and a fifth dormitory building on approximately 3½ acres of fenced land, 2 piers, modern equipment for hand-packing tuna and processing waste into fish meal, and cold-storage facilities. Estimated production capacity is 1,000

cases of canned tuna per day. Dock facilities and local labor supply are adequate, and standard utilities are installed. Proposed lease is for five years, with option to renew.

The U. S. Bureau of Customs has determined that under existing laws foreign-flag fishing vessels are not prohibited from landing in any port of American Samoa fresh or frozen fish taken on the high seas and U. S. vessels may land fish in American Samoa transferred on the high seas from a foreign-flag ship. Fish canned in American Samoa become the product of American Samoa and, under existing laws, may enter the United States duty free.

A copy of formal invitation for bids and the proposed lease, including a list of the equipment in the cannery, may be obtained from the Director, Office of Territories, Interior Dept., Washington 25, D. C. Bids must be received in Washington by September 14, 1953.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, OCTOBER 1952, PP. 46-48; FEBRUARY 1953, P. 36; APRIL 1953, P. 26.

Service Expert to Aid Indonesian Fisheries Program

Edwin H. Dahlgren, Fish and Wildlife Service fishery biologist, is en route to Djakarta, Indonesia, on a two-year assignment to assist with expansion of the cooperative fisheries development program now under way there, Secretary of the Interior Douglas McKay announced May 11.

At the request of the Indonesian Government and the Technical Cooperation Administration, Dahlgren will undertake a research project in basic fishing conditions and investigate potential new fishing grounds, especially in connection with the tuna industry, using trawlers and other types of modern fishing gear. He also will advise on the selection of Indonesians for fishery training in the United States.

Dr. Willis H. Rich, Fish and Wildlife Service expert, recently returned from a six weeks' assignment in Indonesia where he appraised the fishery project started two years ago by the Economic Cooperation Administration. He recommended continuance of the cooperative program which was transferred from the Mutual Security Agency to TCA in 1952. He stated that there is a particular need for Dahlgren's services in helping to rejuvenate and modernize the fishing industry.

Dahlgren spent three months in Israel in 1952 as fishery advisor to the TCA director during the initial planning and administering of a comprehensive fishery development program. He has been with the Fish and Wildlife Service staff, in Alaska and the United States, since 1929, except for a three-year period with private industry. A native of Tacoma, Washington, he holds a B.S. degree from the University of Washington.

U. S. Canned Packs of Selected Fishery Products, 1952

ANCHOVIES: The United States pack of canned anchovies in 1952 totaled 438,988 standard cases valued at $4,737,391, or an average price of $10.79 per standard case to the canners (table 1). California was the only state where anchovies were canned; 18 plants packed this product in 1952. Anchovies in tomato sauce comprised 68 percent of the total pack, the bulk of the remainder was put up natural style.

Table 1 - U.S. Canned Anchovy Pack by Style of Pack, 1952[1]

State and Style of Pack	Quantity	Value to Canners	Avg. Price Per Std. Case[2]
	Std. Cases[2]	$	$
California:			
Natural[3]	138,807	1,589,053	11.45
In tomato sauce	300,181	3,148,338	10.49
Total	438,988	4,737,391	10.79

1/PRELIMINARY.
2/CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 CANS TO THE CASE, EACH CAN CONTAINING 16 OUNCES NET.
3/INCLUDES A SMALL PACK IN MUSTARD SAUCE AND SOYA OIL.

Table 2 - U.S. Canned Anchovy Pack by Can and Case Size, 1952[1]

Can and Case Sizes	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	$	$
16 ounces net (48 cans)	112,796	852,181	7.56
8 ounces net (48 cans)	208,358	1,382,241	6.63
5 ounces net (100 cans)	341,013	2,502,969	7.34
Total	662,167	4,737,391	-

1/PRELIMINARY.

Table 3 - U.S. Canned Anchovy Pack, 1947-52

Year	Quantity	Total Value	Avg. Price Per Std. Case[1]
	Std. Cases[1]	$	$
1952[2]	438,988	4,737,391	10.79
1951	41,055	489,062	11.91
1950	3/	-	-
1949	3,757	34,184	9.10
1948	66,994	755,458	11.28
1947	130,119	1,377,275	10.58

1/CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 CANS TO THE CASE, EACH CAN CONTAINING 16 OUNCES NET.
2/PRELIMINARY.
3/ONLY A SMALL PRODUCTION WAS REPORTED IN 1950.

The 1952 production of canned anchovies was nearly ten times greater than the 1951 pack (table 2). An extremely light catch of California sardines (pilchards) prompted the canners to substitute anchovies packed sardine style to meet the export demand.

From a high of $11.91 per standard case, the average price to the canner in 1952 dropped to $10.79 per standard case (table 3).

* * * * *

SHAD: Canned shad packed in the United States in 1952 amounted to 8,040 standard cases, valued at $60,607 to the canners. The average price per standard case was $7.54 (table 1). Shad were canned in 4 plants in Oregon, and 1 plant each in Maryland and California.

Table 1 - U. S. Pack of Canned Shad, 1952[1]

State	Quantity	Value to Canners	Avg. Price Per Std. Case[2]
	Std. Cases[2]	$	$
Maryland, Oregon, and California	8,040	60,607	7.54

1/PRELIMINARY.
2/CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 NO. 1 TALL CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES.

The 1952 canned shad production was 26 percent greater in quantity and 30 percent higher in value than the 1951 production (table 2). Production has been declining quite steadily since 1944 due mainly to the large decrease on the Atlantic Coast. The 1952 average price of $7.54 per standard case to the canners was 6 percent lower than the $8.05 in 1951, but 18 percent higher than the $6.40 in 1950.

Table 2 - U. S. Pack of Canned Shad, 1942-52 1/

Year	Pacific Coast			Atlantic Coast			Total		
	Quantity	Value to Canners	Avg. Price Per Std. Case 3/	Quantity	Value to Canners	Avg. Price Per Std. Case 3/	Quantity	Value to Canners	Avg. Price Per Std. Case 3/
	Std. Case 3/	$	$	Std. Case 3/	$	$	Std. Case 3/	$	$
1952 2/	5/ 8,040	5/ 60,607	7.54	5/	5/	-	8,040	60,607	7.54
1951	10,130	79,753	7.87	698	7,372	10.56	10,828	87,125	8.05
1950	14,049	89,851	6.40	-	-	-	14,049	89,851	6.40
1949	12,984	96,194	7.41	851	10,000	11.75	13,835	106,194	7.68
1948	11,908	110,196	9.25	2,865	26,655	9.30	14,773	136,851	9.26
1947	18,808	169,777	9.03	3,910	29,496	7.54	22,718	199,273	8.77
1946	4/	4/	-	4/ 24,403	4/ 224,387	9.20	24,403	224,387	9.20
1945	4,983	110,210	22.11	17,345	182,554	10.52	22,328	292,764	13.11
1944	17,820	103,003	5.78	23,548	243,239	10.33	41,368	346,242	8.37
1943	14,171	78,762	5.56	3,860	48,618	12.60	18,031	127,380	7.06
1942	28,693	156,077	5.44	7,764	80,123	10.32	36,457	236,200	6.48

1/ DOES NOT INCLUDE THE PRODUCTION OF CANNED SMOKED SHAD.
2/ PRELIMINARY
3/ CASES OF VARIOUS SIZES CONVERTED TO THE UNIFORM BASIS OF 48 NO. 1 TALL CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES.
4/ A SMALL PACK OF PACIFIC COAST SHAD INCLUDED WITH THE ATLANTIC COAST PRODUCTION.
5/ A SMALL-PACK OF ATLANTIC COAST SHAD INCLUDED WITH THE PACIFIC COAST PRODUCTION.

* * * * *

CLAMS AND CLAM PRODUCTS: Canned clams and clam products packed in the United States and Alaska during 1952 amounted to 1,698,991 standard cases, valued at

CLAM DIGGERS GATHER SEED CLAMS FOR RE-SEEDING.

$12,209,558 to the canners (table 1). This was an increase of 197,383 cases and $435,649 as compared with the previous year's production. The pack of canned clam

Table 1 - U. S. and Alaska Pack of Canned Clams and Clam Products by Type and Area, 1952 1/

Species and State	Number of Plants	Whole and Minced			Chowder, Juice, Broth, Bouillon, & Nectar			Total		
		Quantity	Value to Canners	Avg. Price Per Std. Case 2/	Quantity	Value to Canners	Avg. Price Per Std. Case 2/	Quantity	Value to Canners	Avg. Price Per Std. Case 2/
		Std. Cases 2/	$	$	Std. Cases 2/	$	$	Std. Cases 2/	$	$
Soft clams:										
Maine	8	27,020	428,918	15.87	298,010	1,859,262	6.24	325,030	2,288,180	7.04
Razor clams:										
Washington	5	9,843	211,941	21.53	-	-	-	9,843	211,941	21.53
Oregon	2									
Alaska	11	25,960	499,804	19.25	-	-	-	25,960	499,804	19.25
Total razor clams	18	35,803	711,745	19.88	-	-	-	35,803	711,745	19.88
Hard clams:										
Rhode Island	1									
New York	3									
New Jersey	3	304,635	2,471,478	8.11	1,012,920	6,536,535	6.45	1,317,555	9,008,013	6.84
Pennsylvania	1									
Delaware	1									
Washington	3	13,554	173,535	12.81	6,880	25,988	3.78	20,424	199,523	9.77
California	1									
Alaska	2	179	2,097	11.72	-	-	-	179	2,097	11.72
Total hard clams 3/	15	318,368	2,647,110	8.31	1,019,800	6,562,523	6.44	1,338,158	9,209,633	6.88
Grand total	39	381,181	3,787,773	9.94	1,317,810	8,421,785	6.39	1,698,991	12,209,558	7.19

1/ PRELIMINARY.
2/ CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 NO. 1 PICNIC CANS, EACH CAN OF WHOLE OR MINCED CLAMS CONTAINING 5 OUNCES OF MEAT, DRAINED WEIGHT, AND EACH CAN OF CHOWDER, JUICE, BROTH, BOUILLON OR NECTAR, 10 OUNCES NET CONTENT.
3/ INCLUDES THE PACK OF SURF CLAMS IN NEW YORK, NEW JERSEY, AND DELAWARE; PISMO CLAMS IN CALIFORNIA; COCKLES IN ALASKA.

chowder, juice, broth, bouillon, and nectar comprised 78 percent of the total pack; canned whole and minced clams accounted for the remaining 22 percent.

Table 2 - U. S. and Alaska Pack of Canned Clams and Clam Products, 1942-52

Year	Whole and Minced			Chowder, juice, broth bouillon, & nectar	Total	
	Soft Clams[2]	Hard Clams	Razor Clams		Quantity	Value to Canners
	Std. Cases[1]	Std. Cases[1]	Std. Cases[1]	Std. Cases[1]	Std. Cases[1]	$
1952[3]	27,020	318,358	35,803	1,317,810	1,698,991	12,209,558
1951	58,550	277,100	55,097	1,110,861	1,501,608	11,773,909
1950	200,889	198,451	47,154	1,072,225	1,518,719	10,839,889
1949	155,129	101,191	41,657	888,083	1,186,060	8,779,018
1948	107,177	29,085	36,932	1,006,580	1,179,774	8,329,639
1947	33,968	24,852	47,406	1,151,424	1,257,650	8,642,235
1946	167,987	108,638	79,394	1,171,770	1,527,789	11,145,047
1945	64,425	238,475	63,703	533,429	900,032	7,391,098
1944	72,434	71,771	40,450	363,041	547,696	3,820,612
1943	47,746	28,344	40,340	348,364	464,794	2,802,420
1942	72,499	30,515	40,104	639,484	782,602	3,791,058

1/ CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 NO. 1 PICNIC CANS, EACH CAN OF WHOLE OR MINCED CLAMS CONTAINING 5 OUNCES OF MEAT, DRAINED WEIGHT; AND EACH CAN OF CHOWDER, JUICE, BROTH, BOUILLON OR NECTAR, 10 OUNCES NET CONTENT.
2/ PRODUCTION OF CANNED SURF CLAMS IN MAINE INCLUDED WITH THE PACK OF SOFT CLAMS.
3/ PRELIMINARY.

In 1952 production of canned clams and clam products is the highest on record. The pack has increased steadily for the past 4 years due mainly to greater output of canned clam chowder and canned whole and minced hard clams.

* * * * *

CRAB MEAT: The U. S. and Alaska pack of canned crab meat in 1952 amounted to 86,058 standard cases, valued at $2,087,019 to the canners (table 1). The pack

Table 1 - U. S. and Alaska Pack of Canned Crab Meat by States and Species, 1952[1]

State	Species	Quantity	Value to Canners	Avg. Price Per Std. Case[2]
East Coast:		Std. Cases[2]	$	$
Maine, North and South Carolina, Alabama, Mississippi, and Louisiana	Rock and Blue	44,474	913,808	20.55
West Coast:				
Washington	Dungeness	9,076	208,854	23.01
Oregon and California	Dungeness	9,861	248,389	25.19
Alaska:	Dungeness	16,276	449,186	27.60
	King	6,293	264,598	42.05
	Tanner	78	2,184	28.00
Total West Coast		41,584	1,173,211	28.21
Grand total		86,058	2,087,019	24.25

1/ PRELIMINARY.
2/ CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CAN CONTAINING 6-1/2 OUNCES NET.

was almost evenly divided between East Coast and West Coast plants. A total of 36 plants packed crab meat in 1952: 2 plants each in Maine and Louisiana; 6 in Washington, 7 in Oregon, 14 in Alaska, and 1 plant each in North Carolina, South Carolina, Alabama, Mississippi, and California.

The 6½-ounce can was the most popular-sized can used for canning crab meat in 1952 (table 2). This size can was packed in the 24-can case and also in the 48-can case.

Compared with previous years, the 1952 pack was the lowest since 1945, and less than one-half the peak production year 1945 (table 3). Production in 1952

Table 2 - U. S. and Alaska Pack of Canned Crab Meat by Can and Case Size, 1952[1]

Can and Case Size	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	$	$
5 ounces net (24 cans)	2,961	44,415	15.00
5 ounces net (48 cans)	8,917	216,801	24.31
6½ ounces net (24 cans)	50,134	504,873	10.07
6½ ounces net (48 cans)	34,022	856,688	25.18
16 ounces net (24 cans)	134	3,216	24.00
Other sizes converted to standard cases (6½ oz.--48 cans)	18,806	461,026	24.51
Total	114,974	2,087,019	-

1/PRELIMINARY.

was down 43 percent in quantity and 42 percent in value as compared with 1951. The main cause for this decline was the sharp reduction in the Pacific Coast States and Alaska pack.

The canner's average price for canned crab meat in the Atlantic Coast and Gulf States was $20.55 per standard case in 1952, 3 percent lower than in 1951;

Table 3 - U. S. and Alaska Pack of Canned Crab Meat, 1942-52

Year	Atlantic Coast and Gulf States			Pacific Coast States and Alaska			Total		
	Quantity	Value to Canners	Avg. Price Per Std. Case[1]	Quantity	Value to Canners	Avg. Price Per Std. Case[1]	Quantity	Value to Canners	Avg. Price Per Std. Case[1]
	Std. Cases[1]	$	$	Std. Cases[1]	$	$	Std. Cases[1]	$	$
1952[2]	44,474	913,808	20.55	41,584	1,173,211	28.21	86,058	2,087,019	24.25
1951	60,592	1,280,342	21.13	89,353	2,306,216	25.81	149,945	3,586,558	23.92
1950	58,958	1,252,589	21.25	78,532	1,868,680	23.80	137,490	3,121,269	22.70
1949	46,975	943,120	20.08	114,854	2,547,765	22.18	161,829	3,490,885	21.57
1948	33,382	581,872	17.43	187,420	4,264,622	22.75	220,802	4,846,494	21.95
1947	33,696	667,487	19.81	106,120	2,037,904	19.20	139,816	2,705,391	19.35
1946	120,150	2,536,405	21.11	78,928	2,183,714	27.67	199,078	4,720,119	23.71
1945	29,788	484,869	16.28	25,726	398,898	15.51	55,514	883,767	15.92
1944	36,386	560,735	15.41	50,556	800,723	15.84	86,942	1,361,458	15.66
1943	26,716	412,310	15.43	48,592	782,173	16.10	75,308	1,194,483	15.86
1942	29,656	397,772	13.41	84,892	1,357,293	15.99	114,548	1,755,065	15.32

1/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CAN CONTAINING 6-1/2 OUNCES NET.
2/PRELIMINARY.

while in the Pacific Coast States and Alaska the average price reached a new high of $28.21, 9 percent above the previous year.

* * * * *

SHRIMP: The United States pack of canned shrimp in 1952 amounted to 817,910 standard cases, valued at $12,998,814 to the canners, or an average price of $15.89

Table 1 - U.S. Canned Shrimp Pack by States, 1952[1]

State	Quantity	Value to Canners	Avg. Price Per Std. Case[2]
	Std. Cases[2]	$	$
Mississippi[3]	194,151	2,968,068	15.29
Louisiana[3]	569,444	9,059,325	15.91
Alabama	40,923	689,864	16.86
Maine, South Carolina, and Georgia	13,392	281,557	21.02
Total	817,910	12,998,814	15.89

1/PRELIMINARY.
2/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CAN CONTAINING 5 OUNCES NET.
3/INCLUDES A SMALL PACK OF DRY SHRIMP.

Table 2 - U.S. Canned Shrimp Pack by Can and Case Size, 1952[1]

Can and Case Sizes	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	$	$
4½ ounces net (24 cans)	172,279	1,416,162	8.22
4½ ounces net (48 cans)	51,386	850,108	16.54
5 ounces net (24 cans)	240,824	1,933,534	8.03
5 ounces net (48 cans)	536,826	8,049,183	14.99
6-3/4 ounces net (48 cans)	3,820	125,104	32.75
7 ounces net (24 cans or glasses)	10,325	135,226	13.10
Other sizes (converted to standard cases)	24,514	489,497	19.97
Total	1,039,974	12,998,814	-

1/PRELIMINARY.

Table 3 - U. S. Canned Shrimp Pack, 1942-52

Year	Quantity	Net Weight	Value to Canners	Avg. Price Per Std. Case 1/
	Std. Cases 1/	Lbs.	$	$
1952 2/	817,910	12,268,650	12,998,814	15.89
1951	871,171	13,067,565	12,187,049	13.99
1950	786,506	11,797,590	12,775,619	16.25
1949	664,721	9,970,815	11,203,325	16.85
1948	558,870	8,383,050	7,791,313	13.94
1947	472,366	7,085,490	8,192,004	17.34
1946	522,130	7,831,950	8,428,735	16.14
1945	214,971	3,224,571	1,918,633	8.93
1944	561,649	8,424,738	4,854,799	8.64
1943	660,436	9,906,534	5,360,647	8.12
1942	963,352	14,450,274	7,347,330	7.63

1/ CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CAN CONTAINING 5 OUNCES NET.
2/ PRELIMINARY.

per standard case (table 1). Louisiana canners packed 70 percent of the 1952 production, while Mississippi canners packed 24 percent. Shrimp were canned in 16 plants in Mississippi, 21 in Louisiana, 3 in Alabama, and 1 plant each in Maine, South Carolina, and Georgia.

The 1952 shrimp pack was 6 percent less in quantity than the 1951 pack, but 7 percent greater in value (table 3). This increased value was due to a 14-percent increase in the average price per standard case. Demand for canned shrimp in 1952 was at a high level.

* * * * *

SPECIALTY FISHERY PRODUCTS: In 1952 the U. S. pack of miscellaneous or specialty canned fishery products not reported separately totaled 221,791 standard cases, valued at $3,123,426 to the canners (see table). The pack consisted of

U. S. Pack of Specialty Canned Fishery Products, 1952 1/

Product	Quantity	Value to Canners	Avg. Price Per Std. Case 2/	State Packed and Number of Plants
	Std. Cases 2/	$	$	
Fish:				
Fish cakes (mainly groundfish)	88,135	1,074,078	12.19	Maine 2, Mass. 2, Va. 1
Fish paste and spread (anchovy, herring, and salmon)	697	45,235	64.90	N. Y. 2, Md. 1
Fish smoked or kippered:				
Salmon and steelhead trout	948	43,900	46.31	Wash. 3, Ore. 6, Alaska 6
Sturgeon	550	35,984	65.43	Wash. 3, Ore. 3
Fish specialties (haddock, chowder, tuna and egg noodles, fish chowder, and deviled fish)	49,361	525,504	10.65	Maine 1, Mass. 1, Fla. 1, Calif. 1
Miscellaneous fish (salted cod, Dolly Varden trout, and menhaden)	2,038	17,863	8.76	Mass. 1, Md. 1, Va. 1, Alaska 1
Shellfish:				
Crab specialties:				
Bisque, curry, newburg, and soup	5,930	101,894	17.18	N. Y. 1, Md. 2
Cocktails, deviled crab, soft crabs, and paste	618	20,440	33.07	Md. 1, N. C. 1, Fla. 1, Wash. 1, Ore. 2
Lobster meat, bisque, soup, newburg, stew, thermidor, Savannah, paste, and spread	6,547	187,796	28.68	Maine 2, Mass. 1, N. Y. 2
Shrimp specialties:				
Cakes, chow mein, cocktails, smoked, and paste	2,125	95,337	44.86	N. Y. 1, S. C. 1, Fla. 1, La. 1, Wash. 1, Ore. 2
Aspic, bisque, creole, curry, gumbo, newburg, & soup	7,611	129,714	17.04	N. Y. 2, Md. 2, La. 3
Clam bisque, cakes, smoked, and whole in the shell	1,466	17,782	12.13	Maine 1, Md. 1, Wash. 3, Alaska 1
Oyster bisque, cocktails, smoked, soup, and stew	25,887	495,829	19.15	N.Y. 1, Md. 1, La. 2, Wash. 8, Ore. 5.
Terrapin and turtle meat, soup, stew, chile, and Bar-B-Que	24,160	258,568	10.70	N. Y. 1, Ga. 1, Fla. 2, La. 3, Ohio 1.
Miscellaneous shellfish and specialties (crayfish bisque, conchs, mussels, scallops, squid, frog legs newburg, bouillabaisse, creole gumbo, and seafood newburg)	5,718	73,502	12.85	Maine 2, N. Y. 1, N. J. 1, La. 3, Calif. 2
Total	221,791	3,123,426	-	

1/ PRELIMINARY.
2/ CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS, EACH CAN CONTAINING 16 OUNCES NET WEIGHT.

numerous varieties of cakes, spreads, soups of all kinds, and many other specialties processed in plants on the East Coast, in the Gulf States, and on the West Coast. The largest individual item was fish cakes, which comprised 40 percent of the volume and 34 percent of the value of the specialties included.

U. S. & Alaska Production of Marine-Animal Fish Scrap, Meal, and Oil, 1952

SCRAP AND MEAL: Production of marine-animal scrap and meal in the United States and Alaska in 1952 amounted to 221,403 short tons, valued at $27,161,654 to the manufacturers (table 1). Atlantic and Gulf Coast plants produced 84 per-

Table 1 - U. S. and Alaska Marine Animal Scrap and Meal Production by Types, 1952[1]

Product	Atlantic and Gulf Coasts[2]			Pacific Coast and Alaska			Total	
	Quantity	Value to Mfgrs.	Avg. Price Per Short Ton	Quantity	Value to Mfgrs.	Avg. Price Per Short Ton	Quantity	Value to Mfgrs.
	Short Tons	$	$	Short Tons	$	$	Short Tons	$
Meal and dried scrap:								
Anchovy	-	-	-	1,645	217,003	132	1,645	217,003
Crab, blue	9,554	585,178	61	-	-	-	9,554	585,178
Fur seal	-	-	-	365	41,296	113	365	41,296
Groundfish (white fish) incl. ocean perch	18,528	2,636,928	142	-	-	-	18,528	2,636,928
Herring	6,740	804,713	119	3,124	509,648	163	9,864	1,314,361
Menhaden[3]	144,025	17,847,361	124	-	-	-	144,025	17,847,361
Pilchard	-	-	-	390	51,741	133	390	51,741
Salmon	-	-	-	1,634	195,934	120	1,634	195,934
Shrimp	1,034	87,432	85	-	-	-	1,034	87,432
Tuna and mackerel	-	-	-	21,951	2,892,874	132	21,951	2,892,874
Miscellaneous	4/6,748	590,715	88	5/5,665	700,831	124	12,413	1,291,546
Total	186,629	22,552,327	121	34,774	4,609,327	133	221,403	27,161,654

1/PRELIMINARY.
2/INCLUDES A SMALL PRODUCTION OF MISCELLANEOUS MEAL PRODUCED IN MINNESOTA.
3/A SMALL PRODUCTION OF ACIDULATED SCRAP HAS BEEN INCLUDED WITH DRY SCRAP AND MEAL.
4/INCLUDES FISH POMACE, HORSESHOE CRAB, AND MISCELLANEOUS SCRAP AND MEAL.
5/INCLUDES CARP, DUNGENESS CRAB, AND MISCELLANEOUS SCRAP AND MEAL.

cent of the total scrap and meal due to heavy production of menhaden scrap and meal. Pacific Coast and Alaska production was light due to the poor pilchard fishing season in California. Menhaden scrap and meal production exceeded 100,000 tons for the fifth consecutive year.

The 1952 production was an increase of 11,647 tons in quantity and $1,787,757 in value as compared with 1951 (table 2). The over-all average price of marine

Table 2 - U. S. and Alaska Marine-Animal Scrap and Meal Production, 1942-52

Year	Dry Scrap and Meal			Acid Scrap			Total	
	Quantity	Value to Mfgrs.	Avg. Price Per Short Ton	Quantity	Value to Mfgrs.	Avg. Price Per Short Ton	Quantity	Value to Mfgrs.
	Short Tons	$	$	Short Tons	$	$	Short Tons	$
1952[1]	221,403	27,161,654	123				221,403	27,161,654
1951[1]	209,756	25,373,897	121				209,756	25,373,897
1950[1]	239,924	29,252,355	122	1/	1/	1/	239,924	29,252,355
1949[1]	237,180	35,652,142	150				237,180	35,652,142
1948[1]	199,519	23,086,734	116				199,519	23,086,734
1947	185,808	22,353,488	120	632	26,863	43	186,440	22,380,351
1946	197,599	20,360,943	103	2,022	78,475	39	199,621	20,439,418
1945	199,118	14,343,138	72	1,557	62,200	40	200,675	14,405,338
1944	210,225	15,131,918	72	2,922	111,104	38	213,147	15,243,022
1943	188,848	13,570,331	72	1,555	58,821	38	190,403	13,629,152
1942	168,486	11,545,239	69	2,594	80,520	31	171,080	11,625,759

1/A SMALL PRODUCTION OF ACIDULATED MENHADEN SCRAP HAS BEEN INCLUDED WITH DRY SCRAP AND MEAL FOR 1948-52.
NOTE: DATA FOR 1952 ARE PRELIMINARY.

animal scrap and meal to the manufacturer was $123 per short ton in 1952--only slightly higher than the previous two years: ceiling prices were in effect during this period.

* * * * *

OILS: The 1952 production of marine-animal oils in the United States and Alaska amounted to 16,094,404 gallons, valued at $9,391,368 to the manufacturers or an over-all average price of 58 cents per gallon (table 1). The Atlantic and Gulf

Coast states produced 86 percent of the total oils, the Pacific Coast and Alaska the remainder. Menhaden oil accounted for 80 percent of the total quantity of oil

Table 1 - U. S. and Alaska Production of Marine-Animal Oils, 1952[1]

Product	Atlantic and Gulf Coasts[2]			Pacific Coast and Alaska			Total	
	Quantity	Value to Mfgrs.	Avg. Price Per Gallon	Quantity	Value to Mfgrs.	Avg. Price Per Gallon	Quantity	Value to Mfgrs.
	Gallons	$	$	Gallons	$	$	Gallons	$
Body Oil:								
Anchovy	-	-	-	254,225	112,232	.44	254,225	112,232
Fur seal	-	-	-	35,029	15,741	.45	35,029	15,741
Herring	331,753	154,549	.47	750,210	362,989	.48	1,081,963	517,538
Menhaden	12,888,646	5,785,395	.45	-	-	-	12,888,646	5,785,395
Pilchard	-	-	-	20,881	10,815	.52	20,881	10,815
Salmon[3]	-	-	-	196,514	133,280	.68	196,514	133,280
Tuna and Mackerel	-	-	-	744,827	367,585	.49	744,827	367,585
Miscellaneous	4/468,753	311,928	.67	5/126,962	61,840	.49	595,715	373,768
Total	13,689,152	6,251,872	.46	2,128,648	1,064,482	.50	15,817,800	7,316,354
Liver and viscera oil:								
Cod	194,571	201,125	1.03	-	-	-	194,571	201,125
Shark	6/	-	-	44,507	333,854	7.50	44,507	333,854
Tuna	6/	-	-	3,346	122,394	36.60	3,346	122,394
Miscellaneous	7/5,548	561,096	101.14	8/28,637	856,545	29.91	34,185	1,417,641
Total	200,119	762,221	3.81	76,490	1,312,793	17.16	276,609	2,075,014
Grand total	13,889,271	7,014,093	.51	2,205,138	2,377,275	10.78	16,094,409	9,391,368

1/PRELIMINARY.
2/INCLUDES PRODUCTION OF BURBOT LIVER OIL IN MINNESOTA.
3/INCLUDES EDIBLE AND INDUSTRIAL SALMON OIL.
4/INCLUDES OCEAN PERCH AND UNCLASSIFIED BODY OILS.
5/INCLUDES CARP, LAMPREY, MIXED, AND UNCLASSIFIED BODY OILS.
6/COMBINED WITH PACIFIC COAST PRODUCTION.
7/INCLUDES BURBOT, HAKE, HALIBUT, POLLOCK, SWORDFISH, WHALE, MIXED, AND UNCLASSIFIED LIVER OILS.
8/INCLUDES HALIBUT, RATFISH, SABLEFISH, SWORDFISH, WHALE, AND MIXED LIVER OILS, AND VISCERA OIL.

produced. Body oils obtained from whole fish and fish waste accounted for 98 percent of the quantity and 78 percent of the value, and the remainder of the production consisted of liver and viscera oils.

Table 2 - U. S. and Alaska Production of Marine-Animal Oils, 1943-52

Year	Body Oils			Liver Oils			Total	
	Quantity	Value to Mfgrs.	Avg. Price Per Gallon	Quantity	Value to Mfgrs.	Avg. Price Per Gallon	Quantity	Value to Mfgrs.
	Gallons	$	$	Gallons	$	$	Gallons	$
1952[1]	15,817,800	7,316,354	.46	276,609	2,075,014	7.50	16,094,409	9,391,368
1951	17,872,733	14,044,296	.79	299,575	2,579,347	8.61	18,172,308	16,623,643
1950	21,432,592	14,041,619	.66	331,257	3,431,090	10.36	21,763,849	17,472,709
1949	16,860,530	7,519,522	.45	834,357	9,845,455	11.80	17,694,887	17,364,977
1948	16,323,061	18,449,870	1.13	722,329	12,411,652	17.18	17,045,390	30,861,522
1947	15,900,382	20,107,194	1.26	832,510	11,643,468	13.99	16,732,892	31,750,662
1946	19,135,051	21,223,098	1.11	895,884	13,618,549	15.20	20,030,935	34,841,647
1945	23,697,564	16,033,515	.68	804,288	11,202,207	13.93	24,501,852	27,235,722
1944	27,324,173	17,771,346	.65	998,802	13,237,435	13.25	28,322,975	31,008,781
1943	22,264,362	14,970,884	.67	851,854	14,841,970	17.42	23,116,216	29,812,854

1/PRELIMINARY.

The marine-animal oil produced in the United States and Alaska during 1952 was 11 percent less in quantity and 44 percent lower in value than in 1951 (table 2). Prices received for both body and liver oils were lower than the previous year. There has been a particularly sharp decline in recent years in the price of liver oils--the $7.50 per gallon average received by the manufacturers in 1952 was 57 percent lower than the $17.42 per gallon in 1943.

Wholesale Prices

WHOLESALE PRICES, APRIL 1953: From March to April prices for edible fishery products continued to drop. Although this is a seasonal trend, the decline was attributed to a lighter demand as a result of cheaper meat prices. Production of fishery products was lighter than usual due to poor fishing weather, but this was offset by large cold-storage stocks. The edible fish and shellfish (fresh, frozen, and canned) wholesale index for April 1953 was 98.9 percent of the 1947-49 average (see table)--lower than March 1953 by 3.8 percent and April 1952 by 6.0 percent.

For the drawn, dressed, or whole finfish subgroup items, average wholesale prices in April dropped 13.7 percent from the previous month and were 22.9 percent

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

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices ($)		Indexes (1947-49 = 100)			
			Apr. 1953 1/	Mar. 1953 1/	Apr. 1953	Mar. 1953	Feb. 1953	Apr. 1952
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)					98.9	102.8	108.0	105.2
Fresh and Frozen Fishery Products:					99.4	105.7	114.6	107.4
Drawn, Dressed, or Whole Finfish:					81.8	94.8	112.2	111.9
Haddock, large, offshore, drawn, fresh	Boston	lb.	.05	.07	50.6	73.4	114.3	86.0
Halibut, Western, 20/80 lbs., dressed, fresh or frozen	N.Y.C.	"	.31	.33	94.4	102.1	100.1	106.8
Salmon, king, lge. & med., dressed, fresh or frozen	"	"	.48	.49	107.9	109.6	109.0	128.7
Whitefish, mostly Lake Superior, drawn (dressed), fresh	Chicago	"	.43	.41	105.3	100.4	152.4	179.7
Whitefish, mostly Lake Erie pound or gill net, round, fresh	N.Y.C.	"	.50	.37	101.1	73.8	131.4	182.0
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.39	.63	79.9	129.1	128.1	137.3
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	N.Y.C.	"	.22	.55	51.0	129.0	117.2	93.8
Processed, Fresh (Fish and Shellfish):					123.3	122.1	120.0	101.1
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.24	.30	81.7	102.1	107.2	97.0
Shrimp, lge. (26-30 count), headless, fresh or frozen	N.Y.C.	"	.87	.83	137.5	130.4	124.9	93.3
Oysters, shucked, standards	Norfolk area	gal.	4.75	4.75	117.5	117.5	117.5	111.3
Processed, Frozen (Fish and Shellfish):					115.3	112.7	112.3	103.8
Fillets: Flounder (yellowtail), skinless, 10-lb. pkg.	Boston	lb.	.33	.33	115.7	115.7	129.7	136.7
Haddock, sml., skins on, 10-lb. cello-pack	"	"	.21	.21	78.1	76.2	76.2	91.1
Ocean perch, skins on, 10-lb. cello-pack	Gloucester	"	.23	.24	112.0	114.4	114.4	110.7
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	"	.87	.83	134.2	127.3	121.9	94.1
Canned Fishery Products:					98.2	98.5	98.1	101.9
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case	Seattle	case	19.71	19.71	104.4	104.4	104.4	109.6
Tuna, light meat, solid pack, No. ½ tuna (7 oz.), 48 cans per case	Los Angeles	"	14.80	14.80	92.4	92.4	91.5	89.0
Sardines (pilchards), Calif., tomato pack, No. 1 oval (15 oz.), 48 cans per case	"	"	9.25	9.25	108.0	108.0	108.0	109.4
Sardines, Maine, keyless oil, No. ¼ drawn (3¼ oz.), 100 cans per case	N.Y.C.	"	7.45	7.70	79.3	81.9	81.9	102.7

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

below a year earlier. Except for higher prices for whitefish at Chicago and New York, all items in this subgroup during April were priced below March. Although 30 percent less haddock was landed at Boston in April this year as compared with the same month last year, ex-vessel prices for large offshore haddock at Boston were 31.1 percent lower than in March and 41.2 percent less than a year ago. Prices of West Coast halibut and salmon at New York were down slightly from the previous month. Every item in the subgroup was priced considerably below a year ago.

The continued rise in shrimp prices was responsible for the increase in the fresh processed fish and shellfish index in April. This index was 1.0 percent higher than in March and 22.0 percent above April 1952. Fresh haddock fillet prices were

20.0 percent below March and 16.0 percent lower than a year earlier. Supplies of fresh shrimp continued to get shorter and the demand remained brisk. Shrimp marketing is approaching a critical stage, with wholesale dealers unable to fill orders. On the other hand, with shrimp prices at record levels, some consumer resistance has been experienced in some localities.

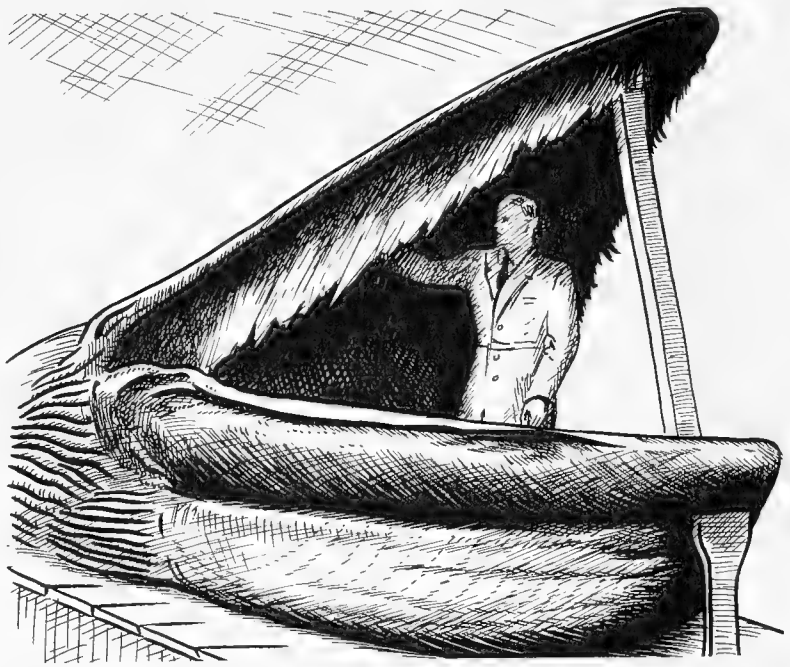
The frozen shrimp market was the same as that for fresh shrimp. Prices for frozen shrimp in April were 5.4 percent higher than in March and 42.6 percent above April 1952. The frozen haddock fillet market strengthened somewhat during the month and prices averaged 2.5 percent higher than March, but prices were still 14.3 percent below a year earlier. From March to April, prices for ocean perch fillets dropped 2.1 percent, while for flounder fillets there was no change.

A drop of 3.2 percent in Maine sardine prices was responsible for the lower canned fishery products index. Prices of all other canned items in the subgroup remained the same as in March. April 1953 canned fish prices were 3.6 percent lower than the same month in 1952. Canned tuna was the only item in the subgroup with prices higher (3.8 percent) than a year earlier.

PRESERVED WHALE TOURS UNITED STATES

DO YOU KNOW:

That famous "Mrs. Haroy," an embalmed 70-ton fin whale which already has been seen by some 3,500,000 Europeans in 60 cities, arrived in Brooklyn, New York, in April for an extended tour of the United States.



The huge "Mrs. Haroy" was accompanied by "Miss Asserbo," a Danish dwarf shrewmouse, said to be the smallest mammal in the world. The two ladies were first shown in New York City, loaded on a specially built railway car; the exhibit will be shown throughout the United States.

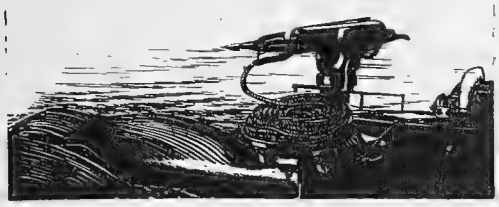
"Mrs. Haroy" was captured in the North Atlantic in 1951 when she was 7 years old. She weighs 154,000 pounds and is about 75 feet long.

Preservation of "Mrs. Haroy" by means of a special fluid has been hailed by European zoologists as an outstanding scientific feat. Despite the long absence from her natural habitat in the North Atlantic, she is as "good-looking" as ever. The special liquid used to embalm the whale preserves it for a long time.

--Espana Pesquera, April 1953

International

WORLD WHALE- AND SPERM-OIL PRODUCTION DECLINES IN 1953: World production of whale oil and sperm oil in 1953 will approximate 420,000 and 55,000 short tons, respectively, compared with 460,000 and 80,000 short tons in 1952, states the May 4 issue of Foreign Crops and Markets, a U. S. Department of Agriculture publication. The decline in both types of whale oil is the result of smaller returns from the 1952/53 Antarctic pelagic (open sea) whaling operations completed in March.



Antarctic Production, 1952/53: Production of both whale and sperm oil during the 1952/53 Antarctic season totaled around 372,000 tons, according to provisional data submitted by the U. S. Embassy at Oslo, Norway. This is almost 15 percent less than the combined quantity produced in the preceding season. The 61,400-ton drop in output was shared about equally between the two types of whale oil. However, when separately compared with corresponding 1951/52 data, whale oil output (350,788 tons) decreased by only 8 percent while sperm oil (21,209 tons) dropped 59 percent. Large stocks and low prices were responsible for the sharp decline in Antarctic sperm-oil production this year.

There were 16 expeditions operating this season, 3 less than in 1951/52, and included 7 Norwegian, 3 British, 2 Japanese, and one each from South Africa, the Soviet Union, the Netherlands, and Panama. Norway completed the season with roughly one-third of the total catch as compared with nearly one-half of the 1951/52 production.

Antarctic Pelagic Whale- and Sperm-Oil Production, 1952/53 (Preliminary)

Country	Whale oil		Sperm oil		Total	
	1952/53	1951/52	1952/53	1951/52	1952/53	1951/52
	(Short Tons)					
Norway	137,782	181,407	5,101	21,701	142,883	203,108
United Kingdom	73,472	70,557	10,267	12,304	83,739	82,861
Japan	37,443	38,649	1,260	9,786	38,703	48,435
Union of South Africa	26,563	31,065	1,736	3,647	28,299	34,712
Netherlands	18,847	17,360	358	3,229	19,205	20,589
Panama	28,924	17,910	1,717	210	30,641	18,120
U. S. S. R.	27,757	26,188	770	1,373	28,527	27,561
Total 1/	350,788	383,136	21,209	52,250	371,997	435,386

1/ DOES NOT INCLUDE PRODUCTION OF SOUTH GEORGIA SHORE STATIONS. IN 1951/52 THIS PRODUCTION INCLUDED 24,419 SHORT TONS OF WHALE OIL AND 1,198 SHORT TONS OF SPERM OIL.

Antarctic production of whale oil only, including that which is produced by 3 South Georgia shore stations, normally accounts for around 90 percent of the world supply. In 1952 whale oil output from this single area amounted to 408,600 tons, including South Georgia production of 25,400 tons. Most of the remaining 1952 production, estimated at some 50,000 tons, resulted from numerous shore-station operations in scattered parts of the world.

Sperm whaling is not subject to the same strict international regulations that largely determine the quantity of whale oil produced each year. Although sperm oil is produced both before and during the Antarctic baleen whaling season by the participating expeditions, this production does not necessarily constitute the bulk of the world supply. Almost 60 percent of the sperm oil produced in 1951 occurred in areas outside the Antarctic. In 1952, Antarctic production of sperm oil amounted to 53,400 short tons, but dropped to approximately 23,000 tons in the season just passed. Although complete data are not yet available, production of sperm oil in "other" areas in 1952, and probably 1953, is not expected to exceed 30,000 tons. Of the total 1952 sperm-oil output, Norway accounted for slightly more than 30 percent, or 25,000 tons. Other principal producers last year were the United Kingdom, Japan, and the Soviet Union.

* * * * *

SIGNATORIES OF NORTH EUROPEAN OVERFISHING CONVENTION OF 1946 MEET: Delegates of the 12 signatory nations to the (North European) International Overfishing Convention met early in March for the first time since ratification of the Convention. All countries represented agreed (1) that the Permanent Commission would meet on May 5, 1953, and (2) that minimum mesh and fish sizes should be enforced no later than April 5, 1954. This is to be the maximum period of time allowed before existing nets are discarded and replaced by those with the new-size mesh. The countries represented at the meeting were Belgium, Denmark, Eire, France, Iceland, Netherlands, Norway, Poland, Portugal, Spain, Sweden, and the United Kingdom.

The Permanent Commission's duties will include examining the state of fish stocks on the fishing grounds covered by the Convention and making recommendations for the adequate protection of such stocks, reports the March 1953 Fish Industry, a British fishery periodical.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, APRIL 1953, PP. 35-6.

NORTHWEST ATLANTIC FISHERIES COMMISSION

THIRD MEETING AT NEW HAVEN, CONN.: The Third Meeting of the International Commission for the Northwest Atlantic Fisheries convened at New Haven, Connecticut, on May 25, the Department of State announced on that date. The U. S. Government was represented at that meeting by the following Delegation:

United States Commissioners:

John L. Kask,
Assistant Director, Fish and Wildlife Service,
U. S. Department of the Interior.

Richard Knollenberg,
Chester, Connecticut.

Francis W. Sargent, Director,
Division of Marine Fisheries,
Department of Conservation,
Commonwealth of Massachusetts,
Boston, Massachusetts.

Advisers:

Herbert W. Graham,
Chief, North Atlantic Fishery Investigations,
Fish and Wildlife Service
U. S. Department of the Interior.

Lionel A. Walford,
Chief, Branch of Fishery Biology,
Fish and Wildlife Service,
U. S. Department of the Interior.

Under the terms of the International Convention for the Northwest Atlantic Fisheries, which entered into force in July 1950, the Commission provides the machinery for international cooperation in the scientific investigation and development of fishery resources in waters off the west coast of Greenland and the east coasts of Canada and New England.

While the Commission has no direct regulatory powers, it may recommend to governments the measures considered necessary for maintaining at a maximum level of sustained production the stocks of fish which support the international fisheries in the Convention area. The members of the Commission are Canada, Denmark, France, Iceland, Italy, Norway, Portugal, Spain, the United Kingdom, and the United States.

At this meeting it is expected that the Commission will adopt a comprehensive research program which will constitute in effect a master plan for the future research activities to be undertaken in the Convention area by member governments under the auspices of the Commission.

Among the matters of great interest to the United States which the Commission will have before it are recommendations on the New England haddock fisheries.

Provision was made in the agenda of the Third Meeting for the selection of a site for permanent headquarters. Invitations have been extended to the Commission to locate its headquarters at sites both in Canada and the United States. Among the sites in Canada considered are Halifax, Nova Scotia; St. John's, Newfoundland; Montreal; and Laval University at Quebec. In the United States sites have been considered at Kingston, Rhode Island; Harvard University, Cambridge, Massachusetts; Gloucester, Massachusetts; Durham University, New Hampshire; and Bowdoin College, Brunswick, Maine.

The meeting also provided an opportunity for a review of the operations of the Commission during the period since its last meeting at St. Andrews, New Brunswick, Canada, in June and July 1952. The Commission examined reports on research and statistics, finance, and administration; the status of ratifications of the Convention, and staff matters; as well as reports by the panels established under the Convention to exercise primary responsibility in each of the five Convention subareas. Action was also taken on a budget for 1953-54.

Australia

AUSTRALIAN PEARL- AND TROCHUS-SHELL PRODUCTION, 1952: The Australian pearl-shell production in 1952 totaled 961 metric tons, valued at £A511,570 (US$1,146,000) ex-vessel, reports the March 1953 Australian Fisheries Newsletter. This was an increase of 20 percent in quantity and 22 percent in value as compared with the 1951 production of 797 metric tons valued at £A419,432 (US$940,000). The Northern Territory and Western Australian pearl-shell fishing seasons ended in December 1952 and the Queensland season in January 1953.

The trochus-shell production in 1952 amounted to 1,163 metric tons, valued at £A233,532 (US$523,000) ex-vessel, compared with 1,279 metric tons, valued at £A227,775 (US$510,000), in 1951. The Queensland season ended June 30 and the Western Australia season ended December 31.

A total of 130 boats operated in the pearl- and trochus-shell fishery in 1952, and employed 1,503 men as compared with 152 boats and 1,608 men in 1951. The boats and equipment used in this fishery were valued at £A515,750 (US$1,155,000) in 1952 and £A540,000 (US$1,210,000) in 1951.

For the fiscal year which ended June 30, 1952, 80.8 percent of the pearl-shell and 60.2 percent of the trochus-shell Australian exports went to the United States.

Canada

FILLET PRODUCERS WILLING TO PARTICIPATE IN JOINT PROMOTION CAMPAIGN IN U. S.: A number of Canada's leading fish-fillet producers have indicated their willingness to participate in and contribute to the cost of an advertising and promotional campaign to expand the sale of fillets in the United States, the Fisheries Council of Canada announced on April 23.

This decision followed a discussion with members of the National Fisheries Institute at their annual meeting in Washington in mid-April, and is based on the realization that a properly-organized and adequately-financed sales promotion program can contribute to the increased consumption of fish fillets in the United States market. Canadian fillet producers are willing to join with the United States producers and European exporters in the financing of such a program.

It is generally agreed by responsible leaders of the fishing industry in both Canada and the United States that the soundest approach to the industry's current marketing problem lies in market expansion. The potential for increased fish consumption is great, and modern merchandising and promotional methods will be required to achieve the necessary increase in sales.

The Canadian fillet producers are prepared to bear their share of the cost of realizing this objective.

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EAST COAST FISHERIES AFFECTED BY HEAVY FILLET STOCKS IN UNITED STATES: By the end of 1952 the Atlantic Coast fisheries of Canada were experiencing some difficulty in disposing of their product in the traditional market, the United States, a March 10 U. S. consular dispatch from Halifax states. This was particularly noted in the case of companies attempting to sell cod and other groundfish fillets.

The price of market cod at one Cape Breton, N. S., port dropped from 3½¢ to 3¢ (Canadian) in a few weeks; steak cod went down to 3¢ (Canadian) from its previous selling price of 4½¢ (Canadian). It is understood that some Newfoundland ports report cod prices as low as 2½¢ (Canadian) a pound. The price drops are blamed on the glut of frozen cod fillets in the United States—largely due to increased exports to that country from other sources.

The situation in the frozen-fillet market is important to those dealing in these products. Nevertheless, with about one-half of eastern Canada's fish catch marketed fresh, the exigencies in the frozen fillet portion of the industry must be considered as relatively minor to the whole Canadian Atlantic coast fishery. The increased frozen-fillet supplies entering the United States market from other foreign sources is disruptive to some Canadian exporters, but cannot be considered of overriding importance to the whole eastern Canadian fisheries. United States tariff policy on fish imports is of prime importance. As long as the general tariff does not change, Canada's Maritime fish producers feel that they will be able to dispose of their product on a level comparable to that of past years. United States consumption of fish is rising steadily as is that in Canada. Therefore, Canadian producers are not overly fearful of what the future may bring if the United States tariffs remain unchanged.

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NOVA SCOTIA'S FISH-PROCESSING FACILITIES, 1952: At the end of the 1952 licensing year there were 333 licensed fish-processing plants in Nova Scotia, a March 10 U. S. consular dispatch reports. Almost 300 of these consist of small plants where the catch of only a few vessels is processed. In addition to these plants, there were 139 licensed buyers.

Three new fish plants opened in Nova Scotia during the year: A medium-size plant at Dingwall; a medium-size plant at Jordan Bay; and a large jointly-owned plant at Louisburg, Cape Breton Island. The Louisburg plant is estimated to have cost C$4 million to construct and has facilities for landing, freezing, cold storage, and the manufacture of fish meal.

In March, fire destroyed a fish-processing plant at Petit de Grat in Richmond County. The freezing and power plants of the company were not severely damaged and by hiring the use of other local processing facilities the plant managed to operate throughout the year. A new plant is now under construction by the same company at the same location and it was expected to be in operation by May 1953.

During the year one large corporation announced that additions to plant and equipment valued at C$250,000 had been made to its Halifax plant. This plant's facilities are now capable of producing 40 million pounds of fish per year on a one-shift operation basis.

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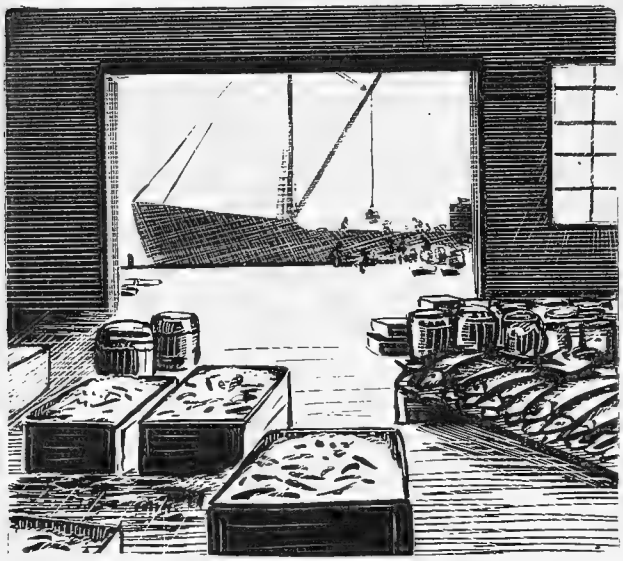
FISHERIES OUTLOOK IN THE MARITIME PROVINCES: The present trend of Nova Scotia's and the Canadian Maritime Provinces' fishery industries is away from salt fish and towards the production of fresh and frozen fish for export (particularly to the United States) and for sale in the broadening Canadian market. This trend is due to the instability of traditional salt-fish markets in the Caribbean area and the realization that the prime competitive advantage of the Maritime Provinces lies in their nearness to the most productive fishing grounds in the western Atlantic. Operators on the Nova Scotia mainland are beginning to feel that even they are located too far from the most productive areas. The geographic location of the Maritime

Provinces is being turned to greatest commercial advantage by emphasizing quality production, states a March 10 U. S. consular dispatch from Halifax.

Increased demand for fishery products throughout North America would seem to indicate a favorable future for eastern Canadian producers. Nonetheless, some sources in Nova Scotia believe the sale of the 1953 production may be extremely difficult unless there are more favorable developments than can be foreseen. Improved producing and processing facilities developed the past several years are believed by some to have created a situation which may prove disastrous, in the light of market conditions where Canadian producers compete with other sources. Many of the marginal producers who might have been frozen out if the Korean crisis in 1950 had not halted a declining market are still in business. Also many new firms have been organized. Increased competition from foreign fish may cause considerable hardship among producers on the eastern Canadian seaboard.



Members of Parliament from the affected areas are reported to be urging increased assistance and protection for the fishermen. The Customs and Fisheries Protection Act of 1860 is under complete revision in an effort to more clearly protect Canadian fishing privileges; M.P.'s from all parties have called for such measures as insurance against equipment loss, unemployment insurance, pensions, floor prices, and other government-sponsored steps. If a depressed condition is in store for Canadian fish producers, the Federal Government is apparently reaching the conclusion that it must take steps to assist the industry.

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NOVA SCOTIA FISHERMEN USING MORE "LONG-LINER" VESSELS: Perhaps the most important equipment development in the Nova Scotia fishing industry during the past year or so has been the development of the so-called "long-liner" fishing vessels. The ideal type "long-liner" is about 55 feet in length, carries a 3 to 5 man crew, and is designed for groundfishing essentially. It is able to lay down long lines at desired depths by use of anchor buoys. The main line has shorter lines (with baited hooks attached) at spaced intervals. The vessels have a power engine on deck for hauling back the gear. About 30 of these vessels are believed to be in operation out of Nova Scotia ports and they are considered to be most effective off the southeast Coast.

Long lines are replacing the hand-line gear used by smaller boats. Under previous conditions the small fisherman could only hope for an average income of about C$1,200 to C$1,500 a year. But on a long-liner he might expect to net C$3,000 a year, and under most favorable conditions up to C$5,000 to C$7,000. A well-equipped long-liner may be purchased for about C$25,000, compared to the larger steam trawlers that cost up to C$250,000. The long-liner is also better suited for areas of rough bottom. The dragger on the other hand may well prove to be more efficient where the bottom is relatively smooth. A small dragger about 60 feet in length will cost about C$40,000 or less. The dragger-type vessels have been found to be particularly suitable for the Prince Edward Island fishery, and the new types

of draggers are capable of working efficiently at up to 100-fathom depths, a March 10 U. S. consular report from Halifax points out.

In addition to the long-liners mentioned above, the following fishing vessels were licensed in Nova Scotia at the end of 1952: 25 trawlers of 100 feet in length; 8 draggers 65-100 feet in length; about 100 draggers less than 65 feet in length.

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NOVA SCOTIA FISH-MEAL PRICES LOW: The wholesale price for fish meal in Nova Scotia in January 1953 dropped to about C$70 per ton, compared with C$125 per ton at the same time in 1952, reports a March 10 U. S. consular dispatch from Halifax. This price drop is blamed on the relative surplus of animal bone meal in Canada. The animal bone meal surplus is attributed to the United States embargo on Canadian animal products because of the hoof-and-mouth disease outbreak.

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BRITISH COLUMBIA SALMON INDUSTRY TRENDS, JANUARY-MARCH 1953: As a result of strikes and unfavorable export market conditions, the British Columbia fishing industry is in the doldrums, states an April 13 consular dispatch from Vancouver. One of the largest packers has passed dividend payments for the first time in 11 years. Estimates indicate that in the 1952/53 selling year the domestic market will absorb approximately 900,000 cases of canned salmon, largely as a result of a C$300,000 advertising campaign. Export markets will absorb another 400,000 cases. This leaves some 200,000 cases in excess of the demand. Before World War II, 65 percent of the annual salmon pack was sold in export markets and only 35 percent in Canada.

Fortunately the British Government has agreed to spend C$4,250,000 for British Columbia salmon in 1953, which will account for approximately one-third of the 600,000-case carryover from 1952. Thus, the industry must find additional outlets for some 600,000 cases of salmon--a 400,000-case carryover from 1952 and an excess production of 200,000 cases if the season has a normal pack of 1,500,000 cases. While the British purchase is not a barter deal, it is understood that packers have arranged through a large can company to take 2,000 tons of Welsh tin plant in return.

Colombia

U. S. TUNA BAIT BOAT TO EXPLORE FISHING OFF COAST: A modern tuna bait boat owned by a large California cannery arrived at Cartagena, Columbia, to explore the possibilities of large-scale tuna fishing grounds along the Atlantic Coast of Colombia. The area between Santa Marta and the Guajira peninsula will get the greatest study, states recent U.S. consular dispatches from Barranquilla. The exploration is at the instigation of a Barranquilla fish-canning plant interested in increasing its present output.

If the exploration proves to be successful, it is understood that the California firm would be prepared to sell about 50 percent of each trip to the Barranquilla firm, or an amount sufficient to fill its unused canning capacity. The final outcome of these negotiations and explorations will be followed with a great deal of interest in Colombia because, if successful, they could significantly aid in increasing the local food supply, and stimulate the local fishing and canning industry.

The results of the explorations during the last weeks of April were inconclusive due to the unseasonal heavy winds and high seas along the Atlantic coast. Rough seas cut short the visit and the vessel proceeded to quieter waters to continue its explorations.

The Colombian cannery is also interested in encouraging some United States firm to send a modern purse seiner to increase the Colombia fish supply. At present fish landings are very light due to the primitive methods used by local fishermen.

Denmark

FISHERIES REVIEW, 1952: Production: The Danish catch of fishery products in 1952 was 311,032 metric tons (table 1), an increase of 12 percent over the 278,294 metric tons produced in 1951, and 30 percent more than the 238,961 metric tons in 1950. Three-fifths of the 1952 catch was utilized for human consumption and two-fifths for byproducts. The increased catch during recent years was mainly due to more landings of fish for byproducts. In 1950 the catch of fish for reduction was about 62,000 metric tons, but by 1952 it had increased to 131,000 metric tons, states a March 30 U. S. Embassy dispatch from Copenhagen.

Table 1 - Danish Fishery Products Landings by Principal Species, 1950-52

	1952 1/	1951	1950
	.... (Metric Tons)		
Plaice	36,369	31,744	31,860
Flounder	4,315	5,166	5,681
Dab (yellowtail)	3,939	4,302	3,410
Cod	48,767	48,282	45,308
Gar pike	1,899	2,470	2,295
Common mackerel	12,026	9,975	10,281
Herring	27,250	24,486	26,341
Sprat	3,919	2,875	3,855
Eel	3,923	4,439	4,510
Lobster and Shrimp	1,402	1,752	1,676
Mussels	17,285	17,267	25,792
Miscellaneous for food 2/	18,665	17,145	15,835
Miscellaneous for reduction	131,273	108,391	62,117
Total	311,032	278,294	238,961

1/ PRELIMINARY. 2/ INCLUDES FRESH WATER FISH.

The principal species of food fish caught in 1952 were cod (comprised 27 percent of the total), plaice (20 percent), herring (15 percent), and common mackerel (7 percent). The remaining 31 percent was made up of a large variety of species, the most important of which was flounder, dab, gar pike, sprat, and eel.

Fish meal and fish oil were the principal byproducts of the fish caught for reduction. In 1952 the output of fish meal was estimated at 28,000 metric tons, compared with 22,000 metric tons in 1951. The 1952 production data on fish oil is not yet available, but it was expected to decline from the 11,000 metric tons produced in 1951.

Fishing Conditions: During the first four months of 1952, fishing was hampered by unstable and stormy weather, further complicated in Danish home waters by trouble with ice formation.

In January and February herring were caught in great quantities in the Skagerak, 12-15 miles northwest of Grenen, and at the southwest coast of Norway. In February and March landings of cod, principally caught in the Belt Sea and the eastern part of the Baltic Sea, were considerably above normal. In January and February bivalves were caught in less quantities than normal because of failing export markets.

In May the weather was quite favorable, but spotty in June, July, and August. The catch of common mackerel was very good in July, the peak month of the season for this species. The salmon season came to an end in June. On the Fladen Bank in the North Sea, the herring fishing started at the end of July--usually takes place from July through October. A great number of vessels went out to fish simultaneously for herring and tuna. The herring catch was just normal, whereas the tuna catch was very good.

At the end of July intensive fishing for fish for reduction commenced on Bløden Bank in the North Sea. From August through October about 55,000 metric tons of fish for reduction were landed. These were caught principally in the North Sea and on Bløden Bank.

In September and October the weather was unstable and windy but became rather favorable at the end of the year. In October the salmon fishing began in the eastern part of the Baltic. Vessels from Bornholm and the Faroe Islands participated.

Imports: In 1952 total Danish imports of fishery products amounted to 34,202 metric tons, valued at 34.5 million kroner (US$5 million), 22 percent more in volume and 28 percent greater in value than 1951 when 28,056 metric tons were imported, valued at 26.9 million kroner (US$3.9 million). (See table 2.)

Table 2 - Value of Danish Imports of Fishery Products by Country of Origin, 1950-52

	1952		1951		1950	
	1,000 Kroner	US$	1,000 Kroner	US$	1,000 Kroner	US$
Norway	4,661	675,000	3,780	547,000	2,865	415,000
Sweden	12,864	1,863,000	10,444	1,512,000	12,651	1,832,000
Iceland	2,053	297,000	4,019	582,000	2,047	296,000
Faroe Islands	9,086	1,316,000	5,850	847,000	3,254	471,000
Greenland ...	2,067	299,000	2,162	313,000	2,305	334,000
Other	3,726	540,000	673	97,000	825	119,000
Total	34,457	4,990,000	26,928	3,899,000	23,947	3,467,000

Fresh salt-water fish (principally herring) landed directly in Danish ports by Swedish boats constituted 66 percent of the total imports (table 3). Cured fish

Table 3 - Danish Imports of Fishery Products by Types, 1950-52

	1952	1951	1950
	..... (Metric Tons)		
Fresh-water fish, fresh	5	13	1
Salt-water fish, fresh	22,727	17,191	22,731
Fish, salted, dried or smoked fish	9,252	8,987	6,107
Shellfish, crayfish, and cuttlefish	78	43	95
Canned fish	531	180	207
Anchovies and other specially prepared fish	140	80	147
Pickled herring	1,469	1,563	1,010
Total	34,202	28,057	30,298

comprised 27 percent of the imports; wet salted cod and haddock, salted herring, and splits were the principal types of fishery imports. The most important suppliers were the Faroe Islands, Greenland, Iceland, and Norway.

No significant changes in the imports of fishery products are expected, inasmuch as these imports are of a traditional nature.

Table 4 - Value of Danish Exports of Fishery Products by Principal Countries of Destination, 1950-52

	1952		1951		1950	
	1,000 Kroner	US$	1,000 Kroner	US$	1,000 Kroner	US$
Western Germany	24,967	3,615,000	22,174	3,211,000	17,048	2,469,000
Eastern Germany	11,301	1,636,000	6,325	916,000	8,110	1,174,000
United Kingdom	53,555	7,755,000	57,571	8,336,000	58,273	8,438,000
Sweden	13,914	2,015,000	11,518	1,668,000	9,444	1,367,000
Italy	29,966	4,339,000	22,014	3,188,000	19,010	2,753,000
United States.	16,465	2,384,000	10,551	1,528,000	5,324	771,000
Others	52,399	7,587,000	57,530	8,330,000	52,446	7,594,000
Total	202,567	29,331,000	187,683	27,177,000	169,655	24,566,000

Exports: In 1952 total exports of fishery products were about 119,085 metric tons, compared to 120,500 tons in 1951. In terms of value, exports increased by 8 percent from 1951 to 1952 (table 4). The Danish exports were concentrated principally in the European markets. The most important non-European customer was the United States which received 8.1 percent of the total exports in terms of value. In volume, the United States received 3.3 percent of the total (table 5), with frozen plaice fillets, cod fillets, and brook trout as the leading items.

Table 5 - Danish Exports of Fishery Products to the United States by Types, 1952

Species	Quantity Metric Tons
Frozen Fish:	
Brook trout (pond trout) .	791.7
Cod	7.9
Cod fillets	1,271.7
Other cod varieties	54.2
Common sole	13.3
Plaice	14.1
Plaice fillets	1,061.9
Other flat fish	24.1
Other fish	255.0
Total Frozen Fish	3,493.9
Shellfish, etc	1.6
Salted, Dried, and Smoked Fish	5.9
Canned Fish:	
Sprat sardines	396.2
Other fishery products ...	22.3
Total Canned Fish	418.5
Grand Total	3,919.9

The major portion (78.6 percent) of Danish fishery exports in terms of value was made up of fresh, not processed or cured fish (table 6). Exports of shellfish, crayfish, and cuttlefish totaled 9.8 percent; salted, dried, or smoked fish exports came to 8.2 percent, and only 3.3 percent was canned products. Some specially prepared fish products constituted the remaining 0.1 percent of total exports.

The export of fresh whole and filleted salt-water fish increased only slightly from 1951 to 1952, probably because

Table 6 - Danish Exports of Fishery Products by Types, 1950-52

	1952	1951	1950
	..... (Metric Tons)		
Fresh-water fish, fresh	456	432	406
Salt-water fish (but including lake trout)	93,090	90,411	87,204
Salted, dried, or smoked fish	9,799	10,892	5,347
Shellfish, crayfish, and cuttlefish	11,692	15,313	570
Canned fish	3,902	3,355	6,851
Anchovies and other specially prepared fish	70	66	274
Pickled herring	76	30	5
Oysters and bivalves, preserved		-	21,588
Caviar, not vacuum packed		-	-
Total	119,085	120,499	122,245

the catch of fish for human consumption was somewhat neglected in favor of an increased catch of fish for byproducts.

The increased exports of fish fillets, lake trout, and canned fish was partly due to increased shipments to the United States. Exports to the United States in terms of value increased from 10.6 million kroner (US$1.5 million) in 1951 to 16.5 million kroner (US$2.4 million) in 1952. Exports of frozen and smoked fish to the United States, however, declined.

German Federal Republic

U. S. TO TRANSFER CHARTER FISHING VESSELS TO PRIVATE OWNERSHIP: A total of 124 fishing trawlers, cutters, and luggers will be returned to German ownership by the United States, according to a U. S. State Department press release of April 9. The United States is returning to the German Federal Republic altogether 350 of the vessels which the Tripartite Naval Commission allocated to the United States in 1946, and the 124 fishing trawlers, cutters, and luggers are included among these. All the vessels are presently on charter to the German economy.

Final arrangements for the return of these vessels, the time and date of transfer, and other details will be worked out between United States and German Federal Republic authorities.

* * * * *

FISHING OPERATIONS OFF GREENLAND AND NEWFOUNDLAND: In an effort to expand German overseas fishing operations, the trawler Nuernberg fished on the Grand Banks off Newfoundland in February, states a March 26 U. S. consular dispatch from Bremerhaven. The vessel fished at latitude 54° N., longitude 45° W., and caught 245 metric tons of small fish, mainly cod. The trip took a total of 25 days, and the catch was landed and sold at Grimsby, England. The catch averaged 9.8 metric tons for each day of the trip. The trip was considered successful, and voyages to the Grand Banks were continued.

Plans called for catches from Newfoundland banks to be landed and sold in England. The German fishing industry desired, however, to land and sell catches in the United States and Canada. The industry planned to request the German Federal Republic Government to negotiate for treaties to make these landings possible.

On March 3, the trawlers Nuernberg and Wuppertal returned to fish in the waters off Newfoundland. Their catches were sold at Grimsby, England, and return voyages were made to the fishing grounds. On the following trips to Grimsby, however, the port was crowded with other vessels and they continued on to German ports. On April 27, the Wuppertal landed 225 metric tons at Cuxhaven--the first fish from Newfoundland waters ever to be sold at a German port; and on April 29 the Nuernberg landed 260 metric tons at Bremerhaven.

Seventy percent of these landings were fish too small for filleting and, therefore, not profitably marketable in Germany. As the British fishing fleet will be able to meet the British demand for fish during the summer, and since these fish cannot be marketed in Germany as profitably as those caught in less distant waters, fishing off Newfoundland is being discontinued until the end of October.

It is believed that the high cost of operations at such a great distance from Germany and the inability to sell at North American ports, coupled with the approaching herring season, had greater bearing on the decision than the British fish situation. The catches consisted mainly of cod, haddock, and halibut. These species are caught in marketable sizes in closer waters off Germany. Therefore, it appears that fishing off Newfoundland under present circumstances is not as profitable as was indicated earlier.

BREMERHAVEN FISH AUCTION HALL.

In June 1952, two 450-ton Diesel-electric trawlers, the Bonn and the Heidelberg, conducted experimental fishing voyages to the waters off Greenland in an effort to offset the effects of the loss of the right to fish in certain waters off Norway and Iceland following the extension of sovereignty by these countries to encompass certain formerly international waters. As the experiment was considered a success, German trawlers were ordered regularly to these waters. From July 1 to December 31, 1952, five trips were made by German trawlers to the Greenland fishing grounds, resulting in landings amounting to 1,087.68 metric tons, mostly cod.

Comparative figures illustrate the degree to which fishing in the waters off Greenland was successful. On the Greenland fishing grounds the German trawlers average 32.8 metric tons of fish for each fishing day as compared with average catches of 15.3 tons in the waters off Iceland, 16.9 tons in the waters off Norway, and 23.3 tons in the Barents Sea during 1951; the average catch per fishing day for all German trawlers in all fishing grounds in 1951 was 16.3 tons.

Greater significance attaches, however, to the average tonnage per day of each fishing voyage. In 1951, German fishing trawlers averaged 16.3 days per voyage to all fishing grounds, 20.7 days for all voyages to the waters off Iceland, 20.2 days for all voyages to the waters off the Norwegian coast, and 20.0 days for all voyages to the Barents Sea. As the average of all voyages to the waters off Greenland was 23.6 days, the average voyage to Greenland was only 2.9 days longer than the average voyage to the most distant of other fishing grounds. On the basis of average tonnage of catches per fishing voyage, it is determined that the waters off Greenland yielded 9.7 metric tons of fish for each day at sea, the waters off Iceland 7.3 tons of each day at sea, the waters off Norway 7.8 tons for each day at sea, and the Barents Sea 8.8 tons for each day at sea. Therefore, the waters off Greenland are considered by the German fishing industry to be more profitable than the European fishing grounds.

Nevertheless, it is believed that the German trawlers have not been as successful in operations off Greenland as have the British trawlers. According to German reports, English landings have been 97 percent cod, while the German landings have averaged only 72 percent cod. The following table indicates the German landings

from Greenland for five trips (from June 10 to August 3, 1952) by types of fish, tonnage, and value of return:

Species	Quantity	Ex-vessel Value	
	Metric Tons	Deutsche Marks	US$
Cod	822.1	147,558	35,134
Ocean perch	299.6	57,400	13,666
Wolffish (Catfish)	10.0	3,024	720
Halibut	1.7	2,203	525
Other fish and Cod-Liver Oil	12.4	6,236	1,485
Total	1,145.8	216,421	51,530

* * * * *

HERRING-GUTTING MACHINE INSTALLED ON TRAWLERS: A herring-gutting machine that can handle approximately 10,000 fish per hour has recently been installed on a number of German trawlers, reports the March 1953 issue of Fish Industry, a British trade magazine. The machine is produced by Lubecawerke Gmbh, Lubeck, and requires less skill than gutting by hand. It reduces the time required for gutting, and thus cuts down on the time the herring are left on deck. The machine is bolted to the deck of the vessel.

Gold Coast

FISHING INDUSTRY DEVELOPMENT PLANNED: In order to increase the prosperity of the Gold Coast fishermen and to obtain a much larger supply of fish for domestic consumption, plans for developing the fishing industry have been made, the Minister of Agriculture and Natural Resources announced in an April 2, 1953, news release, the United States Consulate at Accra reports.

The first step has been the introduction of motor surfboats which have been used by the Gold Coast Fisheries Department for several years with good results. The Department has recently ordered six such boats from the United Kingdom and has also established a boat-building yard at Sekondi, where vessels of this type are being built. They will soon be available for sale to fishermen and fishing companies. Their cost is expected to be about £1,500 (US$4,200) each. Measures to help prospective purchasers find the necessary capital are now being considered in consultation with the Agricultural Loans Board. Motor surfboats can only work at places where they can find sheltered moorings, such as Sekondi and Takoradi, and in a few years' time at Tema. Where the beach is open to the surf, as at so many fishing towns, canoes will continue to be the best craft for the fishermen.

In the long-term development of the industry, Tema will play a vital part. Plans for the new port include a special fishing harbor with accommodation for fishing craft of all types. There will be a beach for canoes, moorings for motor surfboats, and wharves for larger trawlers. The larger trawlers are indispensable if the Gold Coast is to have a modern fishing industry equal to the task of providing the country with all the fish it needs. They will not in any way endanger the livelihood of the canoe fishermen, who can continue to operate as at present. The trawlers will aid greatly in feeding the very large number of laborers and others who will come to Tema and who could not be supplied with food by the canoe fisheries alone.

It will be a number of years before construction of the new harbor at Tema will have reached the stage of providing safe accommodation for the smaller fish-

ing vessels. In the meanwhile, however, there may be a possibility of using larger trawlers as soon as there is a breakwater where they could land their catches. Such a scheme is being investigated and may later be placed before the Agricultural and Fisheries Development Corporation. Such a scheme, if found to be feasible, would greatly ease the problem of supplying food to the population engaged in the construction of the harbor, besides making an important contribution to the modernization of the fishing industry.

Guatemala

IMPORT DUTIES INCREASED ON CERTAIN FISHERY PRODUCTS: Guatemalan import duties have been raised on more than 350 classifications of the tariff by a Guatemalan congressional decree effective February 28. The fishery products affected as reported by the U. S. Department of Commerce are listed in the table.

Guatemalan Import Duties on Certain Fishery Products Increased

Tariff Classification	New Rate	Old Rate
	... (In US$ Per Gross Kilogram) ...	
Caviar and imitations	1.50	1.00
Fresh shucked oysters	.20	.10
Dried and salted codfish in brine	.15	.07
Unspec. fish, shellfish, and crustaceans salted, dried, smoked, or in brine (except sardines)	.15	.10

Japan

REGULATIONS FOR FACTORYSHIP CRAB-FISHING IN BERING SEA: Regulations for the Japanese factoryship crab-fishing expeditions to the Bering Sea in 1953 were announced on March 28 by the Japanese Fisheries Agency. Following are the regulations as reported by an April 9 U. S. Embassy dispatch from Tokyo:

A. Conditions of License:

1. Joint operation of the 1953 expedition is to be by three fishing companies.

2. Tenure of license is from March 28, 1953, to March 27, 1956.

3. Operating area (1953) is in the Bering Sea, east of 166° W. longitude, excluding waters 3 miles from the shoreline.

4. Catch will be landed only at Hakodate (Hokkaido) and Yokohama.

5. Only one mothership will be in operation; its size and equipment may be restricted when deemed necessary.

6. Kinds of equipment, number, gear, products, and amount of production may be restricted, if necessary, for adjustment of the fishery and for the Japanese public interest.

B. Conditions and Restrictions on Use of Mothership and Attendant Boats:

1. The mothership shall be the Tokei Maru (4,998 gross tons), limited to the period March 28 through December 31, 1953.

2. Operating areas of gill nets (tangle nets) may be restricted.

3. Quantity of canned crab from the 1953 expedition shall not exceed 50,000 cases (48 6½-ounce cans to a case--24 pounds of frozen meat is considered 1 case).

4. Fishing gear of the 1953 expedition will be (a) less than 3,500 tan (583,000 yards) of gill nets, or (b) "trawling nets" with a bag-net the mesh of which shall not be less than 12.7 centimeters (5 inches), and with a sleeve net (wings) with meshes not less than 15.3 centimeters (6 inches). (Although "trawling net" is mentioned, actually what is meant is a Danish seine.) Nets other than specified will not be possessed by the catcher boats or mothership.

5. The superintendent of the mothership (a) will report its noon position daily to the Japanese Fisheries Agency; (b) must report every 5 days to the Fisheries Agency the total length of nets used, the catch, and number of cases of crab meat packed; and (c) shall not permit the mothership to leave a fishing ground until all the catcher boats have departed.

C. Catcher Boats for the 1953 Season Will Consist Of:

1. Six boats (deck-loaded) averaging 7 gross tons each, to engage in gill netting only.

2. Six medium-sized boats as follows: Hosho Maru (57 gross tons), Nissho Maru (59 gross tons), Kaisho Maru (58 gross tons), Tairyo Maru No. 18 (75 gross tons), Tairyo Maru No. 25 (56 gross tons), Nisshin Maru No. 5 (70 gross tons). The boats may use gill nets or trawl nets.

D. Other Requirements:

1. Salmon, halibut, and herring caught incidentally with crabs shall be immediately thrown overboard. Possession of these fish is prohibited.

2. The best use must be made of cod, flounders, and other species (except as listed above) which may be caught in crab fishing. A report on the catch of these fish must be submitted to the Fisheries Agency.

This set of regulations indicates the desire of the Japanese Government to administer the first postwar Japanese crab expedition to the Bering Sea in a manner which will demonstrate a willingness to cooperate fully in an international fishery in which the United States has an important interest. This attitude is further substantiated by the invitation to the United States to have a biologist visit the Japanese crab expedition during its operations on the fishing grounds, and Japan's acceptance of the United States invitation to have a Japanese biologist aboard the United States crab trawler to collect scientific data and to become more familiar

with that fishery. The superintendent of the Japanese crab expedition has stated his intention to be firm in enforcing the Japanese regulations.

The decision of the Japanese to use "trawling" gear (Danish seines) was based on the fact that United States boats use otter trawls only. Although the Japanese believe the latter type of gear is not best suited for the proper conservation of crabs, and that gill nets are much more adaptable to proper conservation measures, the Japanese decided to do some "trawling" in the 1953 operations to avoid setting large numbers of gill nets over extensive areas of the crab fishing grounds, and thus minimize the possibility of conflict between fishermen using these two different types of gear.

* * * * *

BIOLOGIST EXCHANGED WITH U. S. IN BERING SEA CRAB FISHING: A U. S. Fish and Wildlife Service fishery biologist will visit the Japanese crab-fishing expedition to the Bering Sea, while a Japanese biologist will visit a U. S. crab trawler operating in the Bering Sea, states an April 16 U. S. Embassy dispatch from Tokyo.

A rendezvous for the transfer of the biologists was arranged for about April 20 off Unimak Island. The U. S. biologist was to transfer from the U. S. crab trawler Deep Sea to the Japanese factoryship Tokei Maru, and the Japanese biologist from the Tokei Maru to the Deep Sea.

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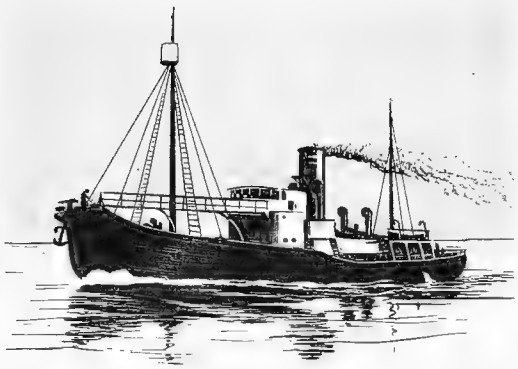


JAPANESE WHALE CATCHER.

ANTARCTIC WHALE MEAT PRICES: Whale meat and oil from the 1952/53 Japanese Antarctic expedition commenced arriving in Japan in March, reports a March 24 United States consular dispatch from Kobe. The wholesale price of whale meat on the Kobe market was approximately ¥100,000 (US$278) per metric ton and the retail price approximately ¥60 per 13.2 ounces (20 U.S. cents per pound).

The 10,000-ton whaling refrigerator steamship Settsu Maru was reported to have sunk on March 14 from a leak that started in the engine room on March 8. The vessel had 3,800 metric tons of frozen whale meat on board at the time. All members of the crew were saved.

JAPANESE GOVERNMENT

Mexico

GUAYMAS SHRIMP FISHERY, JANUARY-MARCH 1953: Poor catches by the Guaymas shrimp-fishing fleet during the first quarter of 1953 have brought about an economic depression in that area, states an April 13 U. S. consular dispatch. Guaymas and its hinterland depend heavily on the shrimp-fishing industry, and the unfavorable conditions during the past two years have affected the entire economy of the city. However, as the quarter ended a cautious note of optimism concerning the future was evident.

Shrimp have become extremely scarce in the waters around Guaymas. For the first quarter of the last "good" shrimp year, 1950, landings at Guaymas totaled 1,650 metric tons. Since then the catch has steadily declined: 1,200 tons for the first quarter of 1951, 700 in 1952, and an estimated 400 in 1953. This year a large proportion of the fishing fleet went 1,500 miles south off Salina Cruz, Oaxaca, and the fishing there has been reported good. However, of the 7 shrimp-freezing plants in Guaymas, 3 are closed down completely and 4 are operating at a fraction of their capacity. Collections are extremely slow and many of the operators are heavily in debt.

The present optimism results probably from the high shrimp prices and low cold-storage stocks in the United States. Guaymas operators hope that by limiting the fishing in home waters this year the shrimp will be able to increase and by next year catches will improve. Although conservation measures are under discussion, they are difficult to enforce. It is believed that a return to the former prosperous level of the industry is at least 2 or 3 years away.

Norway

MARINE OIL OUTPUT TO DECLINE IN 1953: Norway's production of marine oils in 1953 is expected to approximate 255,000 short tons, a drop of 23 percent from the 330,000-ton output of last year, reports the May 25 Foreign Crops and Markets, a U. S. Department of Agriculture publication. The decrease forecast for this year is mainly due to a decline in Norway's Antarctic whale and sperm oil production, although a reduction also is expected in herring oil. Norway also produces some seal oil.

Whale and sperm oil output in 1953 is forecast at 147,900 and 5,950 tons, respectively, against 192,480 and 22,450 tons last year. The decline in Antarctic output, which constitutes all but about 10,000 tons of the total output, is due mainly to the transfer of three Norwegian factoryships to more profitable tanker operation.

The total commercial production of whale oil this season has been sold. The average price obtained was £71 10s. per long ton (US$178.75 per short ton) compared with £82 (US$205) last year. Distribution of the 1952/53 whale oil output was approximately as follows: direct exports--the United Kingdom, 52,640 tons; Sweden, 5,600; Western Germany, 23,740; Denmark; 11,200; Belgium, 3,700; Netherlands, 14,560; and France, 8,960 tons; and for processing and domestic consumption, 25,760 tons.

Herring oil output for 1953 is expected to decline to around 70,000 tons as compared with 84,880 tons in 1952. Stocks are said to be nearly exhausted. The export price for semi-processed herring oil until recently was 125 kroner per 100 kilograms (US$159 per short ton), but has now risen to 140 kroner (US$178). In 1952 Norway exported 13,729 tons of crude herring oil.

The 1952 output of fish-liver oils has been estimated roughly at 31,000 tons compared with 35,000 tons the preceding year. Cod fishing operations so far this year were reported to be reasonably good. English importers have taken a considerable quantity of hardened cod-liver oil for use by the baking industry. Also, some polymerized cod-liver oil has been shipped to England and the Mediterranean countries for use as canning oil. Exports of all kinds of fish liver oils in 1952 totaled 23,130 tons against 30,000 tons in 1951.

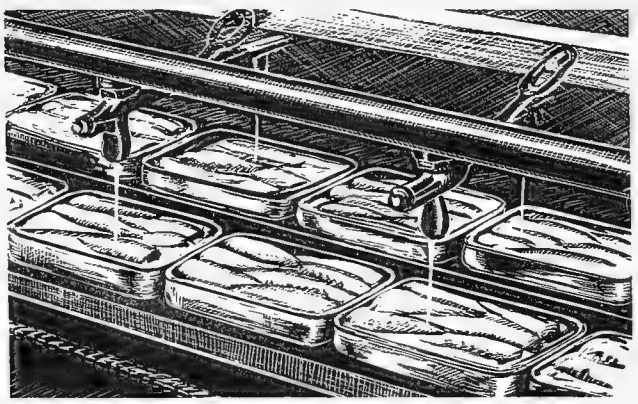
Pakistan

U. S. TECHNICAL ASSISTANCE FOR FISHERY FACILITIES DEVELOPMENT: The United States through the Technical Cooperation Administration of the Department of State will provide assistance in the amount of US$750,000 for the development of modern fishery facilities in Karachi, according to an April 3 State Department release. This project was one of a number included in a supplementary program agreement for fiscal year 1953 for technical cooperation between the United States and Pakistan. The Government of Pakistan will bear all rupee costs of joint projects which will at least equal the United States costs. The agreement, signed on April 1 at Karachi, is supplementary to the Point 4 Program Agreement signed between the two governments February 2, 1952.

There has been a tremendous increase in the population of Karachi, from about 400,000 before partition to the present 1,500,000. This has posed an urgent problem of increased food production. The construction of modern facilities for handling fish, motorizing the fishing fleet, and other improvements in the service should result in important increases in the volume of fish and insure safe supplies of this important food item.

Portugal

CANNED FISH PRODUCTION AND CHIEF EXPORTS, 1952: Portugal's production of canned fish amounted to 1,718,181 cases in 1952, an increase of 16 percent over the 1,478,511 cases packed in 1951 (table 1). Sardines were the leading item canned and comprised 78 percent of the total pack in 1952 and 76 percent in 1951, reports a February 24 U. S. Embassy dispatch from Lisbon.



PORTUGUESE SARDINE ASSEMBLY LINE SHOWING OIL MACHINES AUTOMATICALLY ADDING OLIVE OIL TO FILL THE CANS.

Although the production of canned fish improved substantially in 1952, the canneries continued to suffer from a lack of foreign demand, especially for sardines. Exports of canned sardines increased substantially in 1952, but only because of a 25-percent price reduction. Stocks of canned sardines at the end of the year were reported to be 18,502 metric tons.

Waste products of the fish canneries were sold to eight plants producing fish meal and oil. These byproducts plants manufactured 2,384 tons of fish meal and 608 tons of fish oil in 1952.

South-West Africa

ADDITIONAL CANNING AND BYPRODUCTS PLANTS PLANNED: Two additional licenses were granted in May 1952 for the establishment of fish canning, fish oil, and fish meal factories at Walvis Bay, a March 25 American consular dispatch from Cape Town points out. A total of 14 companies applied for these licenses, which were granted by the South-West African Administration. It is believed that these will be the last licenses of this kind to be issued by the Administration for a long time in view of the declared intention of introducing stricter measures for conserving the pilchard schools off the South-West African coast. When these two companies go into operation towards the end of the current year, and early next year, there will be six fish factories operating in Walvis Bay, bringing the total number of reduction plants in the Union of South Africa and South-West Africa to 17. It is estimated that together the two new factories will employ about 100 Europeans and 600 Natives.

One of the two companies granted a license already has a subsidiary tuna company operating at Walvis Bay, and at Velddrif in the St. Helena Bay area it is still in the process of planning their new factory. The company expects to commence building operations in May and to have the buildings completed by December and fish-meal and fish-oil plants installed by April 1954. The company will probably initially produce only fish meal and oil, with canning to commence at a later date.

The factory will be completed at an estimated cost of £420,000 (US$1,176,000) of which £240,000 (US$672,000) will be required for the fish-meal and oil sections, the balance to be used for the canning section. Although most of the machinery is to be of local manufacture, a spokesman of the company has intimated that they would probably seek additional second-hand machinery from California.

The Walvis Bay Factory will utilize the process of producing "whole" fish meal, whereby the protein and other nutrients usually contained in the stickwater are retained in the final product.

Once the factory is in full swing it is expected that 8,000 tons of fish meal, 2,000 tons of oil, and 200,000 48-lb. cases of canned fish will be produced annually.

The company that received the second license granted has obtained a suitable factory site from the Walvis Bay municipality. A new and separate company has been set up.

The company's building program, which has already commenced, is divided into two stages: first, the establishment of a fish-meal and fish-oil factory, and second, the erection of a cannery.

The capital requirements for development is £127,000 (US$356,000), which includes the installation of the plant, factory and housing sites, factory buildings, jetty and housing for employees, preliminary expenses, and working capital. On this expenditure, the fish-meal and oil department will be expected to produce 6,000 tons of fish meal and 1,500 tons of fish oil per annum, which will result in an estimated net profit of £60,000 (US$168,000) per annum.

The initial requirements for the canning establishment will be £137,500 (US$385,000) which includes machinery and vehicles, factory buildings and housing for factory personnel and laborers, and working capital.

While much of the machinery will be produced locally, the canning manager of the parent company has recently returned from the United States where the necessary negotiations for the acquisition of the most modern machinery were initiated. According to the company's auditors, a portion of the locally-produced machinery has been completed, while those purchased abroad have already been shipped.

The fish-meal factory is expected to commence production in May 1953, while conditions indicate that the installation of the canning plant will begin early in April. Thus, the fish-meal, oil, and canning sections will probably all be in operation by mid-July 1953. This coincides with the peak fishing period at Walvis Bay.

For further contemplated expansion, the company plans to raise £155,000 (US$434,000) for the purchase of additional machinery, factory buildings and housing for employees, and working capital.

On completion of the expansion program it is hoped to achieve an eventual production of 300,000 48-lb. cases of canned fish per annum. The directors estimate the annual net profits on the sale of this output at £180,000 (US$504,000). The total annual net profit when the fish-meal, fish oil, and canning plants are in full operation is thus estimated at £240,000 (US$672,000).

Spain

FISH-CANNING INDUSTRY OPTIMISTIC: The Spanish fish-canning industry is looking forward to 1953 with more optimism than it had a year earlier because the first shipment (600 tons) of United States tin plate to be received under the terms of the U. S. loan, granted to Spain in December 1951, arrived in Vigo, Spain, on December 27, 1952. Further shipments, up to about 5,000 tons, were expected during the first quarter of 1953, reports a United States consular dispatch from Vigo.

This tin plate will enable the industry to increase its canning activity, which has been at a low ebb. Operation of the Vigo fish canneries in December 1952 was estimated at 7 to 8 percent of production capacity, one of the lowest monthly outputs in 1952. Most of the output consisted of canned anchovies. Many of the packers store anchovies in brine for canning during slack periods.

Sweden

NEW HERRING FILLETING MACHINE: A new herring filleting machine has just been placed on the Swedish market and is also being introduced abroad. The patent is of Norwegian origin and has been taken over by a concern manufacturing washing machines and other household machine aids in Gothenburg, Sweden.

The new machine will fillet ordinary-size herring, but can be adjusted somewhat for fish of other sizes. The machine has a capacity of about ten barrels of herring per hour, corresponding to the filleting capacity of 20 to 25 persons, reports an April 14 U. S. Embassy dispatch from Gothenburg.

The machine weighs only about 550 pounds and sells for about US$2,000. The price will probably be reduced as soon as the company has been able to increase production.

The machine is 44 inches high, 41 inches wide, and 54 inches long. An electric three-phase motor (220/380 volts, 2 hp., 1,400 r.p.m.) furnishes the power. All movable parts are made of stainless material and enclosed in a stainless steel box. When operating, the machine is fed either with fresh or salt water. The machine

can be easily cleaned and it does not rust or deteriorate even if salt water is used. The whole or round fish is fed head first in the gable side of the machine. The feeding bands seize the herring and convey it towards a rotating knife which cuts a strip off the belly. The entrails are drawn out, and the herring is then conveyed towards a set of knives that cut the fillets. The fillets come out the opposite end of the machine. The right and left fillets come out through separate furrows. The waste (head, bones, and entrails) comes out through a furrow on the right side. The machine can easily be handled by one person.

The feeding bands consist of solid chains with sharp jags that seize the herring at the feeding end. Rotating circular knives are used. These knives can easily be dismounted for sharpening.

The company will soon place a smaller filleting machine on the market for filleting small-size herring and sprats, or other fish of comparable size.

Thailand

STATUS OF THE FISHERIES, 1951-52: Gear in Use: The sea fisheries of Thailand were not as productive in 1951 as in the previous year, even though there was a slight increase in fishing gear in use (see table), a March 4 U. S. Embassy dispatch from Bangkok reports.

SEINE FISHING IN THE CHAO PHYA RIVER, THAILAND. TRANSFERRING THE CATCH TO A BOAT.

Bangkok Wholesale Fish Market: Estimated landings of fresh fish at the Bangkok wholesale fish market in 1952 amounted to about 40,000 metric tons. In 1951 landings at this market amounted to 23,000 tons of fresh fish and 22,700 tons of salted fish. In 1950, a total of 40,800 tons of fresh fish and 27,300 tons of salted fish were landed.

Principal Gear in Use in Thailand's Sea Fisheries, 1950-51

Types of Gear	Quantity	
	1951	1950
	(Unit)	
Deep-water bamboo stake traps	555	532
Shallow-water bamboo stake traps ...	567	515
Set-bag nets (Pong-Pang fixed)	1,742	1,742
Set-bag nets (Pong-Pang not fixed)..	172	172
Rua Siman (Pong-Pang with wings) ...	435	626
Uan Tangkeh (Chinese purse seine) ..	60	59

The new Bangkok wholesale fish market in the Yanawa district was due to commence operations in April 1953. Quarters and offices for fish agents and Government offices have been built.

Assistance for Fisheries: In 1951 the Food and Agriculture Organization of the United Nations appointed a fish culturist to the Thai Fisheries Department; he has advised and assisted in the introduction of practical pond and other cultural technique. From 1951 to 1952 his work projects were as follows: (1) assistance in developing the 4 inland fisheries stations, (2) technical training to Thai fisheries technicians; and (3) assistance in the development of fish culture.

FAO's fellowships were awarded to 4 Thai fisheries officers to participate in the fresh and brackish-water fish culture course in Indonesia. One was awarded in 1951 and 3 in 1952.

Two sessions of the Preliminary Elementary Statistical Course conducted by the Fisheries Division of the FAO in Bangkok were held to train Thai fisheries officers. The first session was held in 1951 and the second in 1952.

The Mutual Security Agency provided the Thai fisheries in 1950 an expert in the field of marine fishery and fishing craft, and two engineers to design a refrigeration and ice plant.

In 1951, MSA awarded one fellowship to a fisheries officer for one year's training in the United States in the subjects of fisheries technology and refrigeration.

Four fisheries officers were sponsored with MSA fellowships for training in the United States in 1952, in the subjects of fisheries biology and fisheries management and cooperatives.

Union of South Africa

CANNED PILCHARD PRICES: The Union of South Africa's canned pilchard prices for African markets are higher than those of some competitors, reports the March 1953 South African Shipping News and Fishing Industry Review. Recent quotations for the Union's canned pilchards, f.o.b. Cape Town are: 14s. 9d. (US$2.07) per dozen 16-ounce cans and 9s. 6d. (US$1.33) per dozen 8-ounce cans, all packed 48 cans to the case. Holland's price for a similar type of fish, not a pilchard, is 48s. 3d. (US$6.90) per case of 48 15-ounce cans, c. & f. Accra (Gold Coast) or Tokoradi, plus 1s. 6d. (21 U. S. cents) per case if packed in wooden cases.

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CANNED FISH AND SPINY LOBSTER PRODUCTION, 1952: South Africa's production of canned fish for the fiscal year ending October 31, 1952, amounted to 52,996,523 pounds, as compared with 38,213,890 pounds in the previous fiscal year. In addition, the pack of canned spiny lobster totaled 6,661,432 pounds as compared with 6,318,986 pounds a year earlier.

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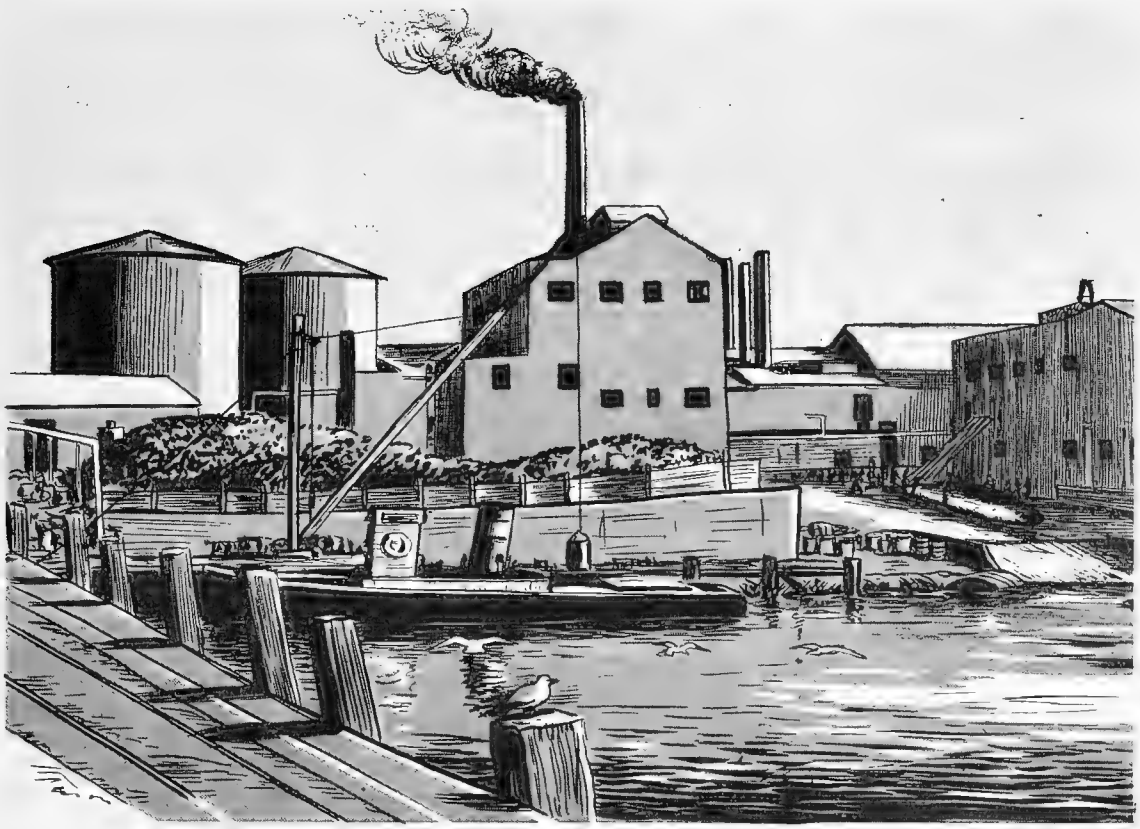
WHALING OPERATIONS, 1952: The Durban shore-based whaling station during 1952 processed 1,111 whales, about half of the 1951 catch, reports a March 18 U. S. consular dispatch from Johannesburg. Byproducts produced from the 1952 catch amounted to 5,261 long tons of whale oil, 2,178 long tons of sperm oil, 4,276 short tons of whale meal, and 300 short tons of spray-dried whale solubles.



SHORE-WHALING STATION AT DONKERGAT, ONE OF TWO OPERATING IN THE UNION OF SOUTH AFRICA. THE SKIPWAY AND FLENSING STAGE ARE ON THE RIGHT, WITH THE BUILDING WHERE THE MEAT IS PROCESSED ON THE EXTREME RIGHT. THE BLUBBER IS BOILED DOWN IN THE CENTER BUILDING, AND THE OIL STORED IN TWO TANKS ON THE LEFT.

During the 1951/52 Antarctic season, South Africa's one whaling expedition, consisting of the factoryship Abraham Larsen and 16 catchers, caught a total of 2,109 baleen whales (1358.2 blue-whale units) and 362 sperm whales. From these whales were produced 27,366 long tons of whale oil, 3,306 long tons of sperm oil, 2,534 short tons of whale meal, and 148 tons of liver flakes. Although fewer whales were caught, production was considerably higher than the previous year due to the

increase in the average size of whales. The 1951/52 baleen season was the shortest on record, lasting from January 2 to March 5, 1952 (64 days). The South African expedition again accounted for the greatest production of any one Antarctic expedition.

The whole of the whale oil and meat meal production of the South African Antarctic expedition was sold to the British Ministry of Food at negotiated prices.

Due to the recent fall in the price of whale oil and a rise in operating costs (particularly fuel oil), whaling will not be so profitable in the 1952/53 season as it has been in the past.

United Kingdom

ADVERTISING CAMPAIGN TO INCREASE FISH CONSUMPTION: The White Fish Authority will appropriate about £80,000 (US$224,000) during its next fiscal year for a publicity campaign to increase the consumption of fish in Great Britain, reports the March 21 issue of The Fishing News, a British trade magazine. Simultaneously, the British Trawlers' Federation will be conducting a campaign to induce the public to buy more fillets. The Federation will have a poster campaign in the larger towns during the summer of 1953. This will be supplemented by special press advertising during gluts, and by advertising to the catering trade and women's organizations. The Authority's campaign will therefore not cover any of these fields.

The Authority's campaign will consist of: (a) press advertising, mainly in the national daily newspapers and popular women's magazines; (b) a merchandising campaign at the points-of-sale; including the distribution of display material--with this will be linked an explanatory campaign in the trade press; and (c) editorial and general publicity. It is planned to put the main weight of the press advertising in the spring and summer, and advertise on a small scale through the autumn and winter to maintain continuity. The Authority hoped to begin the campaign after Easter of this year.

Because of the incidence of supplies, the advertising of fish must be aimed mainly at increasing the sale of the more common varieties; therefore, the main campaign is directed at the mass markets. For this purpose, publications with large circulations will be used, and the advertising agents have devised an attractive campaign based on the theme of the "Whispering Fish." They have turned a fish into a personality and given him an endearing and roguish character. He is shown putting into the housewife's mind the idea of buying fish for tonight. He is shown

making the thought of fish run through the minds of the children, of the husband, and of the young people. He is put into incongruous and intriguing situations.

With a substantial weight of advertising money behind him, the "Whispering Fish" will be talked about and quoted. But he is a hard-selling advertising device. He enables the ads to give the housewife a message about fish in a more interesting, acceptable, and memorable way than is possible by more conventional means.

There will be special ads in two high-class national dailies which will afford an opportunity of featuring some of the scarcer and more expensive varieties caught by the near-water and inshore boats.

The Authority is convinced that the full benefit of this advertising cannot be obtained unless all sections of the trade cooperate in selling good-quality fish and making their premises hygienic and attractive, and unless there is an adequate link with the press campaign at the point of sale. The fish retailer, in comparison with other retailers, has hitherto worked under two disadvantages: (a) he has had little or no help from manufacturers, (other retailers are supplied with tested sales aids and display material); and (b) there is very little impulse buying of fish by the housewife.

For these reasons the Authority proposes to institute a merchandising campaign among fishmongers and fish friers. It will be carried out by a small corps of salesmen who will discuss sales problems with the retailer, distribute and erect the point-of-sale display material, and help him in every other way possible. It is proposed that some payment should be made by the retailer for the display material, as this will induce him to use and value it.

The Authority intends to start this merchandising campaign in a pilot way, probably with two salesmen. Its success will depend on the cooperation of the trade, but if it proves successful it will be extended as quickly as possible to cover the whole of Great Britain.

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RUSSIA TO BUY BRITISH HERRING IN 1953: A deal with Russia covering the British 1953 herring catch is about to be negotiated, reports the March 21 Fish Trades Gazette, a British trade magazine. This will be a barter arrangement with Britain taking Russian canned crab meat in return. A member of Parliament reporting on the prospects of Russia entering the British herring market, said: "The prospects are good and I have reason to believe the contract will soon be signed."

In 1952 Russia placed an order for about £750,000 (US$2,100,000) worth of herring, and Britain took Russian canned salmon in exchange. About 40,000 barrels have yet to be delivered on this order.

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FROZEN-FISH SCHEME POSTPONED: The White Fish Authority's frozen-fish scheme has been postponed for six months, reports the April 1953 Fish Industry, a British fishery magazine. The objectives of the scheme were to reduce the surplus of fish during periods of plenty, and to secure additional stocks of frozen fish for the consumer when fish is scarce.

Several organizations objected to the scheme; some of the catchers, most of the distributors, and the National Federation of Fish Quick-Freezers were strongly

opposed to it. The Authority considered the objections and discussed them with some of the organizations concerned, but little agreement was reached.

Since time no longer would permit any scheme to be put into operation this summer, the Authority decided to postpone the submission of the scheme to the ministers for six months. They have been influenced in this decision by a statement of the National Federation of Fish Quick-Freezers who told the Authority that they are not opposed to the principle but only to the terms of the present scheme. The Federation has, therefore, been asked to put forward, after consultation with other sections of the industry, proposals to enable the Authority to draw up a scheme within six months which would achieve the purpose of the Authority and secure a greater measure of agreement.

SCHOOL-LUNCH DEMONSTRATIONS SELL FISH

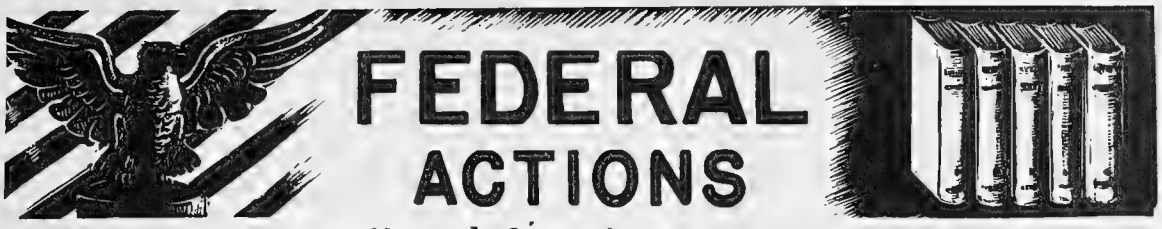
"You can teach them better while they are young." In recognition of this basic educational principle, the Service is continuing to devote a substantial portion of its fishery educational and market development program to increasing the use of fish in the nation's schools. By means of fish-cookery demonstrations for school lunchroom personnel during the past year, the Service has encouraged greater use of fish by over a million children in the schools of 10 states.

AT ONE OF THE FISH-COOKERY DEMONSTRATIONS FOR SCHOOL-LUNCH PERSONNEL, A HOME ECONOMIST OF THE EDUCATIONAL AND MARKET DEVELOPMENT SECTION OF THE BRANCH OF COMMERCIAL FISHERIES GIVES SOME MENU POINTERS FOR USING FISH IN SCHOOL LUNCHES.

School lunchrooms are now looked upon by educators as being more than just a convenient place for students to eat their noon meal. The lunchroom has become, in effect, a classroom where the students can broaden their food preferences and make practical application of what they have been taught about the value of a balanced diet. The "teachers" in these informal classrooms are the lunchroom managers. The Service's fish-cookery demonstrations for school lunch personnel thus serve to "teach the teachers."

Since acceptance of fishery products has been lower in areas not on the sea coasts, the Service is concentrating most of its fish-cookery demonstration program in inland states. During the past year, 150 meetings were held for groups of school-lunch personnel in Illinois, Minnesota, Michigan, Kansas, Nebraska, Alabama, New York, New Jersey, Oregon, and Virginia. Over 7,000 school-lunch cooks and managers, repsenting 2,700 schools, attended these demonstrations to learn more about fish cookery.

A good evaluation of the results cannot be made until sufficient time has elapsed for reasonable assurance that there has been a permanent increase in the use of fish in the schools represented at demonstrations. However, the Service has found, based on surveys in other states, that a 60-percent increase can be expected in those schools.



Mutual Security Agency

YUGOSLAVIA AUTHORIZED TO PURCHASE WHALE OIL AND FISH OILS: Yugoslavia has been authorized by the Mutual Security Agency to spend $10,000 for the purchase of whale and fish oils, a June 1 news release from that agency reports. Yugoslavia is authorized to make this Mutual Security Agency-financed purchase in the United States and Possessions. The terminal delivery date for these purchases is October 31, 1953.

On June 8, MSA announced that Yugoslavia had been authorized to spend an additional $10,000 for the purchase of fish oil from the United States. The purchasing agency was designated HEMPRO, Jovanova 35, Belgrade, Yugoslavia, and suppliers were requested to submit offers directly to that agency.

Further details may be obtained from the Office of Small Business, Mutual Security Agency, 806 Connecticut Avenue NW., Washington 25, D. C.

U. S. Tariff Commission

GROUNDFISH FILLETS INVESTIGATION INSTITUTED: An investigation on groundfish fillets has been instituted by the U. S. Tariff Commission. Upon application made May 27, 1953, by the Massachusetts Fisheries Association, Inc., and others, the United States Tariff Commission, on June 16, 1953 (under the authority of section 7 of the Trade Agreements Extension Act of 1951, approved June 16, 1951, and section 332 of the Tariff Act of 1930) instituted an investigation to determine whether the products described below are, as a result, in whole or in part, of the duty or other customs treatment reflecting concessions granted on such products under the General Agreement on Tariffs and Trade, being imported into the United States in such increased quantities, either actual or relative, as to cause or threaten serious injury to the domestic industry producing like or directly competitive products.

Tariff Act of 1930	Description of Product
Par.717(b)	Cod, haddock, hake, pollock, cusk, and rosefish, fresh or frozen (whether or not packed in ice), all the foregoing, filleted, skinned, boned, sliced, or divided into portions.

The Commission, as a part of the investigation, ordered that a public hearing be held on October 20, 1953, at 10:00 a.m. in the Hearing Room, Tariff Commission Building, 8th and E Streets NW., Washington, D. C., at which hearing all parties interested will be given opportunity to be present, to produce evidence, and to be heard.

Parties desiring to appear at the public hearing should notify the Secretary of the Commission in writing at its office in Washington, D. C., in advance of the hearing.

The application is available for public inspection at the office of the Secretary, United States Tariff Commission, 8th and E Streets NW., Washington, D.C., and in the New York office of the Tariff Commission, Room 437, Customhouse, where it may be read and copied by persons interested.

Eighty-Third Congress (First Session)

MAY 1953

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

BILLS INTRODUCED:

Dumping Ban for Waters Adjacent to New York City: H. R. 5306 (Dorn of New York) - A bill to aid navigation and protect the fishing industry in the waters adjacent to New York City by prohibiting the dumping of certain materials in such waters; to the Committee on Public Works.

Dumping Ban for Coastal Waters: H. R. 5307 (Dorn of New York) - A bill to aid navigation and protect the fishing industry by prohibiting the dumping of certain materials in the coastal navigable waters of the United States; to the Committee on Public Works.

Submerged Lands of Outer Continental Shelf: S. 1901 (Cordon) - A bill to provide for the jurisdiction of the United States over the submerged lands of the outer Continental Shelf, and to authorize the Secretary of the Interior to lease such lands for certain purposes; to the Committee on Interior and Insular Affairs. This bill defines the "outer Continental Shelf" to mean all submerged lands (1) which lie outside and seaward of lands beneath navigable waters as defined in the Submerged Lands Act, and (2) of which the subsoil and natural resources appertain to the United States and are subject to its jurisdiction and control.

Social Security Coverage for All Fishermen: S. 1952 (Magnuson and Jackson) - A bill to extend coverage under the Federal old-age and survivors' insurance system to employees performing services in the catching, taking, harvesting, cultivating, or farming of any kind of fish, shellfish, or other aquatic forms of animal or vegetable life; to the Committee on Finance. This bill expands coverage to include fishermen not presently included under present Social Security regulations.

BILLS REPORTED:

Alaska Statehood: H. R. 2982 - The Subcommittee on Territories reported to the Senate Committee on Interior and Insular Affairs, with amendments, H. R. 2982, to provide for the admission of Alaska into the Union.

Collisions-at-Sea Regulations: H. R. 2456 (Hart), to amend the act of October 11, 1951, authorizing the President to proclaim regulations for preventing collisions at sea, and for other purposes; reported to the House without amendment (H. Rept. No. 357).

Submerged Lands Act: The House Committee on the Judiciary reported out H. R. 5134, to amend the Submerged Lands Act (re the Continental Shelf) (H. Rept. 413); The House Committee on Rules granted a rule (H. Res. 232) to provide that H. R. 4198, the submerged lands bill, be taken from the Speaker's table and that the House agree to the Senate amendments thereto (H. Rept. 414).

NOTE: IN PREVIOUS REPORTS THE "SUBMERGED LANDS ACT" HAS BEEN REPORTED UPON UNDER THE HEADING: "TITLE OF STATES TO LANDS AND RESOURCES BENEATH NAVIGABLE WATERS."

COMMITTEE MEETINGS:

Hawaii and Alaska Statehood: The Senate Committee on Interior and Insular Affairs by a vote of 8 to 7 adopted a motion to add a new title II to the bill H. R. 3575, granting statehood to Hawaii, the new title to embody the provisions of S. 50, granting statehood to Alaska, and that hearings be held on this bill.

BILLS PASSED:

Sea Collisions: House passed and cleared for the President H. R. 2456, making certain technical changes in Rules and Regulations for the Prevention of Collisions at Sea.

Economic Controls: Senate passed, with amendments, S. 1081, to provide for temporary economic controls, after substituting for its text the language of modified committee amendment in the nature of a substitute, as amended. Actions taken today on amendments to the committee substitute were as follows:

Adopted: By 45 yeas to 41 nays, Byrd amendment to restrict any standby wage-price controls to wartime, except by congressional action otherwise; Byrd amendment respecting establishment by President of ceilings on prices, wages, and rents pursuant to authority in section 801 of the Defense Production Act; Ferguson amendment making changes in definition of "national defense;" Case amendment to declaration of policy respecting indirect controls and diversion of materials from civilian to military use; Young amendment establishing formula for ceiling prices on farm products at not less than the parity levels worked out by Agriculture Department; Capehart amendment providing for expiration on June 30, 1953, of fats and oils provisions of Defense Production Act; by 48 yeas to 40 nays, Bricker amendment to eliminate language providing for exemptions from and adjustments of ceilings in certain cases; Ferguson amendment requiring as a condition for establishment of civilian controls that President find both that the material is scarce and critical to defense and that defense requirements cannot otherwise be met without dislocation of civilian market; Capehart amendment respecting allocation of general distribution in civilian market; and a series of Capehart amendments of a technical, clarifying nature; and other amendments.

Submerged Lands: Senate passed with amendment, H. R. 4198, to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, and to provide for the use and control of said lands and resources, after amending it by substituting for the text thereof the language of S. J. Res. 13, a similar measure, as amended by committee amendment in the nature of a substitute. Before this was done, the following actions had been taken today on the committee substitute and on amendments thereto: adopted by 56 yeas to 35 nays, committee amendment in the nature of a substitute, as amended on prior days of consideration; rejected numerous amendments. The vote by which S. J. Res. 13 had been passed was reconsidered and S. J. Res. 13 was indefinitely postponed.

Submerged Lands Act: The House passed, on a roll call vote of 309 to 91, H. R. 5134, to amend the Submerged Lands Act. This measure confirms Federal jurisdiction for development of resources in submerged lands in the Continental Shelf. The text of this bill is substantially the same as Title III of H. R. 4198, the submerged lands bill, passed by the House on April 1, but which was eliminated by a Senate amendment. H. R. 4198 was cleared for the President.

The House adopted, on a roll call vote of 278 to 116, H. Res. 232, providing for House agreement to Senate amendments to H. R. 4198, to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, to provide for the use and control of said land and resources, and to confirm the jurisdiction and control of the United States over the natural resources of the seabed of the Continental Shelf seaward of State boundaries. This action clears the bill for the President.

BILL SIGNED BY THE PRESIDENT:

Submerged Lands: H. R. 4198, to confirm and establish the titles of the States to lands beneath navigable waters within State historic boundaries, and for other purposes. Signed May 22, 1953 (P. L. 31). Some of the more pertinent definitions of general interest included in Title I of this Act are:

Sec. 2. When used in this Act—

(a) The term "lands beneath navigable waters" means—

(1) all lands within the boundaries of each of the respective States which are covered by nontidal waters that were navigable under the laws of the United States at the time such State became a member of the Union, or acquired sovereignty over such lands and waters thereafter, up to the ordinary high water mark as heretofore or hereafter modified by accretion, erosion, and reliction;

(2) all lands permanently or periodically covered by tidal waters up to but not above the line of mean high tide and seaward to a line three geographical miles distant from the coast line of each such State and to the boundary line of each such State where in any case such boundary as it existed at the time such State became a member of the Union, or as heretofore approved by Congress, extends seaward (or into the Gulf of Mexico) beyond three geographical miles, and

(3) all filled in, made, or reclaimed lands which formerly were lands beneath navigable waters, as hereinabove defined;

(b) The term "boundaries" includes the seaward boundaries of a State or its boundaries in the Gulf of Mexico or any of the Great Lakes as they existed at the time such State became a member of the Union, or as heretofore approved by the Congress, or as extended or confirmed pursuant to section 4 hereof but in no event shall the term "boundaries" or the term "lands beneath navigable waters" be interpreted as extending from the coast line more than three geographical miles into the Atlantic Ocean or the Pacific Ocean, or more than three marine leagues into the Gulf of Mexico;

(c) The term "coast line" means the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters;...

(e) The term "natural resources" includes, without limiting the generality thereof, oil, gas, and all other minerals, and fish, shrimp, oysters, clams, crabs, lobsters, sponges, kelp, and other marine animal and plant life but does not include water power, or the use of water for the production of power;

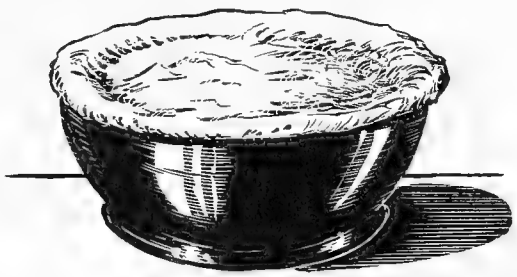
(f) The term "lands beneath navigable waters" does not include the beds of streams in lands now or heretofore constituting a part of the public lands of the United States if such streams were not meandered in connection with the public survey of such lands under the laws of the United States and if the title to the beds of such streams was lawfully patented or conveyed by the United States or any State to any person;...

Seaward Boundaries are covered in Title II, Sec. 4: The seaward boundary of each original coastal State is hereby approved and confirmed as a line three geographical miles distant from its coast line or, in the case of the Great Lakes, to the international boundary. Any State admitted subsequent to the formation of the Union which has not already done so may extend its seaward boundaries to a line three geographical miles distant from its coast line, or to the international boundaries of the United States in the Great Lakes or any other body of water traversed by such boundaries. Any claim heretofore or hereafter asserted either by constitutional provision, statute, or otherwise, indicating the intent of a State so to extend its boundaries is hereby approved and confirmed, without prejudice to its claim, if any it has, that its boundaries extend beyond that line. Nothing in this section is to be construed as questioning or in any manner prejudicing the existence of any State's seaward boundary beyond three geographical miles if it was so provided by its constitution or laws prior to or at the time such State became a member of the Union, or if it has been heretofore approved by Congress. ...

Resources Seaward of the Continental Shelf are also covered in Title II, Sec. 9: Nothing in this Act shall be deemed to affect in any wise the rights of the United States to the natural resources of that portion of the subsoil and seabed of the Continental Shelf lying seaward and outside of the area of lands beneath navigable waters, as defined in section 2 hereof, all of which natural resources appertain to the United States, and the jurisdiction and control of which by the United States is hereby confirmed. ...

"LAMPREY PIE" FOR THE QUEEN

A centuries-old custom, coupled with a patriotic gesture by the citizens of Gloucester, England, brought some rare fish to Grimsby early in April. One of the local firms--fish curers and quick-freezers--had its most unusual order.



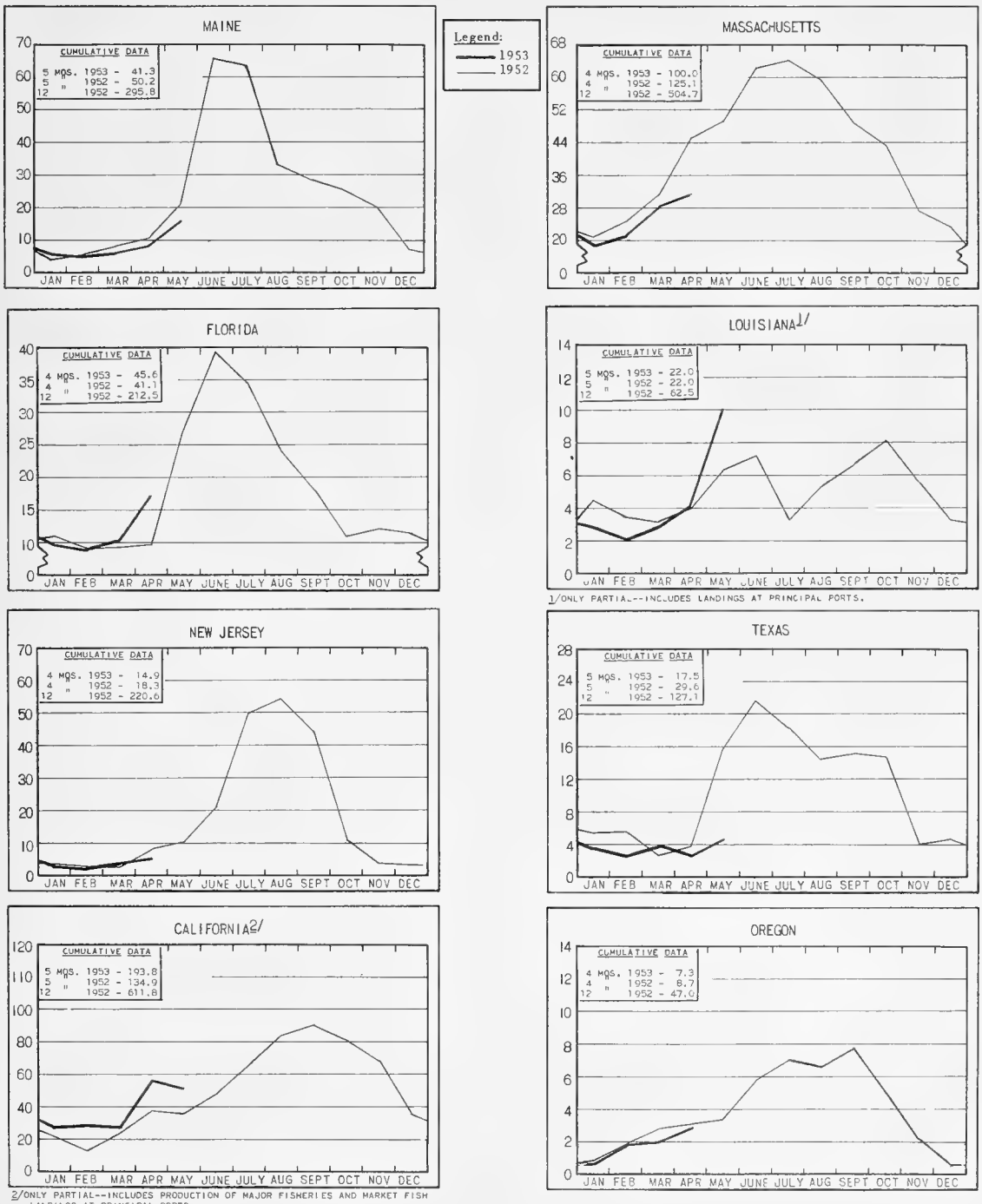
Right across England, from the Severn Estuary, five lampreys were shipped to Grimsby. They were immediately quick-frozen and put into cold storage to wait for several more consignments.

And the reason for all this was a promise made by the Mayor of Gloucester to present a 20-pound lamprey pie to the Queen during her Coronation year. This revived a custom of years ago when lampreys caught in the Severn Estuary were made into a pie and sent to the reigning monarch. In those days lampreys were plentiful, but now they can only be caught in very small numbers during the salmon season.

--Fish Trades Gazette, April 18, 1953

CHART 1 - FISHERY LANDINGS for SELECTED STATES

In Millions of Pounds

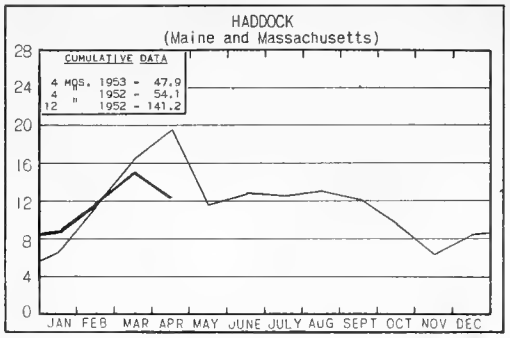


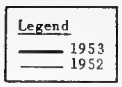
1/ONLY PARTIAL--INCLUDES LANDINGS AT PRINCIPAL PORTS.

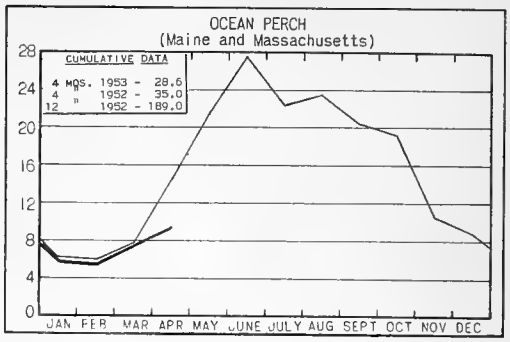
2/ONLY PARTIAL--INCLUDES PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

CHART 2 - LANDINGS for SELECTED FISHERIES

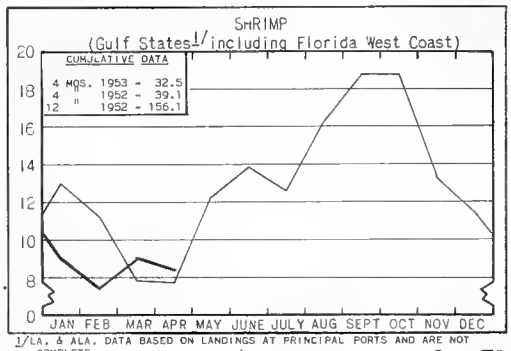
In Millions of Pounds



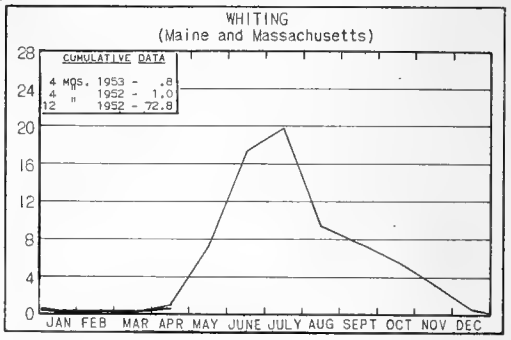




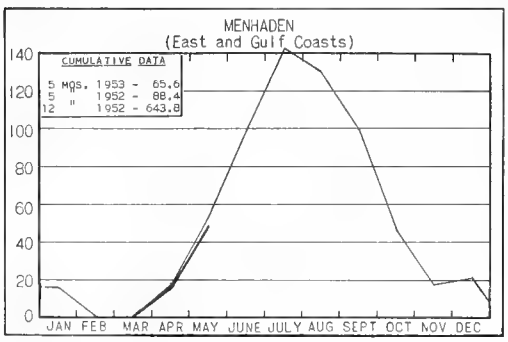
In Millions of Pounds

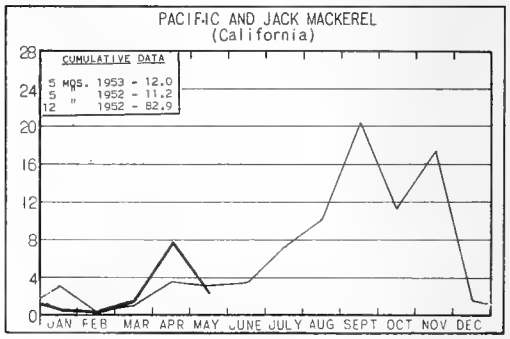


1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

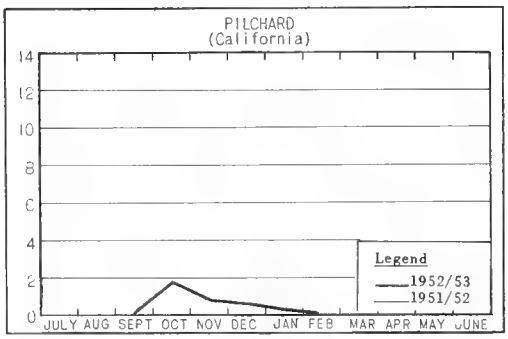


In Thousands of Tons





In Thousands of Tons



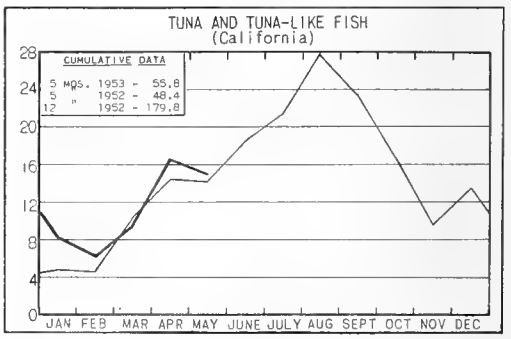
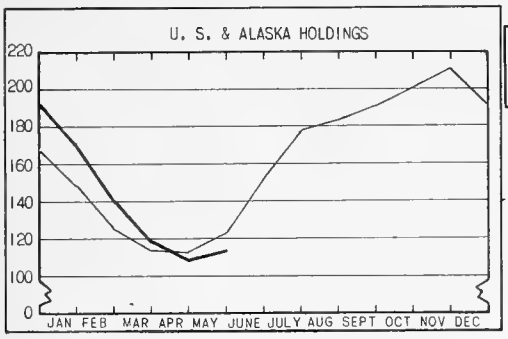
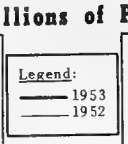
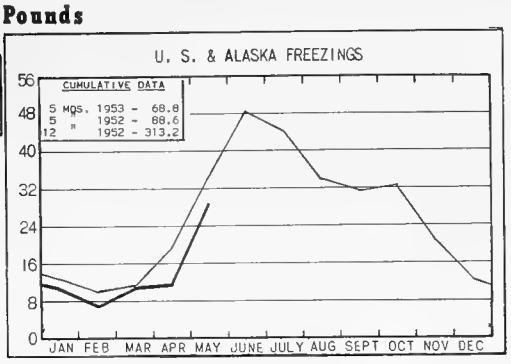


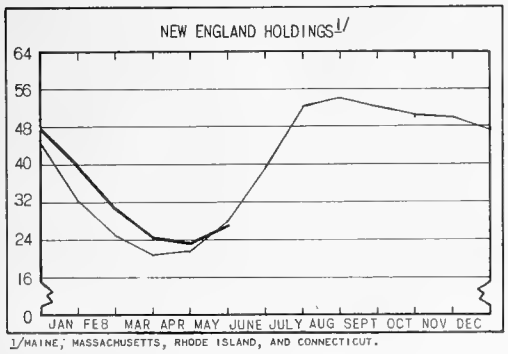
CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds

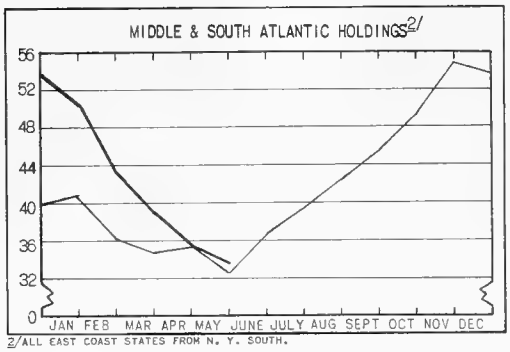




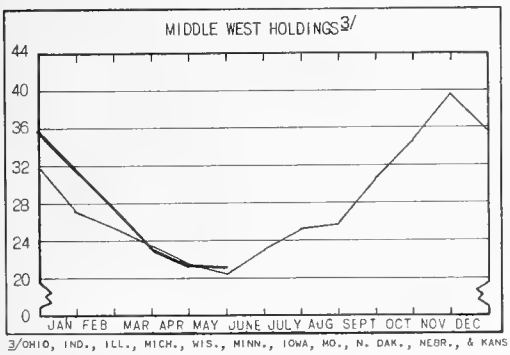




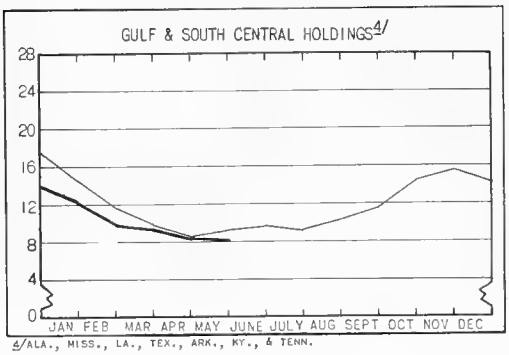
1/MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT.



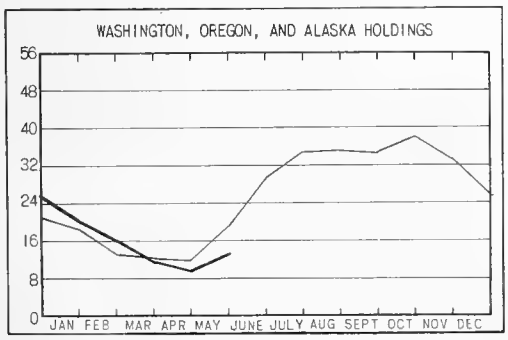
2/ALL EAST COAST STATES FROM N. Y. SOUTH.

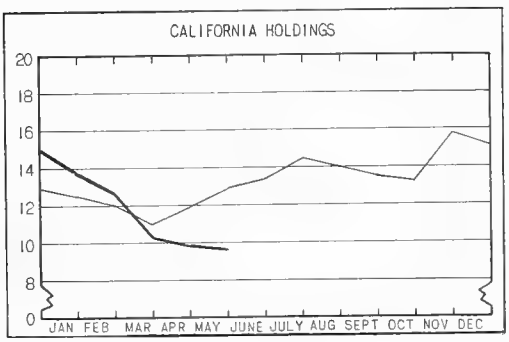


3/OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR., & KANS.



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

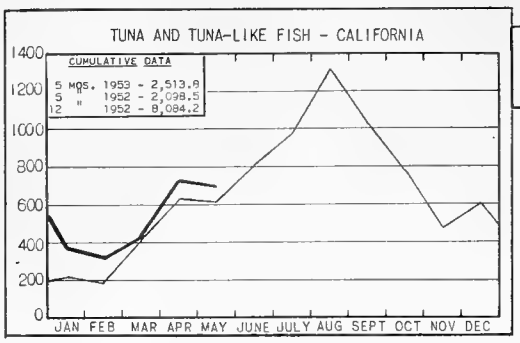


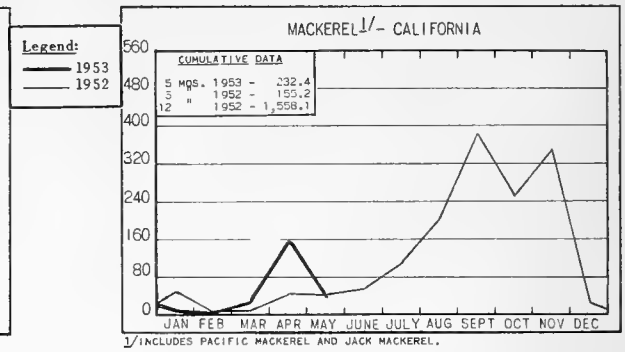


*Excludes salted, cured, and smoked products.

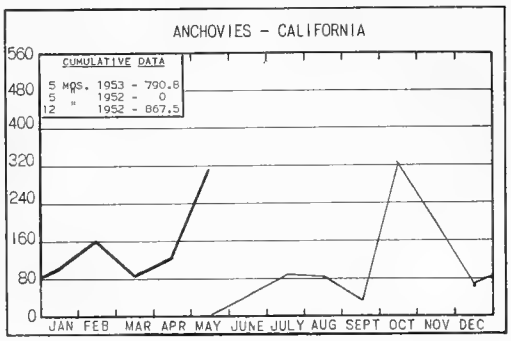
CHART 4 - CANNED PACKS of SELECTED FISHERY PRODUCTS

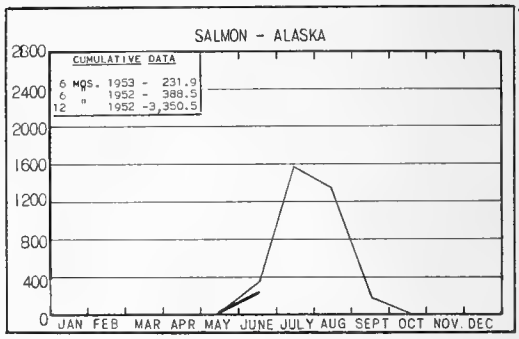
In Thousands of Standard Cases

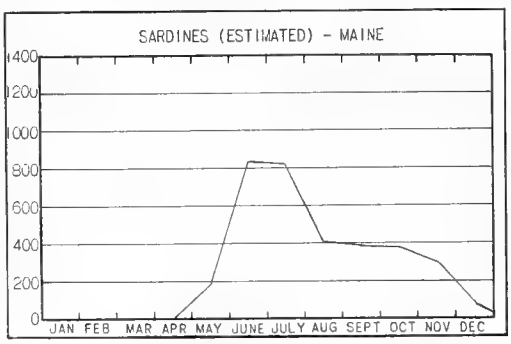




1/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.

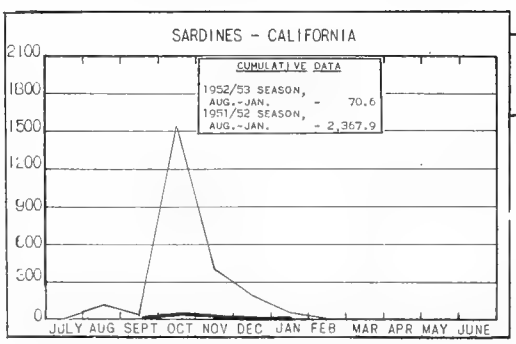






STANDARD CASES

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



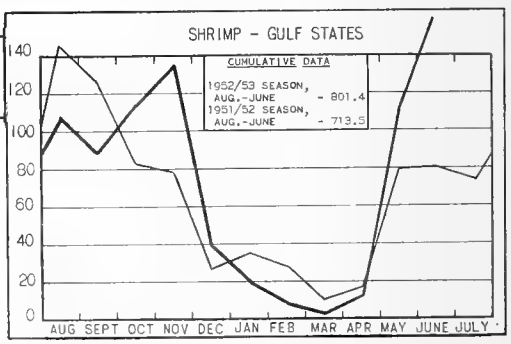
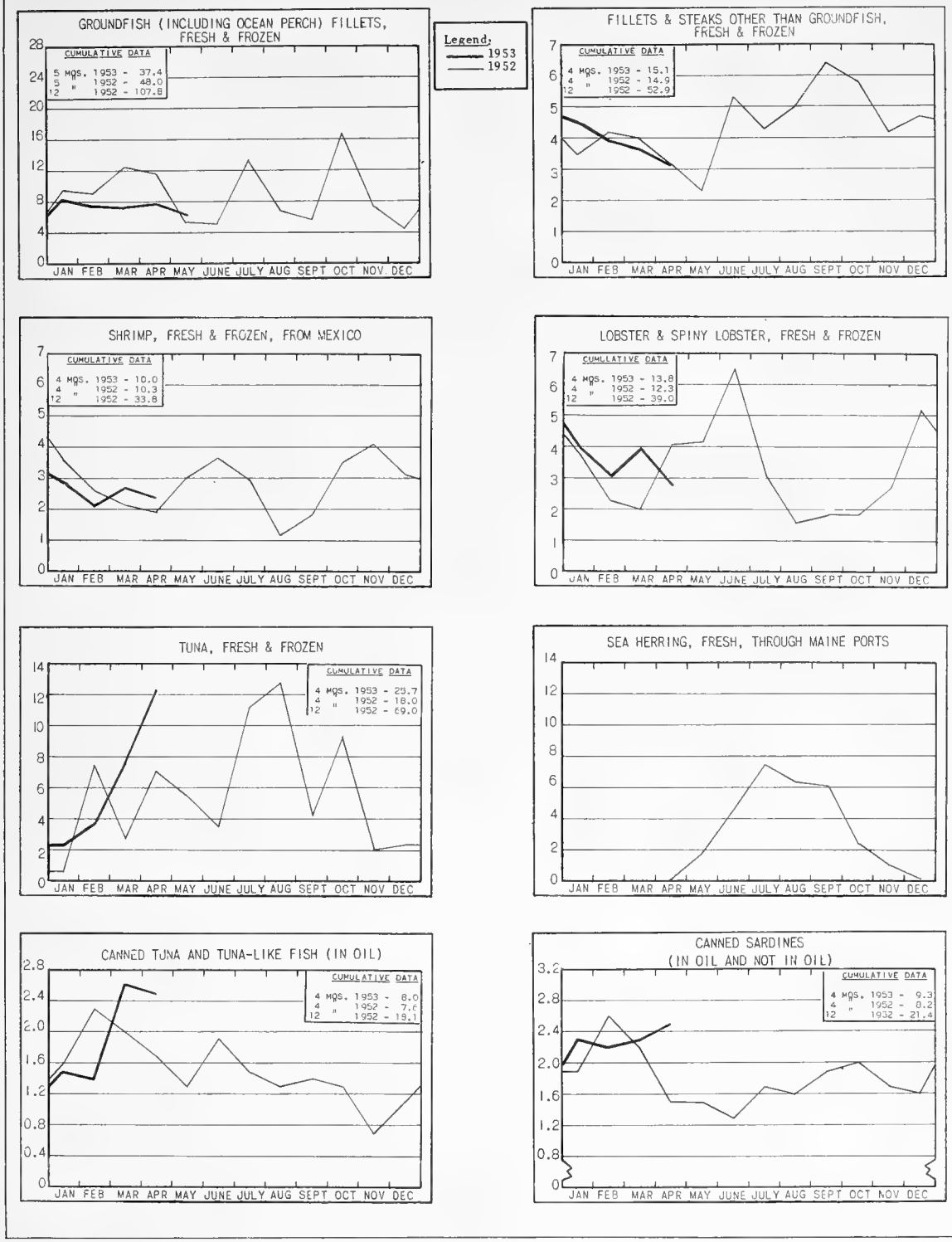


CHART 5 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds



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

FISH AND WILDLIFE SERVICE PUBLICATIONS

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

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
FL - FISHERY LEAFLETS.
SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SSR.-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
SEP.-SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number Title

CFS-852 - Maine Landings, by Counties, 1952 Annual Summary, 13 p.
CFS-862 - Maine Landings, February 1953, 4 p.
CFS-864 - Massachusetts Landings, February 1953, 8 p.
CFS-865 - Mississippi Landings, February 1953, 2 p.
CFS-866 - Florida Landings, February 1953, 6 p.
CFS-867 - Texas Landings, March 1953, 4 p.
CFS-868 - Fish Meal and Oil, March 1953, 2 p.
CFS-870 - New Jersey Landings, January 1953, 2 p.
CFS-871 - New Jersey Landings, February 1953, 2 p.
CFS-873 - New Jersey Landings, March 1953, 2 p.
CFS-874 - Maine Landings, March 1953, 4 p.
CFS-875 - Mississippi Landings, March 1953, 2 p.
CFS-876 - Pacific Coast States Fisheries, 1951 Annual Summary, 7 p.
CFS-880 - Texas Landings, April 1953, 4 p.
FL -413 - Common or Local Names of Commercial Fish and Shellfish of Alaska, 4 p.
SL - 21 - Wholesale Dealers in Fishery Products, California (Revised), 9 p.

Firms Canning (Revised):
SL-101 - Salmon, 1952, 4 p.
SL-106 - Shad or Shad Roe, 1952, 1 p.
SL-111 - Clam Products, 1952, 2 p.
SL-112 - Shrimp, 1952, 2 p.
SL-113 - Crab Meat, 1952, 2 p.
SL-117 - Pacific Sea Herring, 1952, 1 p.
SL-119 - Squid, 1952, 1 p.
SL-120 - Anchovies, 1952, 1 p.

Firms Manufacturing (Revised):
SL-151 - Fish Meal, Scrap, Body & Liver Oils, 1952, 9 p.
SL-153 - Fish Glue and Isinglass, 1952, 1 p.
SL-154 - Seaweed Products, 1952, 1 p.
SL-156 - Pearl Essence, 1952, 1 p.

SL-161 - Producers of Packaged Fish, 1952 (Revised), 6 p.

Number Title

Sep. No. 348 - Status of New England Sea-Scallop Fishery.
Sep. No. 349 - Salmon Tagging by the 1952 Japanese North Pacific Fishing Expedition.
Sep. No. 350 - Technical Note No. 26—Glazing Brine-Frozen Salmon.

SSR-Fish. No. 93 - Directing the Movement of Fish with Electricity, by Alberton L. McLain and Willis L. Nielsen, 27 p., illus., processed, January 1953. Describes the development of alternating current electrical devices which appear most promising as a means of controlling the parasitic sea lamprey in the Great Lakes. Observations on these electrical devices demonstrated some need for developing a means of accelerating the capture and transfer upstream of fish migrating during the period of sea-lamprey movement. This study represents one phase of the work undertaken to solve that problem. The experiment was based on the assumption that local food and game fish would move involuntarily toward the positive electrode when exposed to an appropriate type of direct current introduced into the water. If fish movement could be thus controlled with a simple accessory mechanism (to the AC sea lamprey control devices), it would resolve the problem in some stream locations of providing for uninterrupted migrations of fish while blocking or otherwise destroying the sea-lamprey runs. The first part of this investigation was directed toward determining the type of electric current that would be most effective in controlling the movements of fish. The second phase constituted the investigation of those factors which would affect the efficiency of an electrical leading device as it might be used as an aid in trapping fish to minimize the blocking effect of an alternating current, electrical sea-lamprey barrier.

This study has revealed several factors which appear to be obstacles to the practical use of

pulsed direct current as an effective means of leading desirable fish away from sea-lamprey control structures. Size selectivity is without doubt the major limiting factor. The highly diverse physical conditions encountered in streams over a large area also offer a number of obstacles. Still another problem is presented by the possibility that a large number of fish may turn away upon encountering the fringe of the electric field as was indicated by the tests in the Little Ocqueoc River. It may be possible to overcome this latter problem by intermittent operation on a critically times basis, or it may be that the persistence of upstream migrants is great enough to result in penetration of the electrical field. These and comparable problems may be solved by further study.

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

Fluctuations in the Fisheries of State of Michigan Waters of Green Bay, by Ralph Hile, George F. Lunger, and Howard J. Buettner, Fishery Bulletin 75 (From Fishery Bulletin of the Fish and Wildlife Service, Volume 54), 37 p., illus., printed, 25 cents, 1953. Production records for 1885, 1891-1908, and 1929-49, indicate cyclic fluctuations for several important species of fish. The 1929-49 fluctuations of abundance were considerable for all principal species. In the late years of the period, lake trout were scarce as the result of sea-lamprey depredations, but the abundance levels of whitefish, lake herring, and walleyes were extremely high; at the same time the smelt was showing good recovery from the disastrous 1943 mortality. With certain exceptions, correlations between fluctuations of fishing intensity and the abundance of individual species were low, probably because most operations are based on several species and hence not ordinarily sensitive to changes in the abundance of a particular one. A combination of intensive fishing and high abundance of three principal species carried the production to 5½ million pounds in 1947 and the modern record high of between 7½ and 8 million pounds in 1948 and 1949. With this prosperity has developed a most difficult situation arising from friction between local commercial fishermen and newcomers from other areas and from the activities of sport fishermen and resort owners who believe that drastic restrictions on commercial fishing will insure a perpetual high level of abundance of walleyes. Statistics for 1950 are given in a supplement. This paper on the Green Bay fisheries is documentary and its discussions are generally descriptive rather than analytical. Its primary purpose is to make the more significant statistical data available in concise form to investigators, conservation officials, sportsmen, industry, and others interested in the future of the fisheries.

MISCELLANEOUS PUBLICATIONS

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

Alaska's Salmon Industry, 14 p., illus., printed. Alaska Salmon Institute, Ketchikan, Alaska. Contains a brief history of the salmon industry, and discusses the life history of the Alaska salmon. Also describes the study of the salmon migrations being conducted by the Fisheries Research Institute, how Alaska salmon are caught, and how they are canned. Favorite recipes for cooking Alaska salmon are also included.

Annual Report of the United States Government to the Food and Agriculture Organization, 1952, 23 p., processed. United States-FAO Inter-Agency Committee, Washington, D. C., April 1953. This report covers the actions taken by the United States Government in implementing six policy resolutions passed at the Sixth Session of the Conference, and other developments in 1952 in the subject-matter fields to which each of the resolutions relate. The subjects covered are: development planning, education and extension services, reform of agrarian structures, investment and credit for agricultural production, forest policy, and nutrition programs. A brief discussion of fishery developments in 1952 is included.

Atlantic States Marine Fisheries Commission (Joint Meeting, North Atlantic Section and Middle Atlantic Section, March 12, 1953), 7 p., processed. Atlantic States Marine Fisheries Commission, Mt. Vernon, New York. Includes discussions of projects dealing with scallops, butterfish, proposed compact between Massachusetts and Connecticut to foster the return of Atlantic salmon in the Connecticut River, current regulations concerning dragging near outside beaches and in inland waters, tidelands, size limits on fluke, clam sizes, striped bass, and pollution off Cape May, N. J.

Bonito, Canned in Oil; and Tuna and Bonito, Canned not in Oil (Report on Escape-Clause Investigation Under Section 7 of the Trade Agreements Extension Act of 1951), 35 p. plus appendix of 10 statistical tables, processed. United States Tariff Commission, Washington 25, D. C., November 1952. Reports the findings and conclusions of the Tariff Commission in the "Escape-Clause" investigation for canned tuna in brine, bonito in oil and not in oil. The Commission found (Commissioners Brossard and Gregg dissenting) that these products are not being imported in such increased quantities as to cause or threaten serious injury to the domestic industry producing like or directly competitive products. Accordingly, in the judgement of the Commission, no sufficient reason existed for a recommendation to the President for the withdrawl or modification of the concessions made in trade agreements.

The Commission's report includes statements of the majority and minority views and an appendix

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of tables of supporting information. The majority report, among its considerations, states that there is little or no domestic production of canned tuna in brine, bonito in oil and not in oil. That these products differ in varying degrees from and command lower prices than tuna canned in oil which constitutes almost the entire domestic production of canned tuna. Because of the availability of these products, the total domestic consumption of all canned tuna and bonito products was presumed to be much larger than it would be if it were confined to tuna canned in oil. The marked increase in domestic consumption of the products concerned in recent years was not regarded as having displaced equivalent quantities of canned tuna in oil. It was further stated that to a considerable degree these lower-priced products have competed more with the lower-priced canned fish of other species (as well as with a variety of other protein foods) than they have with canned tuna in oil.

After 1949, total imports of all canned tuna and bonito products were on a very much higher level than in 1949 or in prewar years. Domestic production increased from an average of 68.8 million pounds annually in 1935-39 to 166.8 million pounds in 1950-51. In 1934-39, the apparent consumption (domestic production plus imports) averaged 77.4 million pounds annually of which 88.8 percent was supplied by domestic production and 11.2 percent by imports. The annual average for 1950-51 totaled 202.6 million pounds of which 82.3 percent was supplied by domestic production and 17.7 percent by imports.

Data supplied the Commission by the California Fish Canners Association on the financial results of the operations of 12 concerns whose total output accounts for about 80 percent of the domestic production of canned tuna showed that profits in the tuna-canning industry in the early postwar years appear to have been at an abnormally high, though declining level. The data submitted for four concerns which could segregate tuna operations from others indicated that the ratio of composite profits (before taxes) to net worth fell from 63 percent in fiscal year 1946/47, to 29 percent in 1948/49, to 4 percent in 1949/50. In the fiscal year ending 1951, these firms showed a net loss of 2 percent and in fiscal year 1952, a 19 percent loss. The Commission reported that the abnormal situation in 1950, however, was not attributable solely to the large importation of canned tuna. Tuna-fishing operations of United States vessels resulted in a record catch nearly 60 million pounds higher than in the next highest year (1949). The tuna-canning industry also imported 57 million pounds of fresh or frozen tuna, the highest level recorded up to that time. In consequence, the domestic production of canned tuna and bonito reached the unprecedented height of 174 million pounds, thus creating an exceptionally large supply. Prices rose early in 1950 at the beginning of the Korean war and remained relatively high through May 1951, but thereafter declined substantially until the beginning of 1952, after which continued improvement appeared to the Commission to be in prospect.

From the foregoing, it appeared that any serious injury, or threat thereof, to the domestic tuna canning industry which may have resulted from increased imports was of temporary character and occurred in 1950/51. The situation in those years, insofar caused by imports was not caused by imports of the products covered by this investigation but by abnormally large imports of canned tuna in oil in the last half of 1950, when domestic production of canned tuna was also at its record height based upon a record domestic catch of tuna and a record importation of fresh and frozen tuna.

The Commission concluded that no finding of whether increased imports of canned tuna in brine and bonito in oil or brine are causing or threatening serious injury to the domestic tuna fishery is required under Section 7, unless tuna fishing in the United States be regarded as an integral part of the domestic tuna-canning industry. Even if it should be so regarded, the Commission indicated there would be no basis on which it could make a finding that increased imports of canned tuna and bonito are causing or threatening serious injury to the fishing branch of the industry. The direct import competition encountered by the domestic tuna fishery was believed to result from imports of fresh and frozen tuna which enter free of duty.

--A. M. Sandberg

(Canada) Summary of Fisheries Statistics of British Columbia, 1952 (Preliminary), 12 p., processed. Department of Fisheries of Canada, Vancouver 5, B. C., April 10, 1953. Includes statistical tabulations for the period 1948-52 of the British Columbia pack of canned salmon by species, production of herring byproducts, the production of fillets, and a graph showing the landed and marketed value of fishery products for 1940-52. Also presents statistical data on utilization by individual species and marketed values; detailed information on the salmon pack; and the number of boats and gear and their values.

The Cold Chain in the U. S. A. (Report of a Group of European Experts), Part II. Technical Survey, 450 p., illus., printed, US$6.50. Organization for European Economic Cooperation, 2 Rue Andre-Pascal, Paris - XVI (or available from Columbia University Press, International Document Service, 2960 Broadway, New York 27, N. Y.), 1952.

A group of 50 experts from 12 Western European countries, including professors, economists, dieticians, and specialists in the transport of fruit, vegetables, and fish, in cold-storage operations, and construction engineers for refrigeration equipment have prepared this comprehensive report of their 60-day tour of food-refrigeration facilities in the United States. Subject matter covered includes descriptions and illustrations of refrigeration machinery, cold-storage structures, and refrigerated rail and truck transport units. One section takes up each of the principal applications of refrigeration to foodstuffs, as fruits, vegetables, concentrated juices, meat, poultry, dairy products, fish, and precooked foods. The major research institutions in these fields are listed, with brief mention of the program of each.

Chapter 32 summarizes direct observations made of the fishery industries in Boston and Gloucester, Massachusetts; Terminal Island and Monterey, California; and Seattle, Washington. These centers process haddock, cod, ocean perch, tuna, sardines,

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mackerel, salmon, and halibut. Indirect and incidental material was also obtained at several major inland fish-distribution centers, especially on transport, and wholesale and retail storage and sales methods for fish.

The tour was not specifically for a study of fish refrigeration, and the fish section may have suffered accordingly through the limited time available, the relatively small segment of the industry visited, and the consequent restricted background of observation against which the writers were obliged to form their recommendations.

The book is an excellent compilation of much pertinent information heretofore only available from a number of widely scattered sources and often in fragmentary condition. The comparisons of United States methods and ideas with those of the European countries throughout the book are significant. The report should become a ready reference, especially for workers in countries where United States trade periodicals and scientific literature are difficult to obtain.

--Charles Bulter

The Complete Book of Home Freezing, by Hazel Meyer, 456 p., illus., J. B. Lippincott Co., New York, N. Y., 1953. The main purpose of this book is to assist the homemaker in purchasing, planning, preparing, and packaging fresh foods for the home freezer; and to suggest various ways of cooking them after they are removed from frozen storage. The various types of home freezers, their advantages and disadvantages, and how to take care of them are discussed. Most of the book deals with how to handle and freeze the various types of foods. A chapter is included on how to freeze and handle fish and shellfish--how to clean fish; freezing a whole large fish; freezing small fish, steaks, pieces, and fillets; recommended maximum storage periods; freezing shellfish; the difference between lean and fat varieties; packaging; and thawing times are some of the subjects covered in this chapter. A chapter is devoted to how to handle and cook food removed from the freezer, while another presents recipes for the freezer. Some fish and shellfish recipes are included.

Dietetic Canned Foods, 62 p., printed. Research Laboratories, National Canners Association, Washington, D. C., 1953. The bulletin provides general background information about dietetic canned foods and their nutritional significance, to provide the medical profession, the public, and the canning industry with specific data obtained on dietetic canned foods as the result of the research program sponsored jointly by the National Canners Association and the Can Manufacturers Institute. It points out to canners and other interested parties some of the precautions necessary in the production and marketing of these foods. The report contains an appendix of three tables on: (1) Proximate Composition of Fruit and Vegetable Products Canned without Added Salt or Sugar, (2) Sodium Values of Fruits and Vegetables, and (3) Potassium Values of Fruits and Vegetables Canned Without Added Salt or Sugar. Included also is a selected bibliography containing 31 references.

--F. T. Piskur

Fisheries Technology Literature, Supplement to World Fisheries Abstracts Vol. 3 (December 1952), 44 p. of abstracts, processed. Food and Agriculture Organization of the United Nations, Rome, Italy. The Supplement combines abstracts of older texts as well as more recent publications in the field of fisheries technology. The material is printed so that the cards may be cut out and filed in the "World Fisheries Abstracts" file. The issue is particularly valuable as a bibliographic reference work.

--F. T. Piskur

(Institute of Seaweed Research) Annual Report for 1951, 35 p., illus., printed. Institute of Seaweed Research, Inveresk, Midlothian, Scotland. This is the 1951 Annual report of the Director of the Institute of Seaweed Research. It includes a short history of the Scottish Seaweed Research Association. The Association was formed in June 1944 at the instigation of a number of Government departments, semi-official bodies, and private individuals and organizations with the object of providing basic scientific and technical data which it was hoped would aid the development of an industry based on indigenous seaweed resources. Early in 1951 the Government took over sole financial responsibility for the operation of the Institute and on June 30, 1951, the Scottish Seaweed Research Association was dissolved and its place taken by the Institute of Seaweed Research. The report describes the operation, program, and research facilities of the Institute. Included are progress reports on the phycology, microbiology, algal chemistry, chemical engineering, mechanical engineering, and utilization of seaweed resources. Of particular interest is the bibliography of publications of the Institute from 1946 through 1951 and a list of reports submitted for publication.

--F. T. Piskur

"Official Common Names of Certain Marine Fishes of California," by Phil M. Roedel, article, California Fish and Game, April 1953, vol. 39, no. 2. pp. 251-62, printed. California State Fisheries Laboratory, Terminal Island Station, San Pedro, Calif. Contains common and scientific names of certain marine fishes of California. In general, names have been given only to species likely to be caught by sport and commercial fishermen. A new feature to the official list is the sanctioning of a few alternative names, where two vernaculars are applied to the same fish in California and either name will lead to ready identification of the species in question. The preferred name is given primary listing. Another departure from previous lists lies in the use of optional attributives. These will be found enclosed in parentheses which indicate that another species with the same vernacular is found outside of the State's boundaries. Such attributives need not be used unless their omission might, in any given report or record, result in confusion with a species found elsewhere.

The Rutgers Food Saver, by Walter A. Maclinn, 127 p., printed. Rutgers University Press, New Brunswick, N. J., 1952. This book tells the homemaker how long and at what temperature it is safe to keep each food; how to store food so that it stays fresh; how to tell if it's still good; and what to do about it. Covers all types of foods, including fishery products. The first part of the book dis-

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cusses saving food, quality loss and spoilage and how to minimize them, and causes for food poisoning. The reference charts and commentaries, which make up most of the book, deal with foods and familiar food combinations. Each chart is divided into five sections: "How to Store;" "Approximate Time Limit for Storage;" "Evidence of Quality Loss;" "Danger Signals;" and "Suggestions for Dealing with Quality Losses and Spoilage." The charts on fish and shellfish include fresh fish; cooked fish and fish salads; bisques, broths, chowders, stews, and soups; unopened canned fish; opened canned fish; frozen fish; light-smoked fish; heavy-smoked fish; dried fish; and fish pickled with vinegar, wine, and/or sour cream. Among the other foods covered are sandwiches, soups, eggs and egg dishes, cheese and cheese dishes, poultry, meat, fruits, vegetables, pies and puddings, and a number of others.

Third Annual Report On Exchange Restrictions, 1952, 236 p., printed. International Monetary Fund, Washington, D. C. This is the third annual report of the Fund's transitional arrangements for retention and operation of exchange restrictions. Part I of the report is largely devoted to procedure followed in consultations being held to consider the restrictions. Part II summarizes the developments in restrictions and their application, and surveys the restrictions by countries. One of the purposes of the International Monetary Fund is "To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade." The Report states that for the postwar transitional period, the Fund Agreement provides that member countries may maintain and adapt to changing circumstances restrictions on payments and transfers for current international transactions, without the Fund's approval which would otherwise be required. The large majority of the members have availed themselves of these arrangements. The Agreement provides that members shall withdraw exchange restrictions which are no longer necessary for balance of payments reasons and that any member retaining any restriction inconsistent with Article VIII, Sections 2, 3, and 4, shall consult the Fund as to further retention after March 1, 1952. The use of restrictions by member countries is described in brief country surveys. Also summarized are the changes in the use of restrictions which took place during 1951 and early 1952. In 1951 considerable relaxation in the application of restrictions was noted, but 1952 saw the intensification of restrictions by a number of countries, including some with important international financial positions. The report points out that there still remains a widespread use of restrictive practices by the Fund's members, with the nature of the restrictive practices in use differing considerably among countries. It reports that most countries discriminate in the application of their restrictions so that payments in "hard currencies" are curtailed to a greater extent than in "soft currencies." Multiple currency practices exist in about half of the 44 member countries surveyed, and there has been some extension of this practice, notably in Europe. Other member countries, which are not availing themselves of the transitional arrangements of the Fund Agreement, employ quotas, discriminatory import restrictions, tariffs, and other similar policies which also interfere with the free flow of international trade and significantly affect international payments.

--A. M. Sandberg

A Trade and Tariff Policy in the National Interest (A Report to the President by the Public Advisory Board for Mutual Security), 83 p., printed, 40 cents. The Public Advisory Board for Mutual Security, Washington, D. C. (For sale by Superintendent of Documents, Washington 25, D. C.) This study of the problems relating to international trade was undertaken by the Board during the summer of 1952 at the request of President Truman. Discussed in the report are the findings and recommendations of the Board; the trade and payments problem; imports of manufactures; imports of food and agricultural commodities; imports of metals and minerals; simplification, consolidation, and reduction of tariffs; simplification of customs procedures; other trade policies; adjustment to increased imports; and the national and international policy. Fishery products are discussed under imports of food and agricultural commodities, with specific attention given to groundfish fillets and tuna. This report is the result of six months' study, in the course of which the Board had the advice and assistance of governmental and private authorities on U. S. trade policy.

"Use of Echo Survey in Charting Fish Shoals," by D.H. Cushing, article, World Fishing, vol. 2, no. 4 (April 1953), pp. 147-51, illus., printed. John Trundell (Publishers) Ltd., London, E. C. 4, England. The use of the echo-sounder as an instrument of practical research by which the distribution of fish over a relatively wide area may be examined is discussed in this article. The author describes the method of survey, and the various forms of trace that may be obtained and their significance. Echo surveys are shown to be of use in known fisheries where a general identification of the fish species is already made, in order to show the regions of abundance of fish, whereas the extension of surveys into an unknown area requires either identification in that area or the particular identification of fish within each sounding.

United States Exports of Domestic and Foreign Merchandise (Commodity by Country of Destination), Calendar Year 1952, Report No. FT 410, processed, Part I, 142 p., 60 cents; Part II, 238 p., $1.00. Bureau of the Census, U. S. Department of Commerce, Washington, D. C., April 1953. (For sale by U. S. Department of Commerce at Washington, its field offices, or the Superintendent of Documents, Washington 25, D. C.) In general, the statistics contained in this report are a complete record of the exports of merchandise out of the United States to foreign countries, but there are some exclusions of items of relatively small importance, such as low-valued or noncommercial shipments by mail, gifts valued less than $100, samples, etc. Both quantity and value of exports are reported. Included are exports of fishery products and byproducts. Part 1 covers Group 00-Animals and Animal Products, Edible; Group 0-Animal Products, Inedible; and Groups 1, 2, 3, 4, and 5. Part II covers Groups 6-9, metals, machinery and vehicles, chemicals, and miscellaneous, respectively.

United States Imports of Merchandise for Consumption, Calendar Year 1952 (Commodity by Country of Origin),

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Report No. FT 110, 178 p., processed, 70 cents. Bureau of the Census, U. S. Department of Commerce, Washington, D. C., May 1953. (For sale by U. S. Department of Commerce at Washington, its field offices, or the Superintendent of Documents, Washington 25, D. C.) This publication contains a compilation of all United States imports of all commodities (including fishery products) for consumption. Information presented for each commodity includes country from which shipped, quantity, and value.

Waves and Tides, by R. C. H. Russell and D. H. MacMillan, 348 p., printed, illus., $6.00. Philosophical Library, New York, N. Y. Waves and tides are of considerable concern to fishermen as well as to all those that look to the sea for their livelihood or pleasure. How big are the biggest waves? How fast and how high are the biggest tides? What are the causes of waves and tides and to what extent do these causes interact? These are questions which have been asked by every man who has come into contact with the sea, and these same questions have worried mariners for centuries. Modern development of the oceanographic sciences has now made it possible to answer these questions and this book gives the available information in a way that will be understandable by the intelligent visitor to the seaside and to the man who spends the greater part of his life on the sea. Arranged in two parts, the book really consists of two distinct books. Although waves and tides go together in the minds of many people, a treatment of the two necessitates separate discussions. Part I—Waves—deals with the characteristics of ocean waves; ideal waves; generation of waves by wind; waves near the shore; reflection, diffraction, refraction, and wave-induced currents; movement of material by the sea; effect of wave action on structures; and wave measuring. Part II—Tides—discusses the pulse of the earth; general features of the equilibrium theory; tidal theory today; tides and the navigator, the local observer, the surveyor, and the weather; tidal streams; tidal factors in history, commerce, and sea power; utilization of tidal energy; and the future of tidal research. Appendices to Part I deal with derivation of the velocity of low waves in deep water; formulae relating to low waves in shallow water; properties of trochoidal waves; derivation of the velocity of solitary waves; and potential and kinetic energy. The appendices to Part II present the determination of mean sea level, and a summary of main formulae and data. In order to overcome the difficulty encountered with technical terms, specialized words and words used in specialized senses have been incorporated in the Index-Glossary at the end of the book wherever necessary so that it constitutes not only an index but a key to terminology.

Arctic Solitudes, by Admiral Lord Mountevans, 134 p., illus., printed, $4.50. Philosophical Library, New York, 1953. The text is a brief, practically chronological summary of explorations in the Arctic regions beginning with explorations attributed to the Greeks and Vikings to notes on the conquest of the North Pole by air. Between these extremes there is the history of the failures and conquests of the North-East passage by boat and the North Pole on foot and sled. Some of the Russian explorations are pointed out which, because of the lack of records in other than the Russian language, are little known. Only a small part of the text pertains to the author's experience in the North. The bibliography contains a list of 34 books from which most of the information was gathered. Opening of the polar regions has radically changed the way of life of the Eskimos who live within the Arctic Circle and the author describes the changes that have taken place. Some accounts of whaling, seal, walrus, and bear hunting are included. Eskimo fishing for cod, salmon, and other cold-water fish is described.

TRADE LISTS

The Commercial Intelligence Branch, Office of International Trade, U. S. Department of Commerce, has published the following mimeographed trade lists. Copies of these lists may be obtained by firms in the United States from that Office or from Department of Commerce field offices at $1.00 per list:

Commercial Fishing Companies and Fish Exporters - United Kingdom, 13 p. (March 1953). Lists names and addresses of trawler owners, wholesalers, fish curers, and exporters.

Cuttlefish Bone - Exporters - Portugal, 2 p. (March 1953). Most of the firms listed as exporters of cuttlefish bone also handle other products, such as fish oils, frozen and salted fish, canned fish, fish meal, and a few are processors and canners. The firms listed are all located in Lisbon. The size of each firm is indicated.

Canneries - Canada, 26 p. (April 1953). The names and addresses of canners are given. The types of products processed are listed. Those firms canning fish and shellfish and dog and cat foods are also included. The size and production capacity of each firm is indicated.

FROZEN FISHERY PRODUCTS SALES ARE UP

Wholesalers' and distributors' frozen-food sales included a higher relative proportion of fishery products during 1952, according to a survey made by Quick Frozen Foods and reported in the February 1953 issue. Analyses show that fishery products accounted for 11.4 percent of frozen-food sales by wholesalers and distributors. This percentage placed fishery products third in sales importance--behind vegetables (30.4 percent) and concentrates (25.7 percent). Fruits (11.1 percent), specialties (9.0 percent), poultry (8.4 percent), and meats (4.0 percent) followed in that order in 1952.

A similar survey for 1951 revealed that fishery products (9.0 percent) ranked sixth in sales importance--behind vegetables (32.0 percent), concentrates (23.0 percent), fruits and specialties (each 11.0 percent), and poultry (10 percent). Thus the relative sales position of fishery products for distributors and wholesalers rose from sixth to third place in one year. However, there is no assurance that this 1952 position will be maintained by fishery products in 1953, for frozen fruits were close behind and also made a gain in their percentage of sales volume in 1952. Frozen poultry and specialties, which lost relative importance in sales volume during 1952, may not be as great a threat to the relative standing of fishery products.

The same surveys threw some light on the average markup on the various categories of frozen foods by distributors and wholesalers. Fishery products were given an average markup of 17 percent in 1952, compared with an average markup of 17.5 percent in 1951. This markup on frozen fishery products was second highest among the seven frozen-food categories. Specialties were first in both years, carrying a 20-percent average markup in 1951 and a 19.2-percent average markup in 1952. Markups on other items, except concentrates, were also lower in 1952.

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Page 6--R. Stevens; p. 15--G. T. Sundstrom; p. 52--Propaganda-Abteilung des Seefischmarktes, Bremerhaven; cover and p. 61--Food and Agriculture Organization, Rome; p. 66--G. T. Sundstrom.

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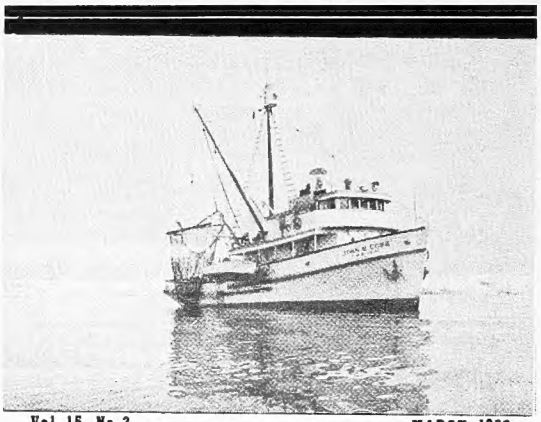
COMMERCIAL FISHERIES REVIEW MAILING LIST BEING CIRCULARIZ

COMMERCIAL FISHERIES REVIEW



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United States Department of the Interior
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Federal regulations require that all mailing lists be circularized periodically. A circularization letter dated May 15 was sent to all those on the Commercial Fisheries Review mailing list. (Individuals or firms who have requested their names added to the mailing list subsequent to March 1, 1953, will not receive a circularization letter and will be retained on the mailing list, unless the recipient meanwhile requests that his name be removed.)

Firms or individuals who do not return the circularization letter will be dropped from the Commercial Fisheries Review mailing list. The June 1953 issue will be the last one to be mailed to those in the United States who do not reply, and the August 1953 issue will be the last one for those in foreign countries. If you don't want to miss any issues of the Review, return the circularization letter promptly.

Comments or suggestions regarding the Review will be appreciated by the editors.

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