SUMMARY OF JAPANESE SKIPJACK TUNA FISHING ACTIVITIES IN THE PACIFIC, 1973

Staff, Honolulu Laboratory

January 1974

SUMMARY OF JAPANESE SKIPJACK TUNA FISHING ACTIVITIES IN THE PACIFIC, 1973[1]

After it became apparent that the larger tunas, the bluefin, bigeye, yellowfin, and albacore, were being harvested at about the maximum level, and that no great increase in yield could be expected from these species, the Japanese turned to alternate resources, mainly the skipjack tuna. The Japanese Fisheries Agency announced a policy of skipjack tuna development, based on estimates of potential annual yield of up to a million tons of skipjack tuna in the Pacific. This resulted in what some Japanese refer to as the "skipjack boom" in Japan. New and larger skipjack tuna vessels, some as large as 500 tons, began to enter the skipjack tuna fishery, and there was a definite move to increase the skipjack tuna fleet while decreasing the tonnages in the longline fleet. This skipjack boom resulted in a sharp divergence in views among Japanese scientists. Some began to warn the government that the skipjack tuna resource would not be able to withstand uncontrolled expansion (Kasahara, 1971 and Kawasaki, 1972). They indicated that the coastal water fishery was already being affected by heavy fishing in the Japanese southern water fishery (extending from the Bonin south to the equator and including such areas as the Caroline, Mariana, and Marshall Islands). They pointed out that the southern fishery was being heavily fished and data from certain "heavy effort" areas already showed declining catch rates. The others submitted, on the other hand, that the skipjack tuna potential was indeed great, and that the landings could be substantially increased by developing new fisheries in various offshore areas not now fished. Basically, no serious differences exist today. The latter group of scientists concede that great effort should not go into fishing either the Japanese coastal skipjack tuna or the present southern water skipjack tuna, although they insist that the skipjack tuna fishery can be greatly expanded by developing new fishing grounds. This latter view is well expressed in a recent conference talk by Akira Suda (1972) of the Far Seas Fisheries Research Laboratory.

THE JAPANESE SOUTHERN WATER FISHERY

The southern water fishery (Tohoku Regional Fisheries Research Laboratory, n.d.) began after World War II but became of significant proportions in the early 1960's. It developed after the Japanese found that the skipjack tuna resource in Japanese coastal waters was nearing the limit of exploitation, and that the resource in southern waters could be exploited during the off-season in Japanese coastal waters. In general, the vessels fish the southern waters, which extend from the Bonins and Marianas down to the Caroline and Marshall Islands in the western Pacific, from fall to spring and the Japanese coastal waters from spring to fall. The best fishing in southern waters appears to be around January-February, as opposed to the summer months in coastal waters.

---

[1]Prepared by Southwest Fisheries Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Honolulu, Hawaii 96812, for meeting of the Skipjack Tuna Expert Committee on Fisheries, South Pacific Commission, February 25-March 1, 1974.

Prepared 1/10/74 Papeete, Tahiti,

Live bait is the big problem in this fishery. Presently, the vessels load anchovies obtained from bait stations in southern Japan before they head for the distant southern grounds. A 190-ton vessel carries about 370 buckets of bait; a 350-ton vessel about 500 to 600 buckets. The run to the ground takes a week to 10 days or more. The vessels spend about 10 days fishing; thus the total trip takes about a month. Until recently bait mortality was very high, ranging from 30% to 60%. After the vessels leave Japan, the sea surface temperature rises as they run southward, and this rapid temperature change is a major cause of mortality.

Several approaches were studied to reduce bait mortality, such as improving the bait-tank design or refrigerating the bait-tank water. The Japanese now report considerable improvement in transporting bait to the southern fishery merely by taking on "strong" bait at the outset. These are anchovy that have been held in bait compounds for periods of a week to a month, and fed regularly. When such bait are taken, they are better able to withstand considerable changes in temperature. The vessels are now routinely experiencing 70% to 80% survival and the best record is an 85% survival, with bait carried as long as 45 days.

An interesting recent development in this fishery has been the expansion of fishing grounds eastward to the waters of the Marshall Islands and the Gilbert Islands during 1972.

The total landings from southern waters are difficult to determine, but landings at Yaizu port alone, where from 50% to 80% of the southern water fish are landed, they have ranged from 14,020 metric tons in 1964 to a high of 51,286 metric tons in 1971. The landings per vessel (per trip) have ranged from 37.9 metric tons in 1964 to 71.9 metric tons in 1971.

OPERATIONS IN FOREIGN WATERS

Since the range in the operation of home-based skipjack tuna vessels is limited by the problem of live bait, a second approach vigorously pursued by the Japanese is a joint venture operation with a foreign company. The modus operandi in these joint ventures (e.g., Papua New Guinea) has been the employment of mother ships and a fleet of small catcher vessels. Thus far, the catcher vessels have been chartered from Okinawa since Okinawan fishermen are particularly adept at capturing live bait in tropical areas (in prewar years, the Japanese fisheries in the Mandated Islands were prosecuted largely by Okinawan fishermen). The mother ships provide some logistic support to the catcher vessels in addition to receiving the catches for transport back to Japan. This type of operation precludes the need for expensive shoreside facilities during the exploratory phase of the operation.

The reliance on Okinawan fishermen may gradually diminish as the UNDP/FAO Fishing Training Centre in Korea produces more fishermen trained in the skills of skipjack tuna fishing by the pole-and-line method. The entry of Koreans into the skipjack tuna fishery is starting, and apparently, an American company (Del Monte) is placing great faith in the promise that Koreans will soon enter the fishery in great numbers.

Papua New Guinea

Skipjack tuna fishery development is proceeding actively in the Papua New Guinea area under the Australia-Japan fisheries treaty. There are three joint ventures involved: Kavieng in New Ireland, Madang in New Guinea, and Rabaul in New Britain.

The three joint ventures began in 1970, each between a Japanese fishing company and an Australian firm. Each operation involved one or more mother ships from Japan to receive catches made by several catcher vessels chartered from Okinawa.

The 1971 landings from these three joint ventures amounted to around 17,000 tons, all of which were returned to Japan. The 1972 season was poor, perhaps due largely to lower water temperatures that prevailed throughout the western Pacific. The average temperature was 1°-2°C lower (27°-29°C as opposed to the normal 28°-30°C), and strong southeasterly winds also hampered fishing. Although total landings amounted to 13,000 tons, the catch per unit of effort in 1972 was reported to be considerably below the 1971 level. As of November 1972, fishing had greatly improved, and vessels were averaging individual catches of more than 10 tons per day.

There is presently a katsuobushi (dried skipjack tuna stick) processing plant at Kavieng, designed to handle 7 tons of wet fish per day, but the output has been maintained at around 4-5 tons per day. Even though the plant produces an excellent product, the production has been temporarily halted by very low prices in Japan. As soon as the price increases, the plant is prepared to resume operations.

The three Japanese companies and, more recently, the Star Kist Foods, Inc. have signed joint venture agreements. All of the companies are committed to cooperate in establishing a cannery, probably in Madang, probably this year. The plans call for the initial construction of a one-line cannery and a 500-ton capacity cold storage facility.

The British Solomon Islands

The Taiyo Fishing Company of Japan is in the Solomon Islands with mother ships and catcher vessels, and reports are that both bait and skipjack tuna are in ample supply there. In 1972, however, the

fishery did poorly, as did the fisheries in Papua New Guinea. Between June 1971 and May 1972, the total catch was reported at around 6,600 tons. The Taiyo Fishing Company is planning to enlarge operations by setting up cannery and freezer facilities in several locations.

SKIPJACK TUNA SURVEYS IN OTHER AREAS

The Japan Marine Resources Research Center, an agency funded both by government and industry, has been sending chartered skipjack tuna vessels to such areas as Tonga, New Hebrides, and New Caledonia to conduct surveys on the skipjack tuna and live-bait resources. These surveys are arranged with the local governments, and if feasible, the next step will presumably be the initiation of negotiations for joint venture operations. In conjunction with these surveys, the Center dispatched a team of three men about 2 years ago to visit the various areas. They returned to Japan with the report that all those island areas are showing growing awareness of their fishery resources and want to develop these resources to their best advantage. The team members stressed that any joint ventures entered into by Japanese companies must of necessity be of equal benefit to the local governments. Obviously, the Japanese are looking not only to Tonga, New Hebrides, and New Caledonia as possible areas of skipjack tuna development, but also to Fiji, Western Samoa, Gilbert Islands, and the islands of the U.S. Trust Territory of the Pacific and possibly others. During the summer of 1972 a few vessels moved as far eastward as the vicinity of the Hawaiian Leeward Islands in response to some scouting reports from longline vessels. Whether this area will be revisited will depend largely on the fishing condition in Japanese coastal waters. In any case, it is obvious that the Japanese are looking to new areas to exploit the skipjack tuna.

PURSE SEINING FOR SKIPJACK TUNA

As indicated by Suda (1972) the market for skipjack tuna is still rather sluggish in Japan. The one hope held for the species is that it would in the future compete with other tunas in the high-priced sashimi market. Since the Japanese feel that this is the optimum utilization of skipjack tuna in the future, they look to pole-and-line fishing as the method for harvesting fish for this purpose. This point, clearly expressed by Suda, emphasizes a major difference between Japanese and American industry goals. On the other hand, the Japanese are not sitting back as far as development of purse seine technology in tropical waters is concerned.

The Japanese Fisheries Agency chartered two purse seiners, the Tokiwa Maru No. 58 and the Taikei Maru No. 23 to conduct purse seine experiments in the waters near New Guinea. The purse seine experiments met with mixed success, as shown in the [Japan.] Fisheries Agency's (1971)

report. This government charter ended when the Japan Marine Resources Research Center was formed, and the latter is now continuing this work.

Between October 1970 and March 1971 the two chartered seiners fished in tropical waters between the equator and lat. 9°N in the western Pacific. There were catches of up to 18 tons of skipjack tuna in a single set, but most of the catches were much smaller. In general, it was concluded that skipjack tuna can be seined in tropical waters, under certain conditions. "Seinable" schools are those found with floating logs. It was also concluded that chances for success would be greatly increased if the sets were made at dawn or dusk rather than during midday.

LITERATURE CITED

[Japan.] Fisheries Agency.
1971. Results of experimental purse seining by Japanese Government chartered vessels, Taikei Maru No. 23 (210 tons) and Tokiwa Maru No. 58 (358 tons). In Report on experimental purse seining, 325 p. (Translated and extracted from Japanese by Tamio Otsu, Southwest Fisheries Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96812, 1973, 2 p.)

Kasahara, Kohei.
1971. Skipjack tuna resource and fishing grounds (Katsuo gyojyō to sono shigen). Suisan Sekai 20(10):30-37. (Engl. transl. 1972, 20 p.; available at Southwest Fisheries Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96812.)

Kawasaki, Tsuyoshi.
1972. The skipjack tuna resource (Katsuo no shigen ni tsuite). The Fishing and Food Industry Weekly (Suisan Shūhō) 660:32-38. (Engl. transl. 1972, 15 p.; available at Southwest Fisheries Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96812.)

Suda, Akira.
1972. The skipjack fishery of the future (Shōrai no katsuo gyogyō). Kansai Shibu Gyosen Kenkyukai, Mie Chiku Kenkyukai. [Reprinted from Gyosen 182, December 1972, p. 44-52. (Engl. transl. 1973, 16 p.; available at Southwest Fisheries Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96812.)

Tohoku Regional Fisheries Research Laboratory.
n.d. Atlas of skipjack tuna fishing grounds in southern waters, 1970-71 fishing seasons. [Two pages text, 30 charts.] (Engl. transl. 1972, 36 p.; available at Southwest Fisheries Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96812.)