COMMERCIAL FISHERIES REVIEW

February 1959 Washington 25, D.C. Vol. 21, No. 2

NEW ENGLAND COMMERCIAL BLUEFIN TUNA PURSE SEINING - 1958 SEASON

By James L. Squire, Jr.*

INTRODUCTION

The most successful commercial-scale fishing of bluefin tuna (Thunnus thynnus) by the purse-seine method in the New England area in recent years was done by the converted commercial trawler Silver Mink during the short 1958 tuna season. A total of 179.5 tons of bluefin tuna was landed by the Silver Mink between July 24 and October 4. This is the largest bluefin tuna catch on record for any vessel fishing in the New England area during any one season.

Bluefin tuna are known to appear in commercial concentrations off the New England Coast from July through September and recent studies by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware revealed that bluefin tuna are abundant in the oceanic areas south of New England in the spring season.

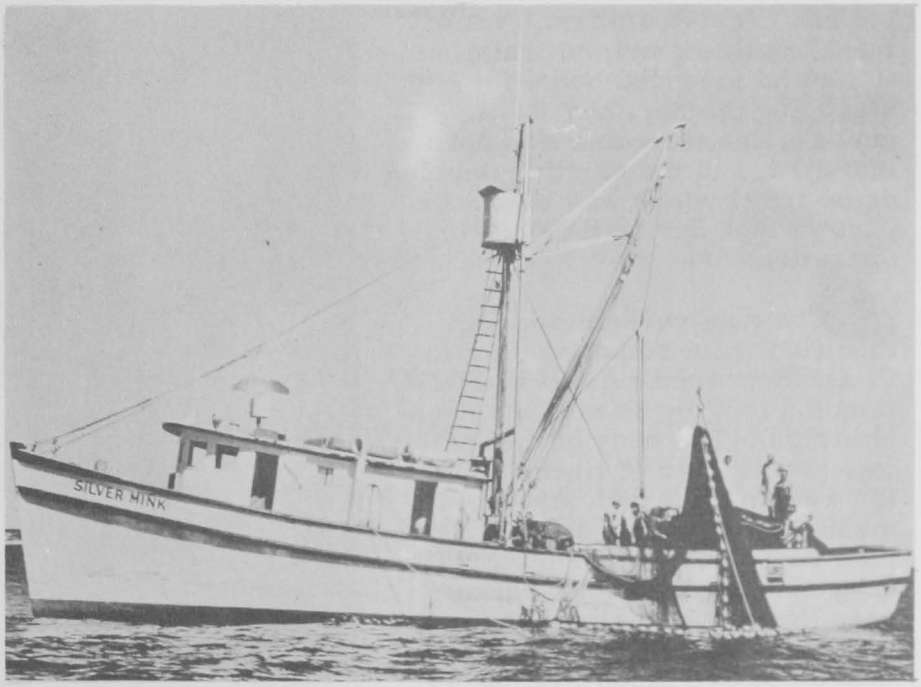


Fig. 1 - Strapping the purse seine aboard the M/V Silver Mink. This vessel is probably one of the first of its type to be converted from a standard shrimp trawler design to a tuna seiner.

Although no extensive organized effort has been made for many years to exploit this New England coastal resource, it has been subject to local fishing by small boats and traps. Previous fishing by purse seine, on a basis approaching commercial production, was from Gloucester, Mass., during the summers of 1938, 1939, and 1940 (table 1).

The Western Explorer, a Pacific Coast-type purse seiner was equipped with Pacific-type seine equipment. The Santa Maria, standard mackerel seiner-dragger,

* Chief, North Atlantic Fisheries Exploration and Gear Research, Branch of Exploratory Fishing and Gear Research, Division of Industrial Research and Services, U. S. Bureau of Commercial Fisheries, East Boston, Mass.

was equipped with an alternate seine used for tuna. In addition, other vessels have fished tuna during the past 20 years, but only on a limited production scale. Approximately three additional seiners operated from Gloucester for tuna during 1937 to 1941. In 1951, the Western Explorer and in 1953 the Western Pride went tuna purse-seining in the New England area, either sponsored by or in cooperation with the U. S. Fish and Wildlife Service.

Table 1 - Summary of Previous Commercial Purse-Seine Fishing for Bluefin Tuna in New England Coastal Waters

Year	Motor Vessel	Fishing Period	Catch Totals
			Short Tons
1940	Santa Maria	7/29 to 8/23	83
1939	Santa Maria	7/10 to 8/18	106
1938	Santa Maria	7/19 to 9/21	128
1938	Western Explorer	7/9 to 8/22	137

DESCRIPTION OF VESSEL AND GEAR USED

The Silver Mink, of standard shrimp trawler design (61.8 feet in length with a beam of 18.7 feet and a draft of 7.9 feet), was built in St. Augustine, Fla., in 1954. The vessel was probably one of the first of its type to be converted to tuna purse-seining. The vessel normally operates in the trawl fishery for industrial fish out of Provincetown, Mass. During the 1958 tuna purse-seining operations, the crew consisted of 8 men, of which 2 were experienced West Coast tuna-seiner captains. The principle modifications of the vessel were simple and consisted of removal of the aft gallows and the installation of an extended boom for strapping the net aboard. A purse-seine turntable was not installed, and the existing double-drum trawl winch was used as a purse winch during net-pursing operations.

The tuna purse seine was modified from standard Pacific Coast measurements to a net 310 fathoms long by 25 fathoms deep (4 strips). The body of the net was constructed of linen and cotton webbing, $4\frac{1}{4}$-inch stretched mesh (No. 36 cotton and 40/16 linen) 100 meshes per strip. The cork-line strip was 8 meshes deep (No. 60 cotton) and the lead-line strip was 50 meshes deep, 8-inch stretched mesh (No. 65/12 linen).

A large flat bottom seine skiff, 26 feet by 15 feet, powered by a 106-horsepower gasoline engine, was used in the seining operations.

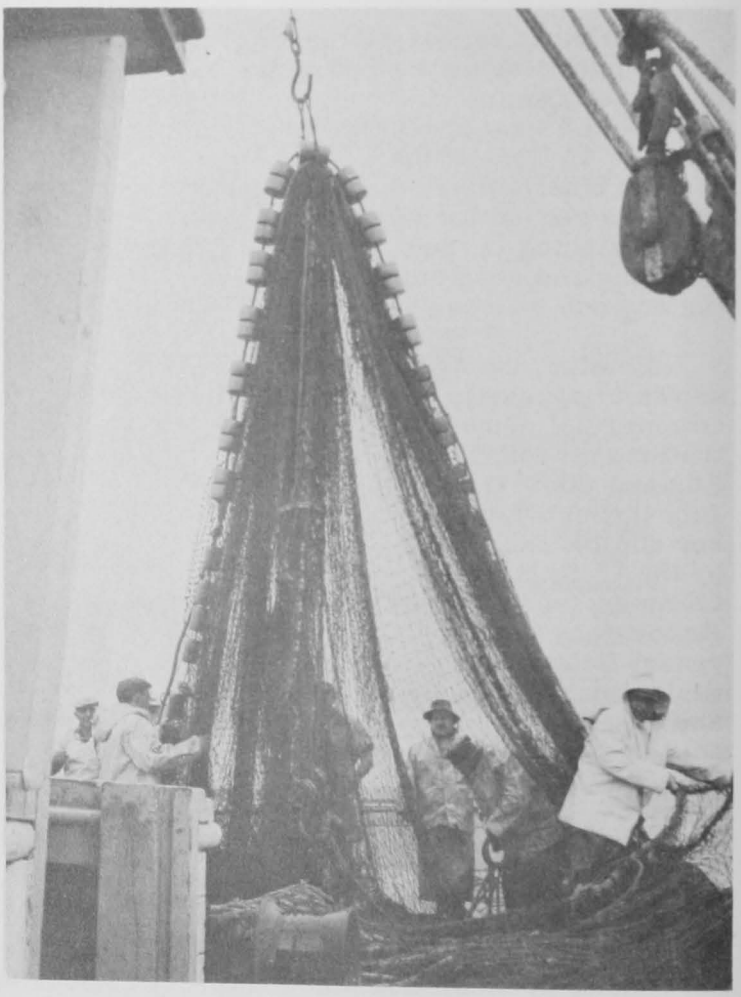


Fig. 2 - Stacking the combination cotton-linen tuna purse seine furnished by the U. S. Bureau of Commercial Fisheries on the afterdeck in preparation for re-setting.

Both the purse seine and seine skiff were loaned to the Silver Mink for this cooperative commercial tuna-seining project by the U. S. Bureau of Commercial Fisheries.

FISHING RESULTS

Tuna production fishing began on August 17, 1958. The vessel had conducted three weeks of intermittent scouting prior to this time and had made two sets yielding

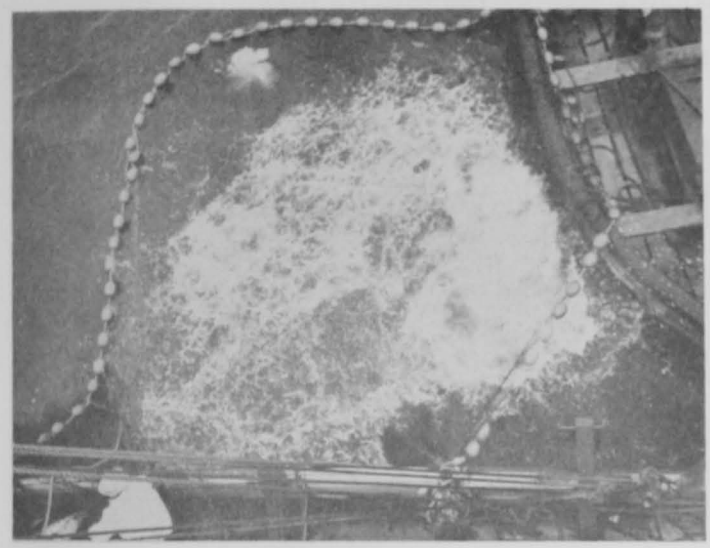


Fig. 3 - Ten tons of bluefin tuna thrashing in the bag. A total of 179.5 tons of bluefin tuna was landed by the Silver Mink during the short 1958 New England tuna season.

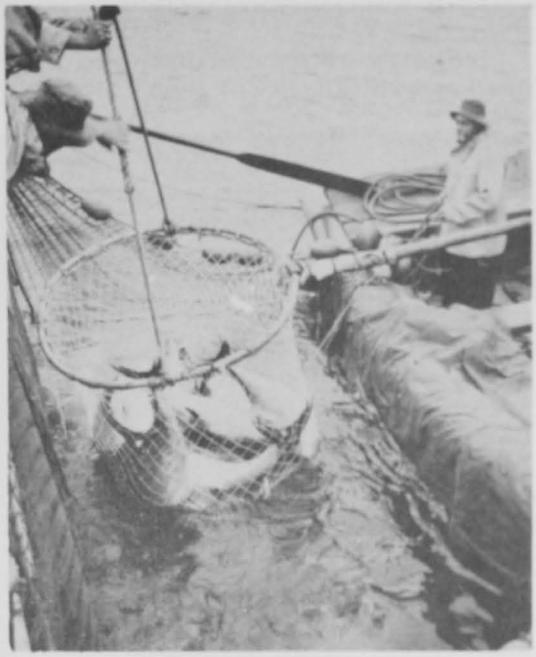


Fig. 4 - Brailer full of tuna is scooped from the pursed seine in waters off Cape Cod. A portion of the catch being scooped from the bag for storage aboard the seine vessel. The size range for most tuna taken was 60-80 pounds per fish.

$2\frac{1}{2}$ tons of large bluefin ranging in size from 200 to 400 pounds each. Fishing continued through October 4, 1958, at which time the Silver Mink was reconverted for otter-trawling for the winter season.

The vessel did not carry refrigeration or ice, and the majority of trips were on a daily basis, operating from the vessel's home port, Provincetown, Mass.

Summary of Fishing Log Records of M/V Silver Mink	
Period of Operation - July 24 to October 4, 1958.	
Area of Operation - Fishing was conducted in the immediate area of Cape Cod. In Cape Cod Bay, catches were made off Corn Hill, Ryders Beach, Long Point, Wood End Light, Barnstable, and Cape Cod Canal. In Massachusetts Bay, catches were made on Stellwagen Bank (Middle Bank) and the shoal ground off Cape Ann.	
Production: July 24 to August 17, 1958 - 2.5 tons August 17 to October 4, 1958 - 177.0 tons Total 179.5 tons	
$\frac{\text{Catch (177.0)}}{\text{Number of Sets (38)}}$ = Catch rate (4.66 tons/set)	
Courtesy Captain Manuel Phillips, M/V Silver Mink.	

SUMMARY

It was estimated that unsuccessful sets were made on approximately 162 tons of tuna during the entire period for one or more of the following reasons: fish under bottom of net, seine line hang-up, net ripped in mud, fish wild, ripped bag due to load, snarled seine while setting.

A number of factors must be taken into consideration when attempting to evaluate the future prospects of this type of fishing in the New England area. During the 1958 season, schooling bluefin tuna appeared late in August--approximately one month later than normal. This tendency for a later season was the characteristic pattern of other surface-schooling species of fish in the New England area. Fishermen familiar with the area reported that the abundance of schooling tuna was below that normally expected. The size of most tuna caught during the 1958 season ranged from about 60 to 80 pounds per fish. Records indicate that adverse weather

conditions (wind, storm fronts, etc.) in New England were more numerous than usual, and this reduced the periods when purse-seining could be done successfully. Man-controlled factors which tended to reduce operating efficiency were (1) the aged condition of the net, which required excessive periods of repair, and (2) a crew most of whom were inexperienced in purse-seine fishing for bluefin tuna.

Industry estimates indicate that the 1958 tuna season could have yielded at least 250 tons with adequate gear, training, and assistance by aerial spotting.

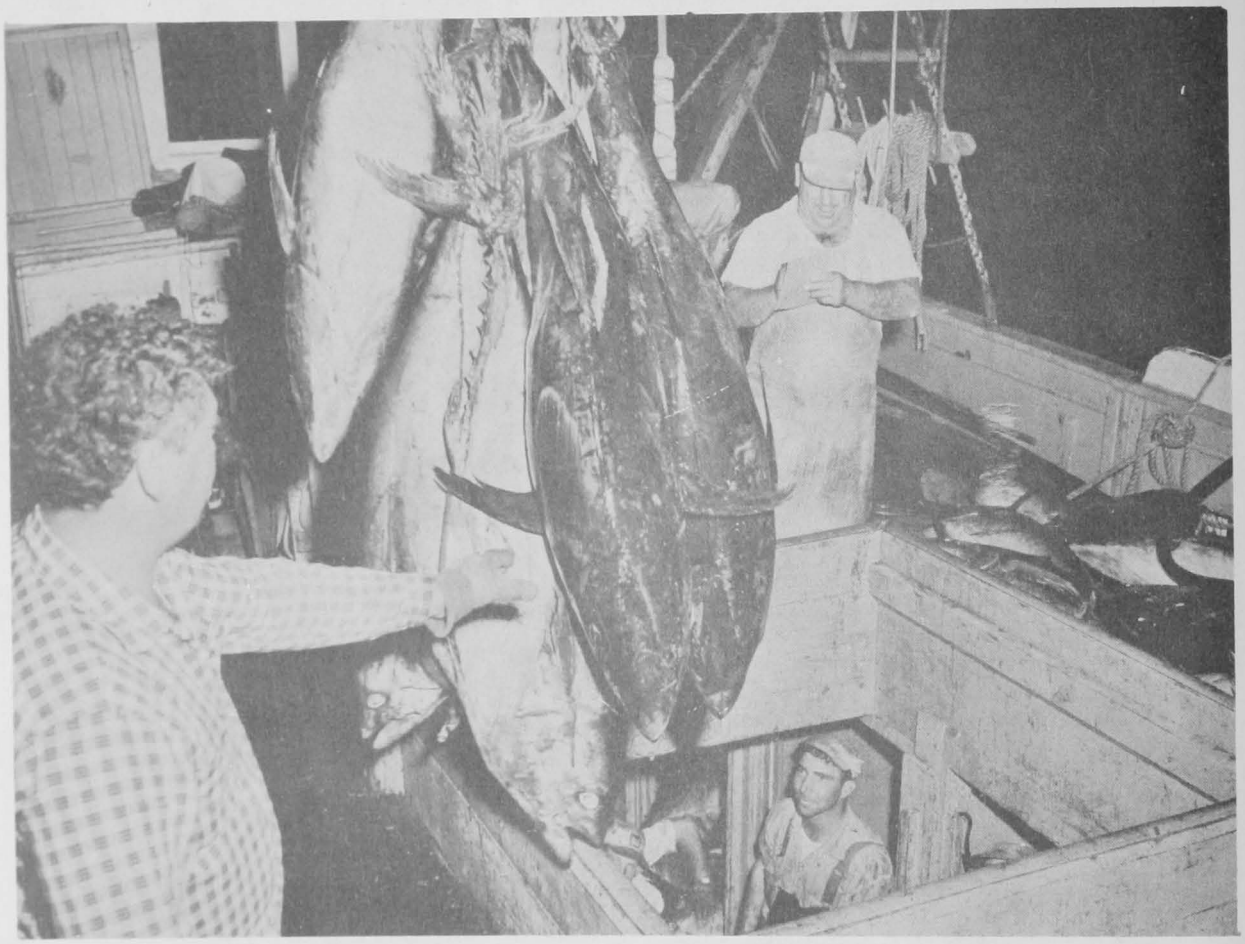


Fig. 5 - Unloading at Provincetown, Mass., after a day's fishing. Tuna were landed on a daily basis, weather permitting. Fishing in New England during 1958 again indicated that commercial tuna production can be obtained during the summer by purse-seining.

The extent of the commercial bluefin tuna resource, both inshore and offshore, available to the New England fishing industry is yet to be thoroughly evaluated.

However, a fishery contributing substantially to the New England area can be developed with the proper fishing methods. This has been demonstrated in previous years by other vessels and is again emphasized by the record production of the Silver Mink.

REFERENCES

ANDERSON, A. W. and STOLTING, W. H. and ASSOCIATES
1953. Survey of the Domestic Tuna Industry, U. S. Fish and Wildlife Service, Special Scientific Report: Fisheries No. 104 (July).

BIGELOW, HENRY B. and W. C. SCHROEDER
1953. Fishes of the Gulf of Maine, U. S. Fish and Wildlife Service Fishery Bulletin 74, pp. 338-347.

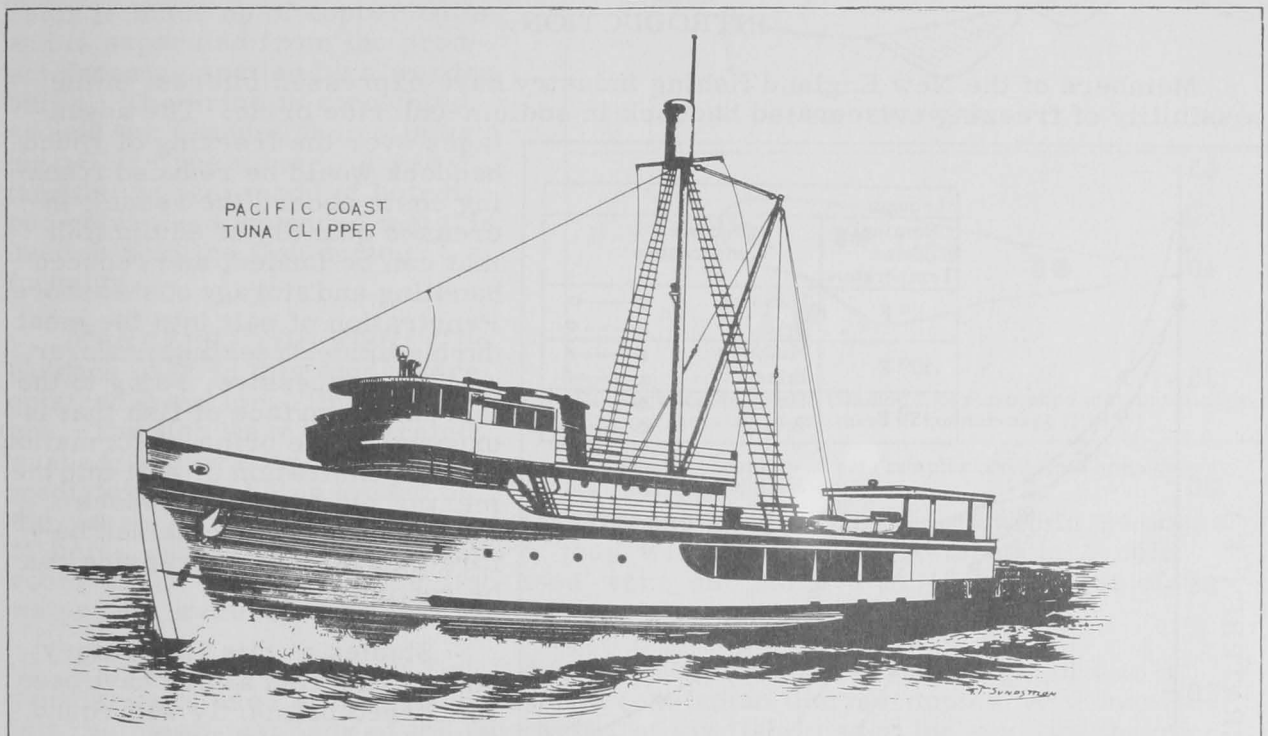
REFERENCES (CONTD.)

MURRAY, J. J.
1952. Report on 1951 Exploratory Bluefin-Tuna Fishing in the Gulf of Maine. Commercial Fisheries Review, vol. 14, no. 3 (March). Also Separate 309.

1953. Gulf of Maine Bluefin Tuna Exploration - 1952. Commercial Fisheries Review, vol. 15, no. 7 (July). Also Separate 353.

1954. Gulf of Maine Bluefin Tuna Exploration - 1953. Commercial Fisheries Review, vol. 16, no. 7 (July). Also Separate 374.

WESTMAN, J. R. and NEVILL, W. C.
1942. The Tuna Fishery of Long Island, New York. Pp. 1-31, Board of Supervisors, Nassau County, Long Island, New York (May).



TUNA CLIPPER

LENGTH IN FEET	68 TO 150
BEAM IN FEET	20 TO 32
DRAFT IN FEET	8.6 TO 15.4
NET TONNAGE	60 TO 300
CONSTRUCTION	STEEL OR WOOD
ENGINE: TYPE	DIESEL
HORSEPOWER	250 TO 1200
TYPE OF REFRIGERATION	MECHANICAL OR BRINE TANKS
CRUISING SPEED	10 TO 12 KNOTS
AVERAGE CREW	9 TO 21
LENGTH OF TRIP	35 TO 85 DAYS
CONVERTIBILITY TO OTHER TYPES OF GEAR	NONE

WEST COAST TUNA FISHING AREA