

# LONGLINING FOR SWORDFISH IN THE EASTERN PACIFIC

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'Blue Belle' returned to Morro Bay, California, early in February 1969 with a load of broadbill swordfish (*Xiphias gladius*) caught by longline gear. She was the first California-based commercial vessel to attempt longlining for swordfish on a large scale. Captain Wayne Smith became interested in trying this method of fishing after learning of a successful longline trip by the BCF research vessel 'David Starr Jordan' in November 1968. Upon learning of his interest, the Bureau loaned its gear to Blue Belle and she sailed with a crew of four on January 16 from San Pedro, California.

## Fishing Gear and Methods

Blue Belle is 55 feet long with a beam of 14 feet, and has a refrigerated holding capacity of 15 tons. The components of BCF longline gear used by Blue Belle are shown in figure 1. This gear was patterned after that used by east coast American and Canadian fishermen. A radio transmitter, a radar reflector, and a flashing-light buoy aided in the recovery of the gear. Flag buoys were spaced at five-float intervals. Specially constructed boxes (fig. 2) facilitated handling and storage of dropper lines and hooks. A hydraulic reel,

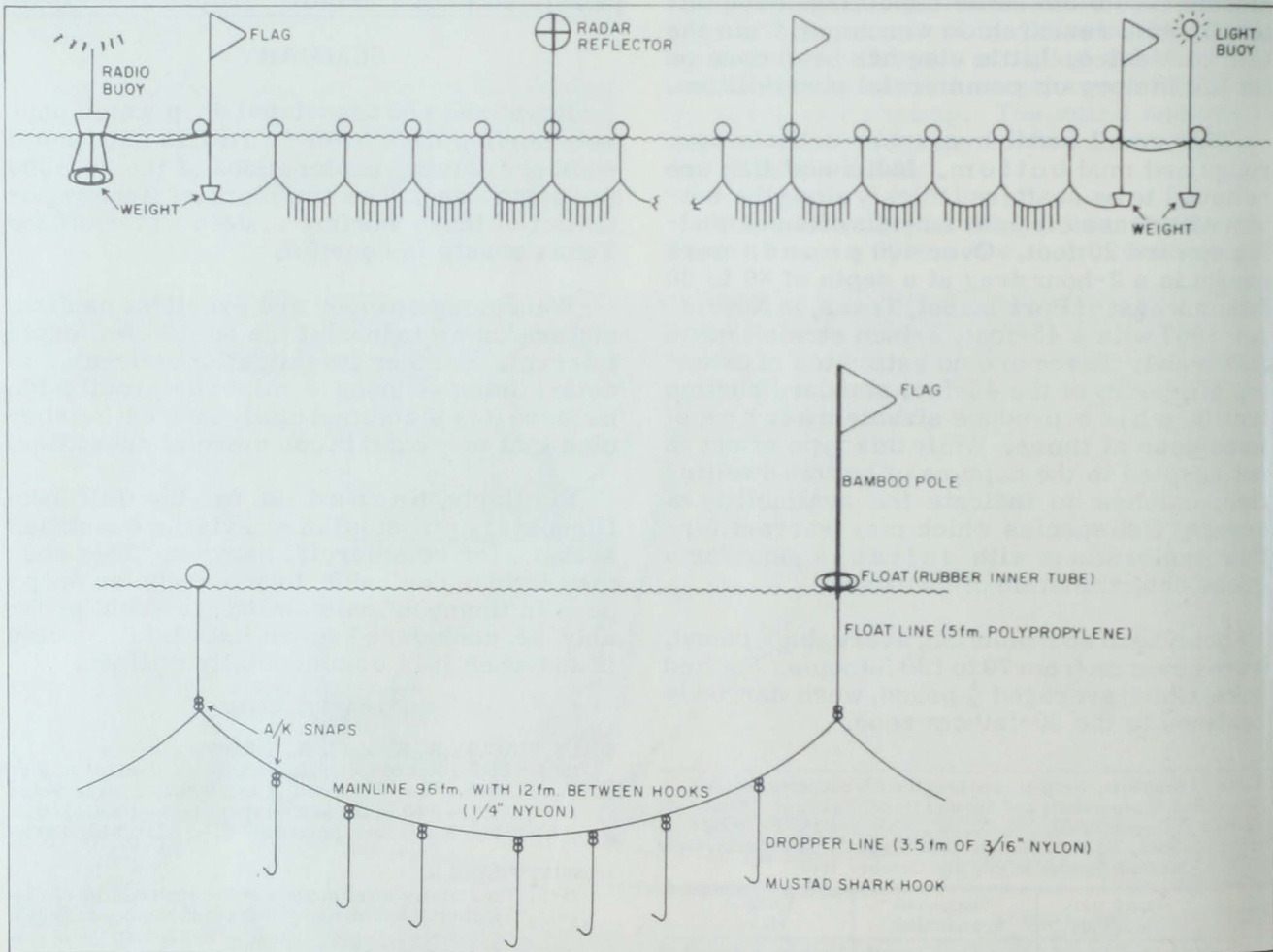


Fig. 1 - Longline gear used for taking broadbill swordfish.

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powered with an automobile transmission and a chain drive (fig. 3), was used to haul and store the mainline. Bait consisted principally of frozen jack mackerel, Trachurus symmetricus.

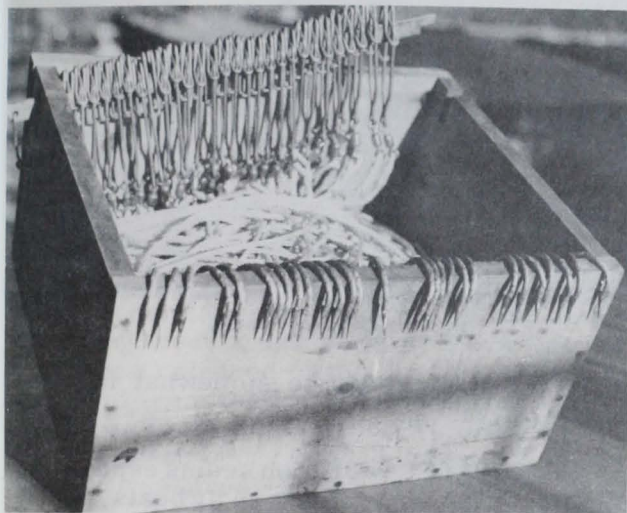


Fig. 2 - Dropper line storage box, with hooks ready to be baited.

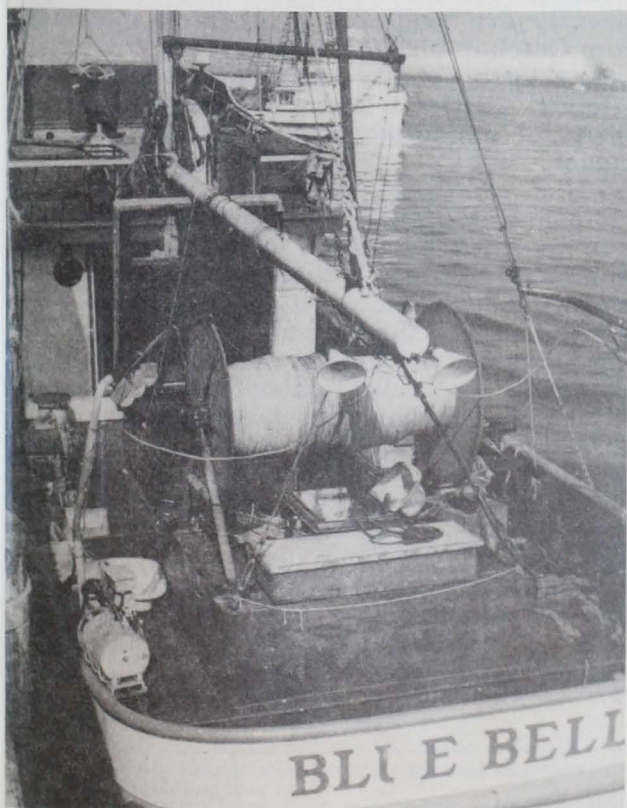


Fig. 3 - Powered reel for the mainline used by Blue Belle.

To set the longline, the vessel was steered downwind at about 3.2 knots and the line allowed to pay out freely. One man baited the hooks and threw them overboard, while passing the snap ends to a second man who attached the dropper lines to the mainline. A third man handled the floats and flags, while the captain kept the ship on course.

During retrieval of the line, one man controlled the speed of the reel and unsnapped the dropper lines as they came aboard, two men coiled the dropper lines in the storage boxes and handled sharks, while the captain maneuvered the ship. All hands aided in landing swordfish.

All sets were made just before sunset, and hauling was started at dawn. Ten sets (total of 4,208 hooks) were made in international waters offshore from central Baja California, near the 1,000-fathom contour. Surface-water temperatures in this area--67.5 to 70.5° F.--were determined from a bathythermograph cast made before each set.

#### The Catch

A total of 33 swordfish were caught (figs. 4 and 5), of which one was lost due to extensive damage by sharks. The catch rate of the entire trip was 0.8 swordfish per 100 hooks fished. Every set produced at least one swordfish; the best day's catch was nine fish on a 392-hook set. The total dressed weight of the landed swordfish was about 2.5 tons (average weight 156 pounds). The fork length (tip of lower bill to fork) of the fish ranged from 36 to 109 inches (dressed weights 20-360 pounds). Gonads of 29 fish collected by the fishermen indicated that 93 percent of the fish were females. None of the ovaries were in an advanced stage of development.

Other fish in the catch included one striped marlin (Tetrapturus audax), a few dolphin (Coryphaena hippurus), about 1,500 blue sharks (Prionace glauca) and 83 other sharks representing five species.

#### Future Prospects

The large number of blue sharks encountered presented the greatest problem to the fishermen. The sharks caused extensive tangling, often cut the mainline, and slowed hauling to an average of 80 minutes per 100



Fig. 4 - Unloading swordfish at San Pedro.

hooks. Further, their competition for bait appreciably decreased the baits available to swordfish. The abundance of sharks also limited the amount of hooks Blue Belle could set to about 350 rather than the anticipated 800 to 1,000 hooks per set. Despite the problems with sharks, the catch rate of 0.8 swordfish per 100 hooks was encouraging.

Captain Smith is preparing for a second longlining trip. Another vessel will probably enter the fishery shortly. Both vessels will carry gear on loan from BCF. Although availability of swordfish may be relatively low at this time of year, the high price paid for

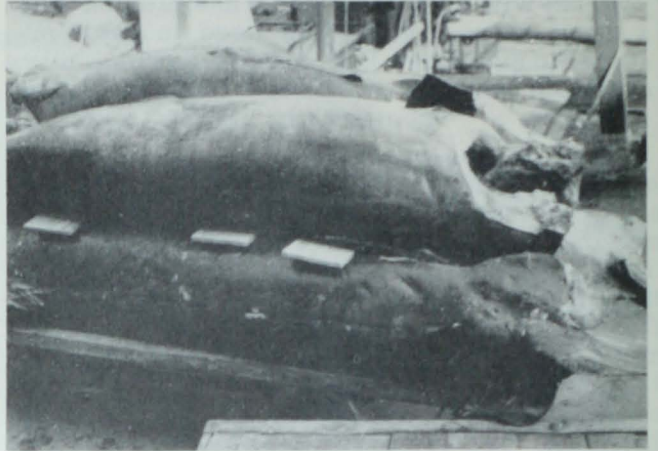


Fig. 5 - Part of the catch.

the fish will compensate somewhat for low catches.

Longlining for swordfish seems especially suitable for the large albacore jig boats, which are readily adapted to this type of fishing. This fishery may be particularly attractive to albacore fishermen because swordfish apparently are available in greatest numbers from October through January, and the albacore season usually terminates around late October. Little is known about the availability of swordfish from February through August.

Annual California landings of swordfish have never exceeded 250 tons since the peak year of 1948, when 550 tons were landed. Swordfish have been caught exclusively by harpooning, which requires good weather and availability of fish on the surface; thus, harpooning is restricted to about 4 months, from July through October. Swordfish could be harvested for an additional 3 months or more by longlining.

