

BRIT HERRING ALONG MAINE'S COAST

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The Maine sardine industry prefers to can 2-year-old Atlantic herring, *Clupea harengus harengus*, but when they are not available, 1- and 3-year-old fish are used. To assist the industry in using the herring resource more efficiently, the BCF Biological Laboratory at Boothbay Harbor, Maine, seeks to predict the annual abundance and availability of the 2-year-old fish. As part of this program, herring are studied from the time they hatch in the autumn until the time they may enter the fishery 1 year later.

This preliminary report describes the summer distribution and relative abundance of 1-year-old, or "brit" herring, 2 to 4 inches in length, along the Maine coast in 1966-69.

METHODS AND GEAR

Surveys for brit herring were made twice each summer on inshore and offshore cruise tracks along the Maine coast (fig. 1) with the Department of the Interior vessel 'Rorqual'. The ship's echo-sounder was operated continuously during the surveys, which were made at a vessel speed of about 10 knots. Inshore tracks were covered during daylight, and offshore tracks at night, in 1966 and 1967; both tracks were covered during daylight in 1968 and 1969. Echo-sounder traces were classified as "heavy," "medium," or "light" to denote relative abundance (fig. 2).

A 16-foot semiballoon trawl, fitted with a $\frac{1}{2}$ -inch stretch-mesh liner in the cod-end, and a Boothbay Depressor Trawl were used to determine if traces on the echo-sounder were herring. Previous calibration of gear depth to amount of wire out usually enabled us to place the trawls at or near the same depth as the fish traces. Speed of the vessel during towing was approximately 6 knots; duration of the tows was 10 to 30 minutes.

SURVEY RESULTS

Distribution and Abundance

This study and earlier explorations indicate that inshore populations of brit herring

remain in the coastal waters throughout the summer. The heaviest concentrations were detected during early summer (late June to mid-July) in the central and eastern coastal areas (figs. 3 and 4). In subsequent cruises (mid-July to late August), the only brit observed were in upper Penobscot Bay, and even there they were scarce. No significant numbers of brit were found along the offshore cruise track in any year.

Brit were noticeably scarce in western Maine compared to central and eastern Maine during these years. No fish were located below Casco Bay.

Sardine Catch Relationship

The persistent occurrence of brit for 3 consecutive years (1966-1968) in central and eastern Maine is reflected in the subsequent total sardine landings. These two areas accounted for over 75% of the annual Maine catch from 1967 to 1969. In western Maine, the brit were very scarce in 1966 but somewhat more abundant in 1967 and 1968. Landings of herring in this region reached a 20-year low in 1967 but increased about 8% in both 1968 and 1969.

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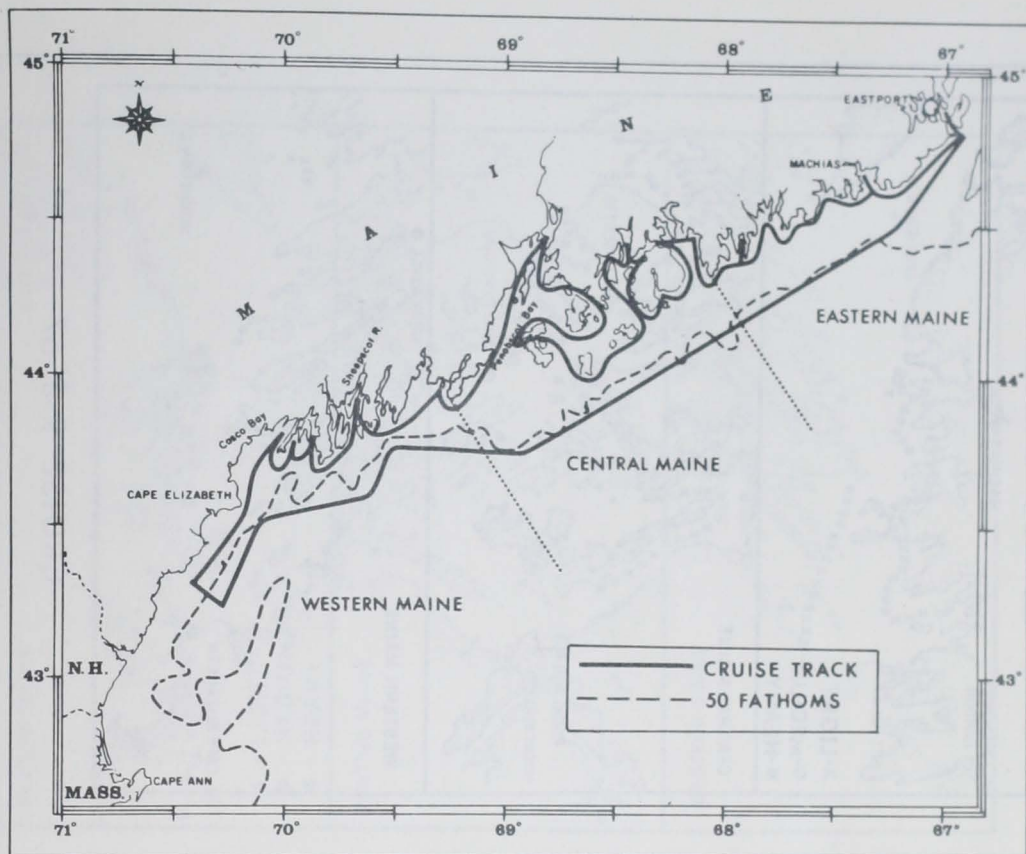


Fig. 1 - Survey area and general course of cruise track.

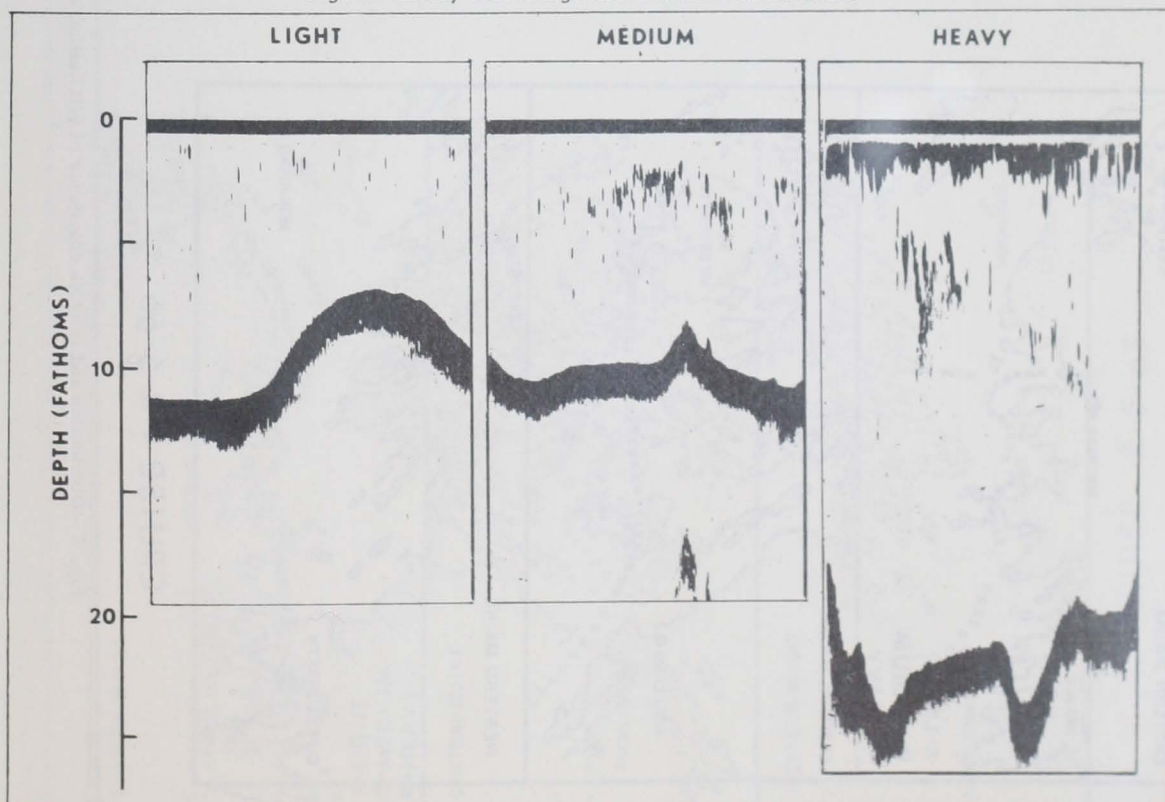


Fig. 2 - Echo-sounder traces and classification of brit herring concentrations.

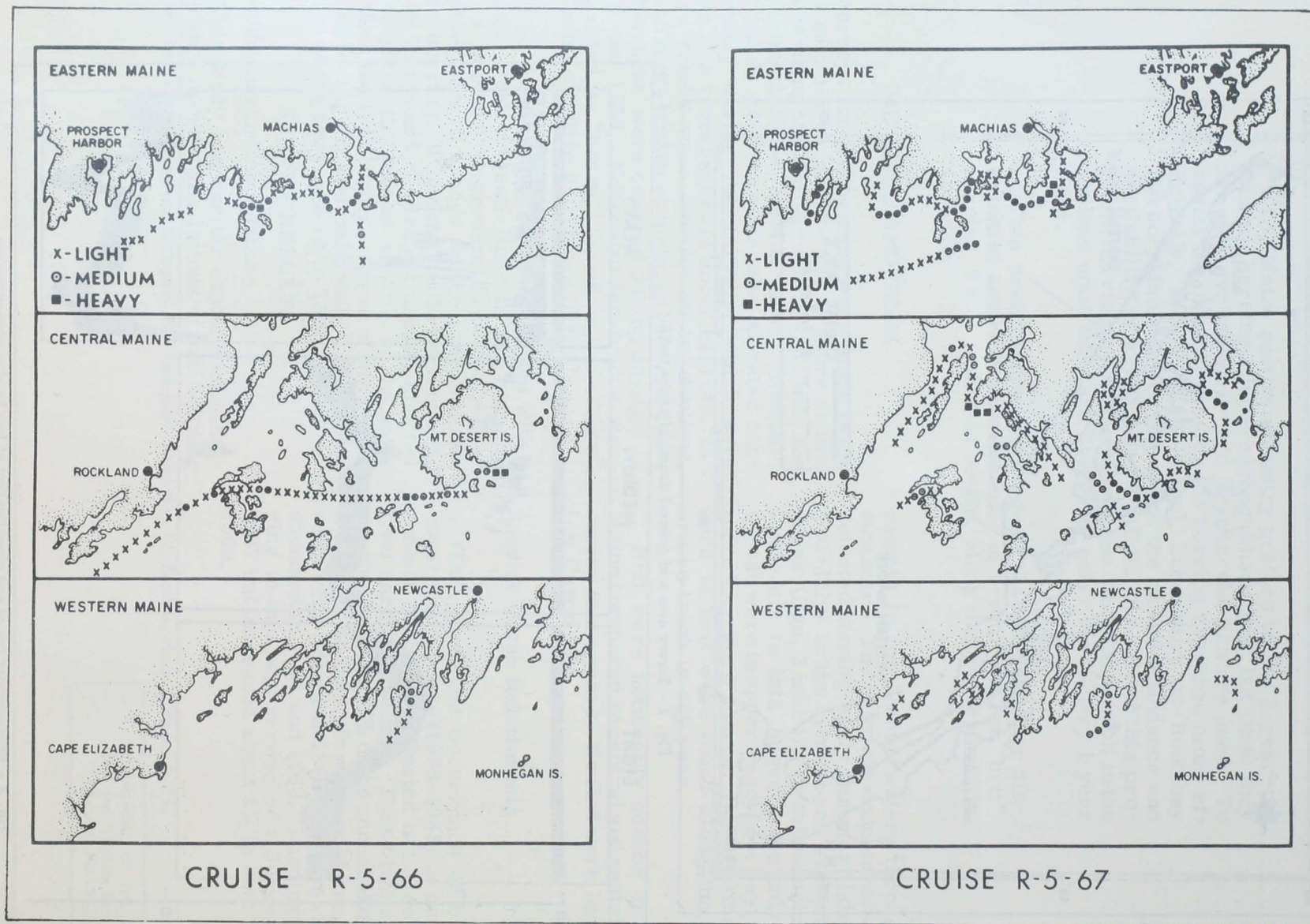


Fig. 3 - Distribution and relative abundance of brit herring along the Maine coast, 1966 (R-5-66) and 1967 (R-5-67).

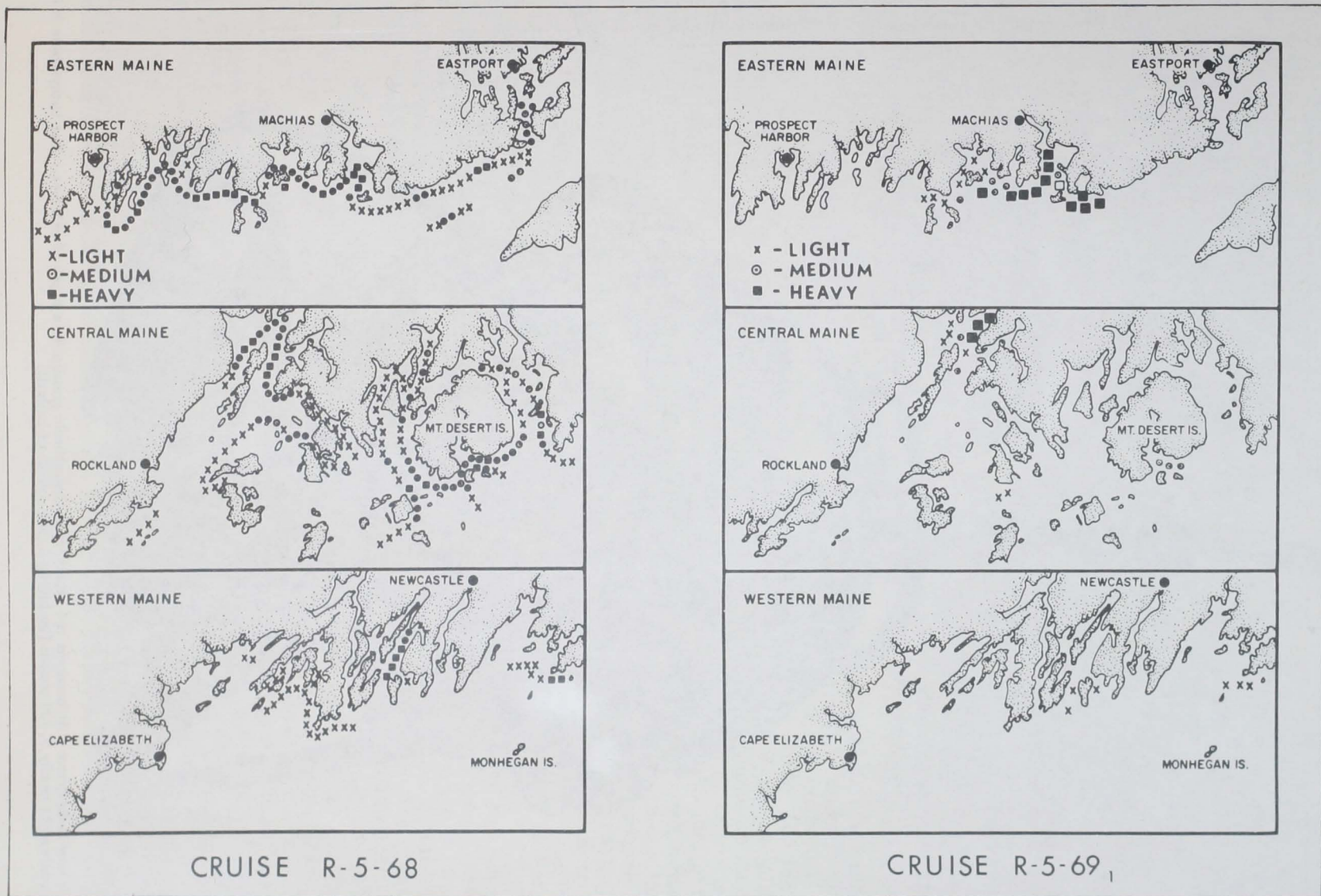


Fig. 4 - Distribution and relative abundance of brit herring along the Maine coast, 1968 (R-5-68) and 1969 (R-5-69).