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THE JAPANESE ALBACORE FISHERY OF THE NORTH CENTRAL PACIFIC ^{1/}

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Recent developments have focused a renewed interest on Japanese activities in the Albacore fishery in the area north of Midway Island. On September 19, 1949, a SCAP directive granted the Japanese permission to extend their fishing grounds eastward to 180° east longitude between 24° and 40° north. That the Japanese were ready and anxious to take immediate advantage of this opportunity to return to one of their most promising prewar fishing grounds is evidenced by reports that vessels shortly thereafter returned to Japan with sizeable fares of Albacore from the newly-opened area. A probable reason for the Japanese' eagerness to exploit these albacore grounds is revealed in a news story of September 25 which reported the shipment of 1,200 tons of frozen Albacore from Japan to West Coast canners.

1/ The information upon which this article is based was drawn from a number of Japanese sources, the most important being the reports of the Fisheries Bureau of the Ministry of Agriculture and Forestry covering the Albacore explorations of 1938 and 1939, the report of the conference on the Albacore fishery held under the auspices of the Society for the Promotion of Marine Fisheries in 1936, as published in the magazine Oceanic Fisheries Kaiyo Gyogyo, No. 4, 1936, and a manuscript history of the Japanese offshore fisheries compiled by a group of Japanese fisheries experts for the Fisheries Division of SCAP.

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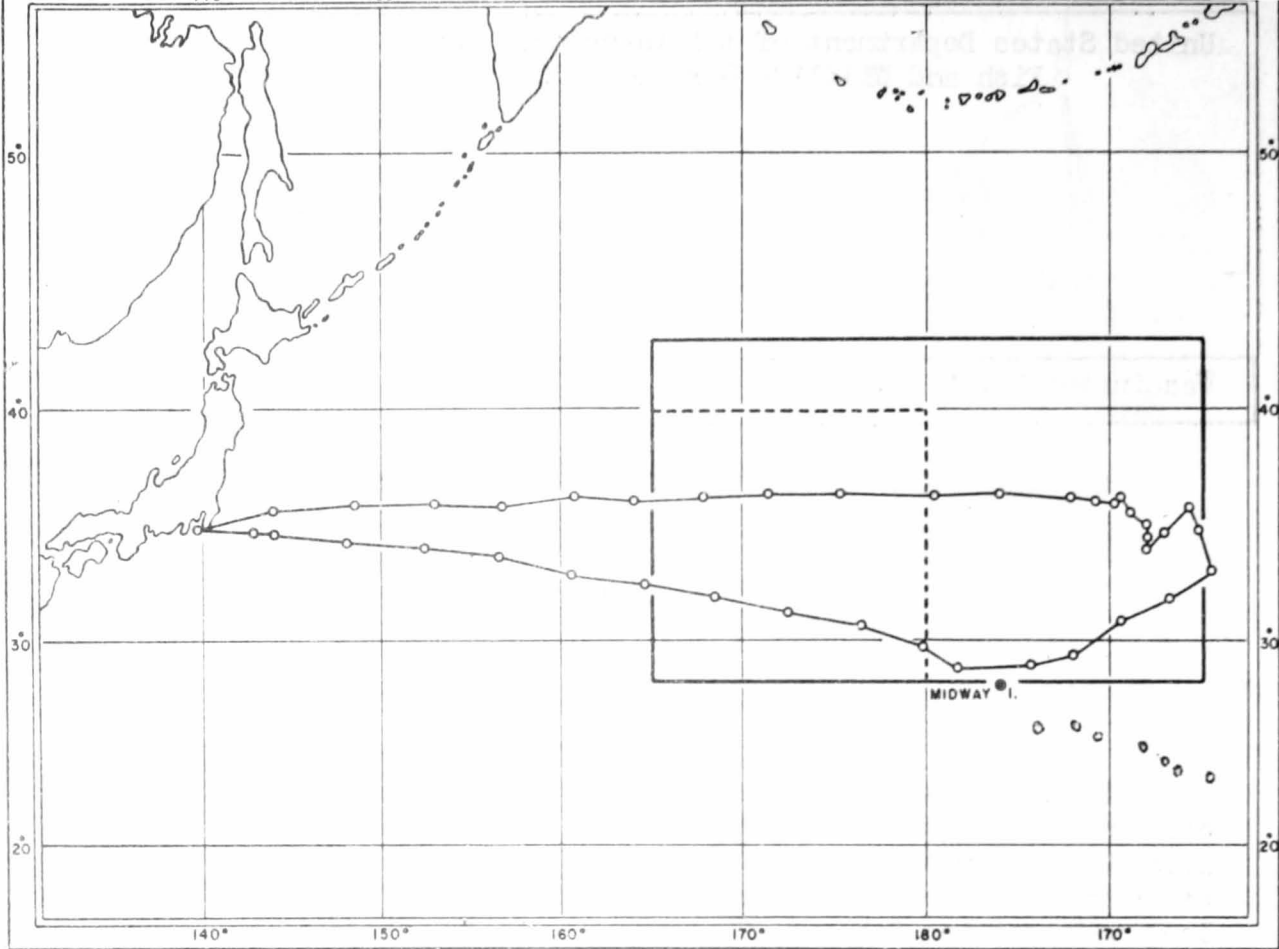


Fig. 1--Area covered by Japanese Albacore explorations prior to the war. The solid line encloses the survey area set up by the Japanese government. The dotted line encloses that portion of the area which has been reopened to Japanese exploitation by a recent SCAP directive. The track is that of an exploring cruise made by the Fuji Maru in the summer of 1938.

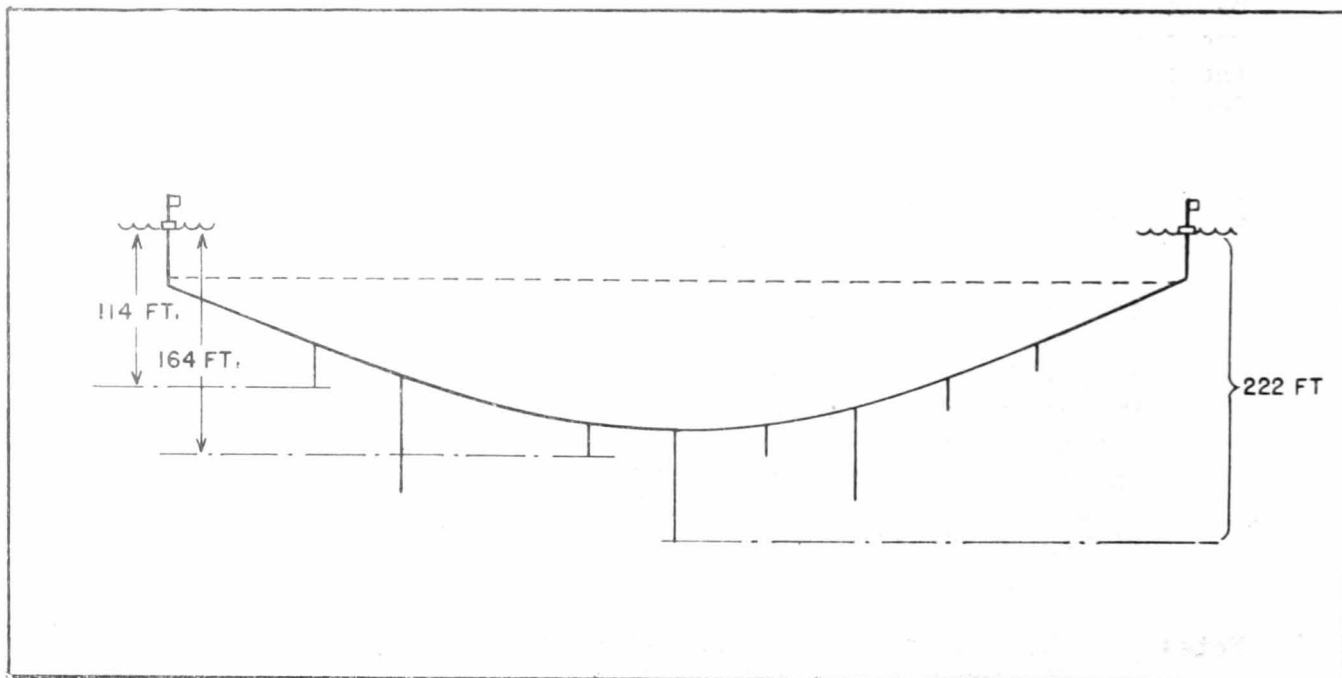


Fig. 2--An example of Japanese longline gear used in Albacore fishing. This particular basket of line, fished by the Mie Maru in 1939, had a trunk line 150 fathoms in length which carried 11 branch lines (not all of them shown in the sketch), each with one hook. The eight short branches were primarily designed to catch Albacore, while the three longer branches caught Big-Eyed tuna, marlin and shark.

The area north of Midway was the scene of one of Japan's most impressive efforts at fisheries development in the years immediately preceding the war. Faced with a need of foreign exchange and a falling off of the Albacore catch from coastal waters, the Japanese government heavily subsidized the exploration of new fishing grounds in an ambitious program which, in point of vessels and personnel involved, is without parallel on the eastern side of the Pacific. The historical background of these developments makes an interesting study of the way in which national tastes and eating habits can influence the growth of a great international fishery.

JAPANESE VALUED ALBACORE ONLY FOR EXPORT MARKET

The Albacore has, of course, been known to the Japanese for many years, probably ever since they first began to fish for Skipjack, but it was regarded by them until rather recent times as a worthless fish, or even as a nuisance. The Japanese consume the greater part of their tuna catch either in the form of raw fish, for which the larger species such as the Bluefin tuna, Big-Eyed tuna, and Yellowfin are favored, or in the form of dried fish-sticks, which are produced almost exclusively from Skipjack, Albacore, with its pale soft flesh, is not esteemed as raw fish nor does it lend itself to the manufacture of a good dried product. The Japanese, moreover, believed that the Albacore was particularly adept at stealing bait from longline hooks, and one of the common names for it was esatori or "bait-taker." A certain amount of Albacore was caught, however, by skipjack boats fishing with live bait off the coasts of the main Japanese islands, and during the '20s the Japanese discovered that canned Albacore was very favorably received in foreign markets, particularly in the United States. From that time until the outbreak of the war the fishery underwent a rapid development, the catch at all times being regarded primarily as an article for export.

TWO DISTRICT FISHERIES DEVELOPED FOR ALBACORE

As the Japanese Albacore fishery developed during the '30s it had two quite separate aspects. There was a summer fishery which was primarily carried on by live-bait boats operating within 500 miles of the coast of Honshu, and an offshore winter fishery by longline ^{2/} vessels which fished up to 1,700 miles east of northeastern Japan.

^{2/} The longline method of fishing is an exclusively Japanese development for fishing subsurface levels which has been applied profitably to the Albacore industry. The gear consists basically of long cotton lines which are suspended at various depths by means of surface floats. A number of baited hooks are hung from this main line, and the number of hooks used and their spacing are governed by the depths fished and the species sought.

The summer Albacore fishery moved northward along the Japanese coast with the Skipjack fishery, but the catch tended to be concentrated in the spring months when the Skipjack fishing had not yet got into full swing. The Albacore fishery did not extend as far north as the Skipjack fishing grounds off northeastern Japan, where the greater part of the Japanese Skipjack catch is taken, and in any case there appears to have been a tendency for the fishermen to abandon Albacore fishing as soon as the Skipjack became more abundant. On the winter grounds in mid-Pacific, the centers of fishing activity for Albacore seemed to progress from north to south during the season. This fact gave rise to the hypothesis that there was actually a great circular migration of fish in a clockwise direction between about 24° and 44° north latitude. Some Japanese fisheries authorities believed, however, that there were three separate Albacore populations which simply moved north and south with seasonal changes in the water temperatures. Albacore grounds were believed to be limited to temperatures in the range of 59° to 70° F., with 63° to 66° being optimum.

CATCH FALLS DRASTICALLY: HIGH SEAS FISH INFERIOR

As Japan began her ill-fated adventures on the continent of Asia her need for foreign exchange grew more pressing and the government placed increasing emphasis on the expansion of the Albacore fishery with its high-priced exportable product. At the same time, however, a number of unfavorable circumstances were operating to reduce the fishery to a very low rate of production. For reasons as inexplicable as those which had brought about a similar phenomenon in the California Albacore fishery, the summer schools had begun to decline in abundance. The decline was so rapid and drastic that the Japanese summer catch fell from 12,000 tons in 1931 to only 1,600 tons in 1936. There had been in the meantime an increase in the catch on the winter grounds which compensated in part though not entirely, for this drop, but here a further difficulty arose to plague the Japanese. Not only were the fish from the winter grounds more expensive to take because of the longer distances involved and the larger vessels required, but for some reason about which the Japanese did much speculating with little result, the flesh of the winter fish was much inferior in quality to that of the summer Albacore and a large percentage of the catch had to be rejected as unfit for the export trade. An added complication arose when a number of large vessels which had been fishing for Albacore switched over to the Skipjack fishery with the result that there was over-production of Skipjack accompanied by a ruinous decline in prices.

In September of 1936 a major conference of representatives of government and industry was held under the auspices of the Association for the Promotion of Marine Fisheries.

The problems of the industry were gone into thoroughly, probable reasons for the decline in the summer Albacore catch and the poor quality of the winter catch were discussed, and the conclusion was reached that the best way out of the difficulties in which the fishery found itself would be to conduct exploratory fishing to determine whether Albacore could be taken on the mid-Pacific grounds in the summer as well as in winter. As a result of this conference the Japanese government planned a program under which grants of funds would be made to prefectures which would permit their large research vessels to take part in a coordinated exploratory expedition under the direction of the Ministry of Agriculture and Forestry. Invitations to participate were issued to all of the prefectures having an interest in the Albacore fishery and detailed plans were drawn up specifying the items of expense which would be paid by the central government and the conditions of procedure and standards of performance which would have to be met in order to qualify for subsidies.

SUBSIDIZED EXPLORATORY FISHING

Eleven prefectures responded to the invitation and 11 vessels, ranging in size from 104 to 269 tons, took part in the first program of exploration from May 1 to September 30, 1938. The area covered by the survey was between 165° west longitude and 175° east longitude and 28° and 44° north latitude. This was further subdivided into three survey areas of equal extent, with three vessels assigned to the easternmost area and four to each of the others. A total of 31 trips to the fishing grounds were made by the 11 participating vessels, all but two of them making three cruises apiece. Longlines were the principal gear employed although some surface fishing by conventional pole and line methods was conducted, and a total of 308 stations were fished. During this expedition, 11 hooks were used per basket of gear, a basket holding from 150-180 fathoms of main line. The average amount of gear fished by one vessel, of 150 tons and upward, was 200 baskets or the equivalent of approximately 30 miles of line. Bait used was salted sardines and frozen mackerel and squid. The total catch of Albacore was only 3,773 fish, with some of the boats failing to catch even one of the long-finned tuna.

The overall average catch per 100 hooks fished per set by all vessels during the whole exploration was 2.76 fish. In addition, a considerable number of Big-Eyed tuna, marlin and shark were taken. The catch of all of these vessels was sold on the open market in Japan to help defray the expenses of the expedition. Rather extensive records of oceanographic data were taken at each station fished, and the participating prefectures were required to submit detailed reports covering all aspects of their vessels' operations including days at sea, times fished, kind and value of catch,

daily logs of fishing and oceanographic observations, and track charts of each voyage. Subsidies paid by the central government amounted to 171,500 yen, approximately \$40,000 at the prewar rate of exchange.

FISHING IN THE PATH TO BE FOLLOWED IN WAR

The results of this first expedition did not seem very impressive as far as the actual catch of Albacore is concerned. However, the Japanese evidently considered them promising, or else considered their need for new Albacore grounds a desperate one, for in 1939 a second foray into the same area was made, this time with the vessels of nine prefectures taking part. A similar expedition was also made in 1940, after which international developments called a halt to further Japanese fishing expansion in the Central Pacific. There has been some speculation as to whether these operations may have had any military significance, and the track charts of the voyages do show that some of the vessels fished very close to Midway Island. The information on weather and sea conditions which these vessels gathered may have been of interest to the Japanese Navy, and the original reports were classified, but the contents indicate only that the Japanese were, in the years immediately preceding the outbreak of the war, intensely interested in finding rich Albacore grounds in Hawaii's backyard.