

PARACHUTE-TYPE SEA ANCHOR

By Fred W. Hipkins*

BCF has tested a new parachute-type sea anchor designed to improve the safety of vessels during stormy weather. The anchor recently became available commercially. BCF tested the new safety device in offshore waters near Cape Flattery and in the Strait of Juan de Fuca, Washington, during cruise 92 of the exploratory fishing vessel "John N. Cobb."

Called "Luck Anchor," it comes in two types and several sizes. Basically, it is a parachute configuration having shroud lines reinforced to prevent tearing from the canopy in heavy seas. Weights are also used in some models to prevent rotation. A control line connected to a buoy, which in turn is connected to the crown of the canopy, allows the canopy to collapse when hauled back. It can

be launched and hauled back by two persons. The "Luck Anchor" opens automatically after the buoy line and towline have been payed out. The drifting vessel pulls on the towline to open the chute. Within 10 minutes after launching the anchor, the vessel will turn with the bow facing into the wind and waves, and remain in that position until the anchor has been hauled. The anchor is repacked wet.

F-Type Anchor

The F-type anchor (fig. 1) was designed to check the drifting speed of a vessel and is used by Japanese fishing vessels when fast drifting is undesirable. In the Strait of Juan de Fuca, with wind velocity steady at 26 knots, the F-type anchor reduced the drifting speed of the John N. Cobb from 2.6 knots to 0.3 knot. It

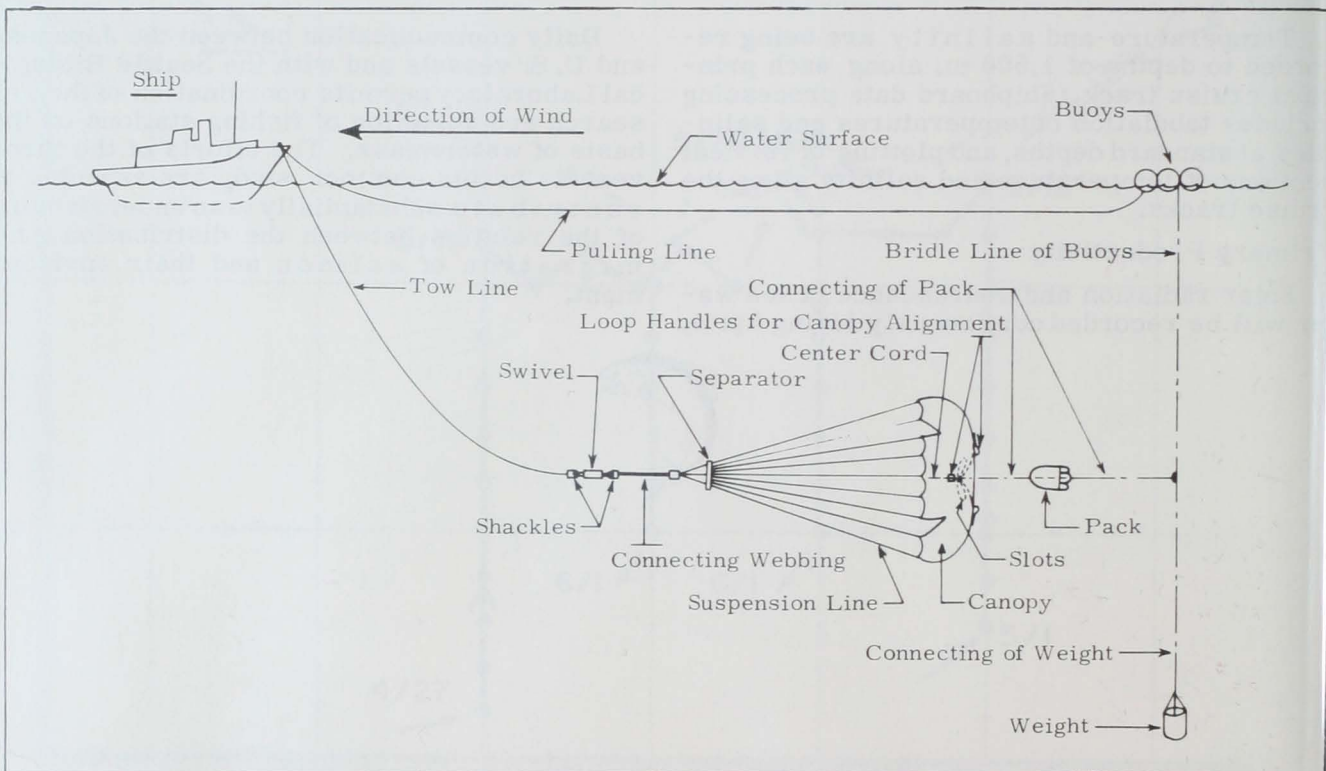


Fig. 1 - General arrangement of Luck-Anchor F-type.

*Fishery Methods & Equipment Specialist, Exploratory Fishing and Gear Research Base, Seattle, Wash.
Note: Equipment Note No. 24.

U. S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Sep. No. 815

was also tested in offshore waters in winds that forced other fishing vessels back to harbor.

PS-Type Anchor

The PS-type anchor (fig. 2) was designed to keep the bow of the vessel into the wind and waves while drifting at night, or when a vessel breakdown occurs in foul weather. In offshore waters near Cape Flattery, we tested models PS-70 and 50, in addition to the F-140, in winds of 38 knots gusting to 63 knots. When the wind gusted above 38 knots the bow of the John N. Cobb would swing away from the wind direction, and 2-3 minutes were required to reestablish the bow into the wind. After additional lines totaling 400 feet were

Towline Tension Measured

We measured towline tension, of the types and sizes tested, under various wind velocities and towline lengths. Generally, the amount of tension increased as the towline was lengthened. For example: using 300 feet of towline with wind velocity at 40 knots, the tension was 1,000 pounds; with 400 feet of towline and the same wind velocity, tension was 2,000 pounds. Using the PS-50 anchor, the minimum amount of tension recorded was 900 pounds at wind velocity of 26 knots. With the F-140, maximum tension was 4,000 pounds at 63 knots. The PS-70 appeared to be the best size for the John N. Cobb, which is 93 feet long, 25 feet in beam, and draws 10.6 feet. An additional anchor, the F-220,

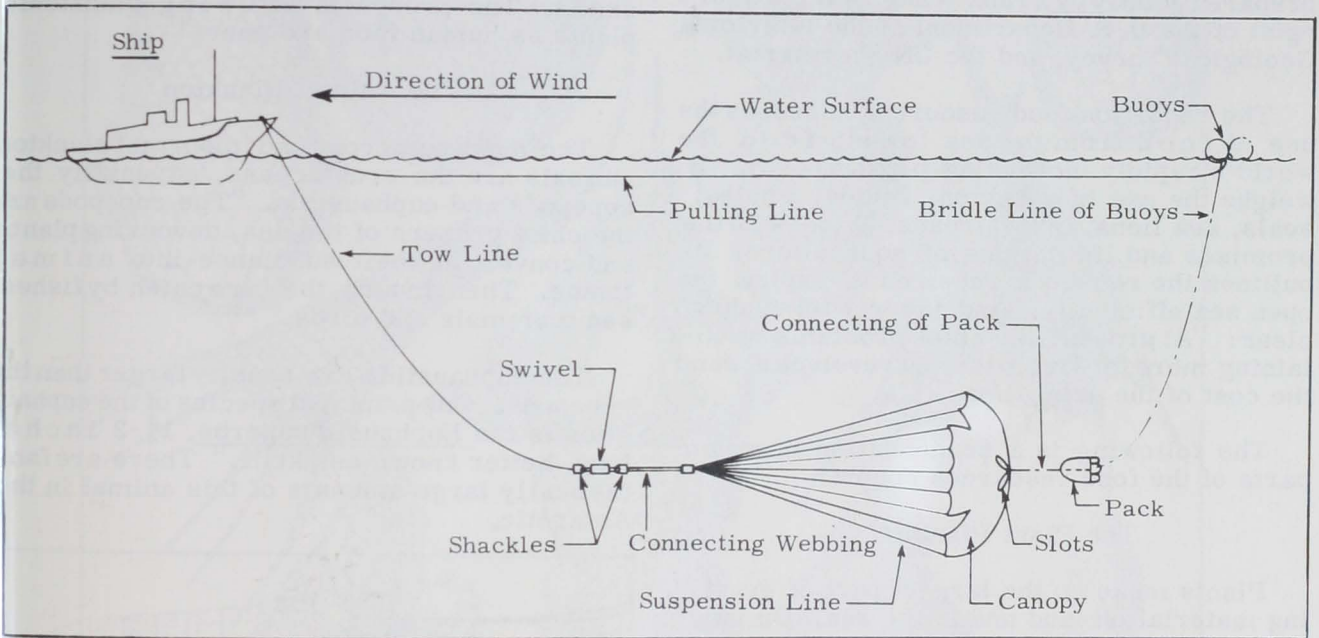


Fig. 2 - General arrangement of Luck-Anchor PS-type.

payed out, the swinging motion nearly ceased. Had the towline been bridled through both the port and starboard chocks--causing a straight pull on the bow--this motion might not have occurred. Several times, the lines were changed from the bow to the stern, resulting in the stern being held into the wind and waves. During all the tests, the rolling of the ship was greatly reduced and the crew and staff were well pleased with the anchor's performance.

was aboard but not tested. From favorable results of those anchors tested, the F-220 would appear suitable for vessels larger than the Cobb.

According to the manufacturer, Nippon Rayon Company, Ltd., Tokyo, who supplied the anchors for testing, "Luck Anchors" will soon be available in all fishing and boating areas of the United States.

