

GULF OF MAINE BLUEFIN-TUNA EXPLORATION--1954

By J. J. Murray*

SUMMARY

The California purse seiner Western Pride operated in the New England bluefin tuna fishery from July 28 to September 9, 1954, in a cooperative agreement with the U. S. Fish and Wildlife Service.

Mechanical difficulties, encountered while preparing the seiner for the trip from California to New England, forced postponement of the original departure date and resulted in curtailment of effective fishing time.

Fishing activities were conducted in the Cape Cod-South Channel area between $41^{\circ} 38' - 42^{\circ} 08'$ north latitude and $68^{\circ} 30' - 70^{\circ} 00'$ west longitude. Best fishing areas were found 40 nautical miles east south-east of Buoy "R6" of Chatham, Mass., and 10 nautical miles northeast of Race Point, Mass.



Fig. 1 - Western Pride leaving Gloucester, Mass., for fishing grounds, August 1954.

A total of 10 purse-seine sets was completed with a catch of 48 tons of bluefin tuna averaging between 30 and 40 pounds a fish. Best fishing occurred on August 21 and 22 when 4 sets in the South Channel netted 32 tons of fish. Tuna schools were sighted on 13 of the 26 days spent at sea. Sizes of schools observed were estimated from 2 to 200 tons with the majority of schools in the 10- to 20-ton class. It was conservatively estimated that over 1,000 tons of tuna were sighted.

Weather conditions prior to hurricane "Carol" on August 31 were generally favorable (with the exception of a few days) for purse-seine fishing, with adverse weather prevailing during the period from September 8 to 18, immediately preceding and following hurricane "Edna" on September 11. Surface water temperatures recorded during August in the vicinity of the fishing grounds ranged from 59° to 65° F.

Considering the short period of fishing time and the unusual weather, the catch of nearly 50 tons of tuna, plus the large number of tuna schools which were seen, is encouraging for commercial utilization of New England tuna, especially if marketing conditions improve for the fishermen.

BACKGROUND

Exploratory fishing for bluefin tuna (Thunnus thynnus) in the Gulf of Maine and adjacent waters has been conducted since 1951 by the Exploratory Fishing and Gear

* Fishery Methods and Equipment Specialist, Exploratory Fishing and Gear Development Section, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, East Boston, Mass.

Development Section of the U. S. Fish and Wildlife Service. Major objective of the program has been to evaluate the potentiality of this resource and determine the possibility of developing a commercial tuna fishery and canning industry in the region.

The tuna purse seiner Western Explorer, chartered for the initial work during 1951, completed 8 trips with a total catch of 90 tons of tuna (Murray 1952). Operations were continued in 1952 and 1953 using Japanese-style tuna long-line gear as

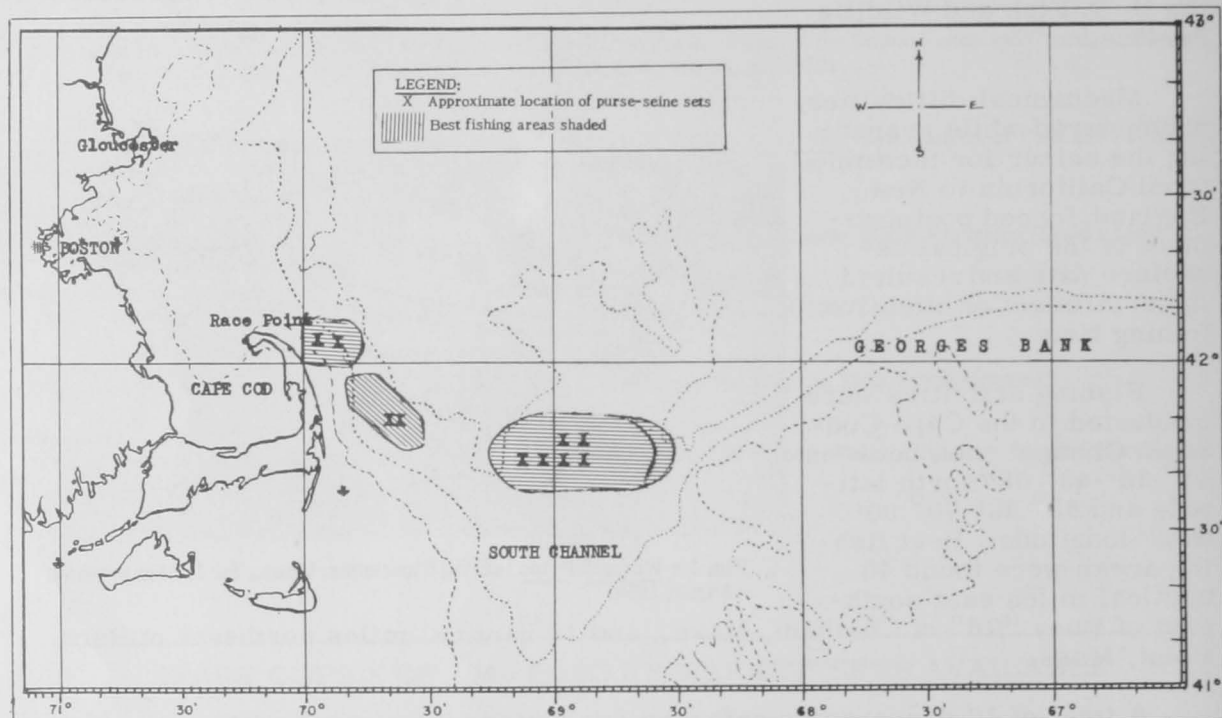


Fig. 2 - Area of bluefin-tuna exploratory fishing operation by M/V Western Pride, 1954.

the principal fishing method. While total production resulting from long-line fishing was low, valuable information relative to locations of tuna schools, extent of range, and oceanographic and meteorological conditions affecting the general availability of the tunas was gathered (Murray 1953 and 1954).

In a cooperative agreement with the owners of the California tuna purse seiner M/V Western Pride, the Service continued to promote commercial development of this fishery during the 1954 season. Tuna-fishing equipment of the Service, consisting of a tuna purse seine, seine skiff, and accessory gear was made available to the vessel operators, who in return supplied the fully-equipped and manned purse seiner and were responsible for all operating costs.

The author served as advisor and observer aboard the Western Pride from July 28 to September 9, 1954, and participated in the scouting and fishing activities for bluefin tuna in the Gulf of Maine and adjacent waters.

VESSEL AND FISHING EQUIPMENT

The M/V Western Pride, a Pacific Coast tuna purse seiner active for many years in the California tuna and pilchard fisheries, departed from San Pedro, Calif., late in June 1954, and stopped at Pascagoula, Miss., where a tuna seine, seine skiff, and accessory gear were taken on board before continuing on to New England waters, arriving off Cape Cod on August 1. Registered measurements of the vessel were: length 71.8 ft.; beam 20.4 ft.; depth 10.6 ft.; tonnage 118 gross tons. The vessel

was powered by a 200-horsepower Diesel engine equipped with a power take-off unit for operation of the purse-seine winch located on deck aft of the deckhouse. Natural ice was carried for preserving the fish catch, with an auxiliary refrigeration unit to maintain fish-hold temperatures at approximately 25° F. Fish-hold capacity was rated at 95 tons.



Fig. 3 - Seine skiff and cork line during set.

A standard Pacific Coast-type tuna purse seine, measuring 377 fathoms in length and 32 fathoms in depth, stretched-mesh measure, was employed. The body of the seine consisted of five horizontal strips of linen webbing (numbers 36 and 40/16), 4¼-inches stretched mesh, each strip approximately 377 fathoms in length and 100 meshes deep. A cork-line strip, 8 meshes deep, of No. 60-thread medium-laid cotton seine twine was laced to the top strip of webbing. The lead-line strip, laced to the bottom webbing strip, was of No. 65/12 linen thread, 50 meshes deep, and 8-inches stretched mesh.

A heavy, flat-bottom seine skiff, measuring 26 feet in length and 15 feet in width, equipped with a 100-horsepower gasoline engine was used to assist in fishing operations.

SCOUTING AND FISHING RESULTS

TRIP NO. 1 (July 28-August 12, 1954): The Western Pride departed from Cape May, N. J., en route from California, on July 28 and arrived off Chatham, Mass., on August . Fishing boats operating in this area had reported the presence of tuna schools during the preceding week. Scouting operations

Record of Purse-Seine Sets and Bluefin Tuna Catch of M/V Western Pride, 1954

Date	Position of Set	Est. Size of School ... (In Tons) ...	Catch	Surface Temp.(F)	Remarks
8-7	15 Miles Southeast Nauset Light, Cape Cod	5	-	63	Fish sounded out of seine during pursing operation.
8-9	40 Miles East Southeast Chatham Light, Cape Cod	15	-	64	School not encircled due to fouling of cork line during set.
8-10	45 Miles East Southeast Chatham Light, Cape Cod	80	3	65	School surrounded and pursing completed when heavy seas ripped net and caused loss of fish.
8-21	50 Miles Southeast Cape Cod Light, Cape Cod	2	2	65	Perfect set captured small school.
8-21	50 Miles Southeast Cape Cod Light, Cape Cod	15	-	65	Missed school.
8-22	55 Miles Southeast Cape Cod Light, Cape Cod	10	10	65	Perfect set.
8-22	55 Miles Southeast Cape Cod Light, Cape Cod	20	20	65	Perfect set.
8-25	5 Miles Northeast Cape Cod Light, Cape Cod	6	1.5	63	Main body of school sounded before pursing completed.
8-25	5 Miles Northeast Cape Cod Light, Cape Cod	11	11	63	Perfect set.
9-7	40 Miles East Southeast Chatham Light, Cape Cod	2	0.5	59	Small school wild and erratic, main body of school escaped.

during the next four days disclosed many small schools of tuna extending from Pollock Rip Lightship north to Cape Cod Light--a distance of 28 nautical miles. Because of the wild and erratic actions of the schools it was not possible to make any purse-seine sets during this period. On August 7 a school of tuna, estimated to contain 5 tons of fish, was sighted 15 miles southeast of Nauset Light. The seiner went into the set, encircled the school perfectly, but lost it when the fish sounded and escaped from the seine before pursing could be completed. The following day the vessel proceeded off-shore in a southeasterly direction where, just before sundown, large schools of tuna were sighted approximately 40 to 50 nautical

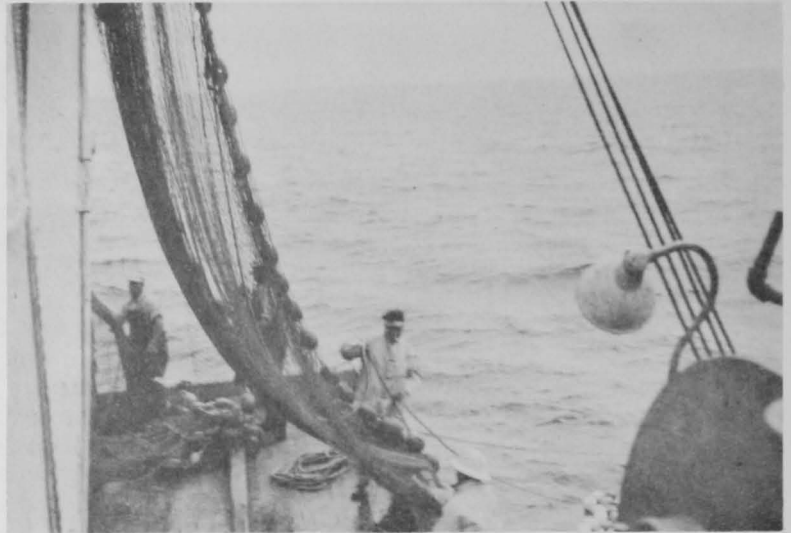


Fig. 4 - Drying up tuna seines preparatory to brailing.

miles southeast of Cape Cod. The second set, on August 9, was unsuccessful, when a 15-ton school escaped from the seine when the cork line became fouled, causing an excessive delay in closing the purse line. Large schools of tuna were sighted in the South Channel region on the afternoon of August 10. At one time 5 schools estimated to contain from 20 to 50 tons each were surfaced within a radius of 2 miles of the vessel. Weather conditions were poor with heavy seas and winds of 25 knots. Shortly before sundown when the winds and seas moderated, a set was completed and the purse rings were brought on deck with an estimated catch of 80 tons of tuna in the seine.

Soon after pursing the winds increased to near-gale force accompanied by heavy seas. Attempts to split the seine and divide the school into two sections failed due to the excessive rolling of the ship and resulted in tearing the webbing along the cork-line strip, allowing most of the tuna to escape. The seine was finally retrieved 15 hours after setting with a catch of 3 tons of fish that were gilled in the webbing. Extensive damage to the seine and deck gear necessitated a return to port and a loss of eight days' fishing time while the equipment was repaired.

TRIP NO. 2 (August 20-26, 1954): The Western Pride sailed from Gloucester on August 20, completed 5 successful sets in the South Channel fishing grounds, approximately 40 nautical miles southeast of Cape Cod Light, and returned to port on August 26 with a catch of 44.5 tons of bluefin tuna.

Large schools of tuna were sighted within 80 nautical miles of Gloucester. Many of the schools were estimated to contain from 100 to 200 tons of fish, much too large for impounding with the purse seine and equipment available on the Western Pride. Small scattered schools were also found and the first set of the trip on August 21 produced a catch of 2 tons, averaging from 40 to 45 pounds in weight. A second set made later the same day on a school estimated to contain 15 tons of tuna proved unsuccessful. Shortly after sunrise on the following day tuna schools were again sighted and an early morning set caught 10 tons. A few hours before sunset the second successful set of the day was made on a "breezing" school of about 20 tons. After eight hours of work the seine was back on the turntable and the 20 tons of fish had been brailed into the ship's hold. Scouting operations on August 23 did not start until noon, when tuna schools estimated to contain an aggregate of 1,000 tons of tuna were sighted. Attempts to divide the fish into smaller groups by

steaming through the middle of the schools were unsuccessful. Small groups of fish would separate briefly and then rejoin the main school. For three hours the seiner

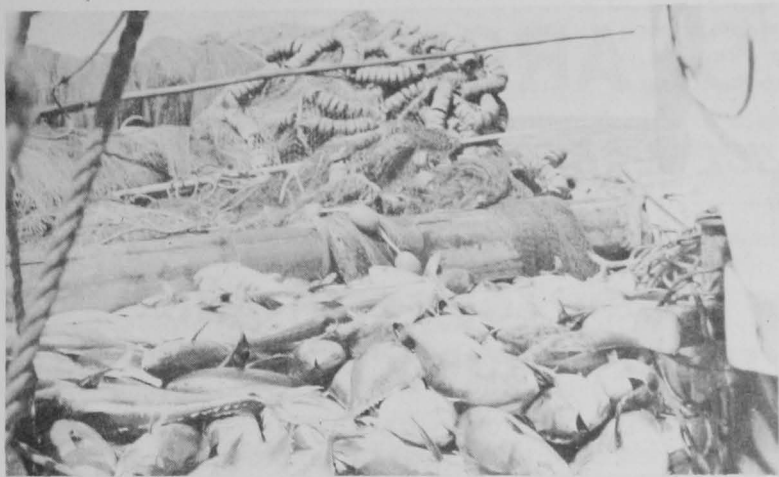


Fig. 5 - Deckload of New England bluefin tuna.

remained in contact with the schools, until they disappeared at dusk, without being able to make a set. High winds and rough seas prevented fishing on the following day, although tuna schools were still observed surfacing over a wide area. On August 25 activities were transferred to the inshore waters between Nauset and Cape Cod Light. Behavior of the schools observed there differed markedly from those further offshore. Inshore fish were generally found in small schools milling and moving erratically and presenting difficult targets for purse seining. Two sets were completed in the area netting a total catch of 12.5 tons of tuna. Average weight of the fish caught in this area was 25 pounds. The trip was unloaded at Gloucester on August 27 and 28.

TRIP NO. 3 (August 29-September 9, 1954): During this period one severe hurricane and the advent of another drastically curtailed fishing and resulted in the loss of the seine skiff and brought a halt to the seining program. On August 30 the Western Pride scouted the inshore Cape Cod waters and found small bunches of tuna. The fish were extremely wild and no sets were possible. Anchorage in Provincetown Harbor was made late that evening. Hurricane "Carol" struck on the morning of August 31 and efforts to keep the vessel from being driven aground were finally rewarded when the storm abated late in the day. Loss of the seine skiff, which foundered during the gale, delayed resumption of fishing while search was made for the missing skiff. The search proved fruitless and loan of a menhaden seine skiff was effected on September 6 and the vessel proceeded offshore to the South Channel. A sharp drop in surface-water temperatures was noted following the hurricane and no large schools of tuna were found in this previously productive area.

Behavior of the smaller-size schools observed resembled actions of the schools in the vicinity of Cape Cod that were sighted on the preceding trip.

A set on September 7 caught 24 fish with a total weight of 1,000 pounds. Evidently the main body of fish had moved further offshore as trawlers fishing on the Northern Edge of Georges Bank, about 40 miles northeast of the South Channel position of the seiner, reported sighting huge schools of tuna in the area. Efforts to reach this position were abandoned when hurricane "Edna" moved up the Atlantic Coast. On September 9 the Western Pride docked at Gloucester completing the final trip of the 1954 season.

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