

CRUISE REPORT

Oshoro Maru Cruise 60
17 July - 1 August, 1995
FOCI Cruise 10M95

1.0 Introduction

Fisheries Oceanography Coordinated Investigations (FOCI) is a joint effort by scientists at PMEL and AFSC to understand the biological and physical processes which cause variability of recruitment to commercially valuable fish and shellfish stocks in Alaskan waters. The FOCI program is presently studying the effects of the biotic and abiotic environment on the early life stages of walleye pollock spawned in the Bering Sea. This report represents the summary of only the FOCI objectives during this cooperative cruise between FOCI and Hokkaido University.

The objectives of this cruise were:

- (1) to conduct an ichthyoplankton survey of the Eastern Bering Sea Shelf,
- (2) to collect juvenile pollock for otolith and stomach analysis,
- (3) to collect chlorophyll and nutrient samples near two moorings containing physical and biological sensors.

2.0 Operations

Departed from Kodiak on 17 July and proceeded to Eastern Bering Sea Shelf to conduct juvenile survey. Arrived at first station on 19 July and conducted gear comparisons between a Tucker trawl (505 m) and the *Oshoro Maru* beam trawl with a Methot net (2x3 mm mesh, 1 mm codend) attached (MBT) at the first three stations. Although the standardized catches were similar between the two nets, the Methot beam trawl caught a broader range of individuals including many more juveniles (Fig. 1). Based on these comparative catches, we decided to use the MBT for the remainder of the survey.

A grid pattern was set up within the allowed fishing area with a grid spacing of 30 nm (Fig. 3). Standardized catches were the highest in the southeast part of the grid and in the area closest to the Pribilof Islands (Fig. 2). Relatively few fish were caught in the northernmost three transects. Larger age-0 pollock tended to occur in the central part of the survey area, although the number of length measurements in the northern three transects was limited. The survey was broken off for almost a week for sampling in the area around St. Lawrence Island in the northern Bering Sea. Two more stations were added at the end of the cruise east of an area of high pollock concentration and both produced high catches of age-0 pollock.

In addition to the trawl survey, chlorophyll and nutrient samples were collected at mooring sites M2 and M3 in the Southeast Bering Sea (Fig. 1). A CTD was deployed

at each station and the water samples (Van Dorn bottles) and small zooplankton (NORPAC net) were also collected. Surface and bottom temperatures are listed for each station in Table 1.

3.0 Summary

This survey represented the last in a series attempting to map the seasonal distribution patterns of pollock from spawning to early juvenile stage. Based on the results of this cruise, we are now able to describe in general the horizontal distribution and size distribution of age-0 pollock on the Eastern Bering Sea shelf in summer. The spatial distribution of the largest catches was similar to those seen in May-June aboard the *Kaiyo maru* but were displaced slightly to the Northwest. The size distribution of age-0 pollock was substantially larger than in May-June but direct comparisons are not possible because of the different gears used. Many of the age-0 pollock collected were in poor physical condition and may have been partially eaten by the numerous jellyfish (mostly *Chysaora melanaster*) that were found in most hauls.

4.0 FOCI Personnel

July 17- August 1	Richard Brodeur Matt Wilson
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5.0 Cruise Statistics

Chlorophyll Samples Taken	12
Nutrient Collections	6
Tucker Trawl Collections	3
Clarke-Bumpus Collections	3
Methot Beam Trawls	30
Juvenile Pollock Collected	6934

6.0 Acknowledgements:

We sincerely thank Captain Anma, the officers, crew and cadets of the *Oshoro Maru* for their assistance in sampling and making our stay on the vessel so enjoyable. We also appreciate the logistic support of the Chief Scientist, Dr. Sei-ichi Saitoh, and also that of Drs. Onishi and Odate. Finally, our sampling was greatly aided by Dr. Tsunemo Nishiyama of Hokkaido Tokai University who helped us sort and count many fish.

- Figure 1. Percent frequency distribution of lengths in the three gear comparison trials in the Southeast Bering Sea.
- Figure 2. Locations of trawl sampling stations (numbered dots) and mooring stations (M2 and M3) in the Eastern Bering Sea.
- Figure 3. Catches of age-0 pollock standardized per 10 m² sea surface area. Catches are based on rough counts made at sea.
- Figure 4. Percent frequency distributions of lengths by East-West transect with Transect A being the southernmost.

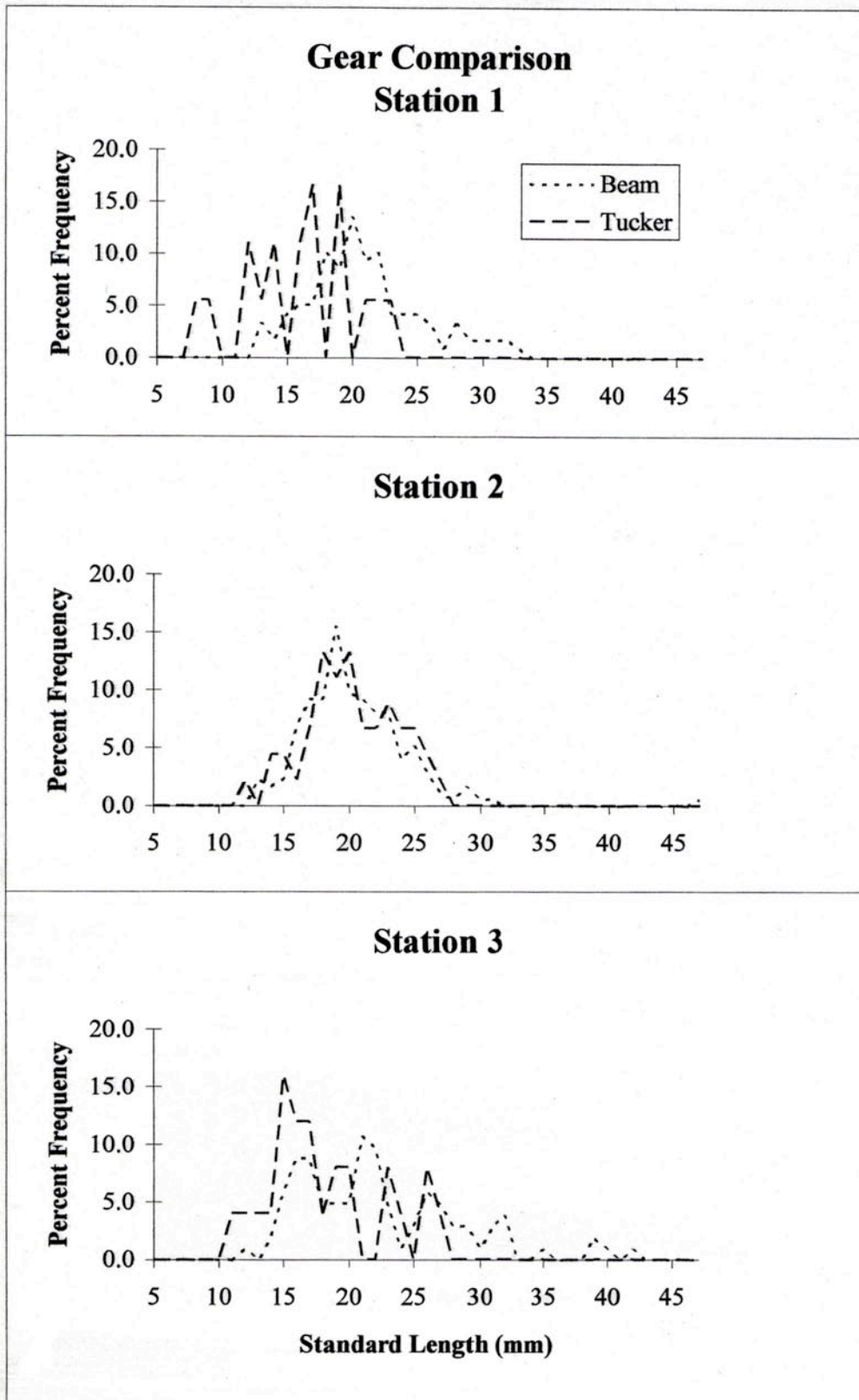


Figure 1. Percent frequency distribution of lengths in the three gear comparison trials in the Southeast Bering Sea.

Oshoro Maru Trackline and Station Locations

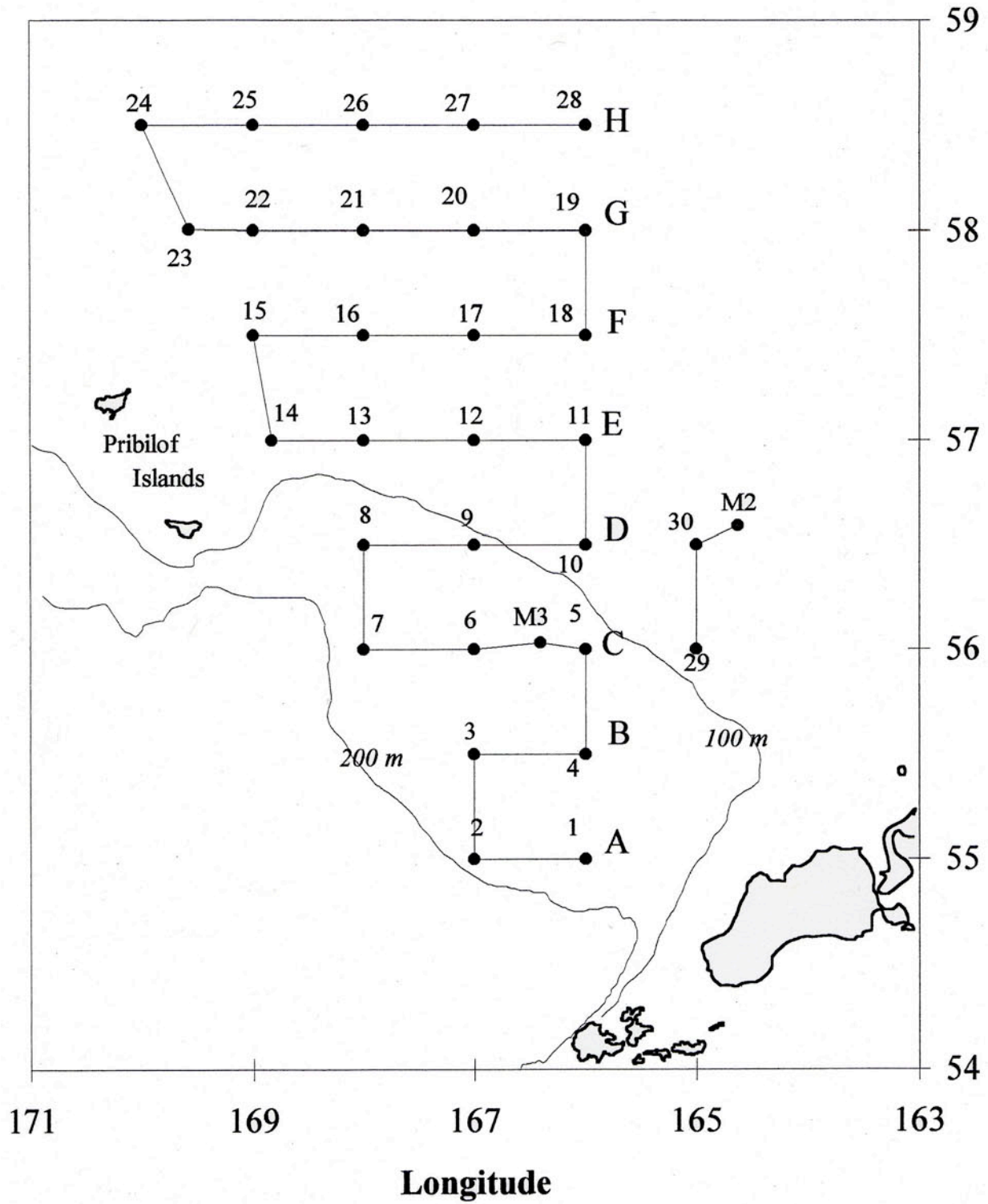


Figure 2. Locations of trawl sampling stations (numbered dots) and mooring stations (M2 and M3) in the Eastern Bering Sea.

Fish Abundance (No./10 m. sq.)

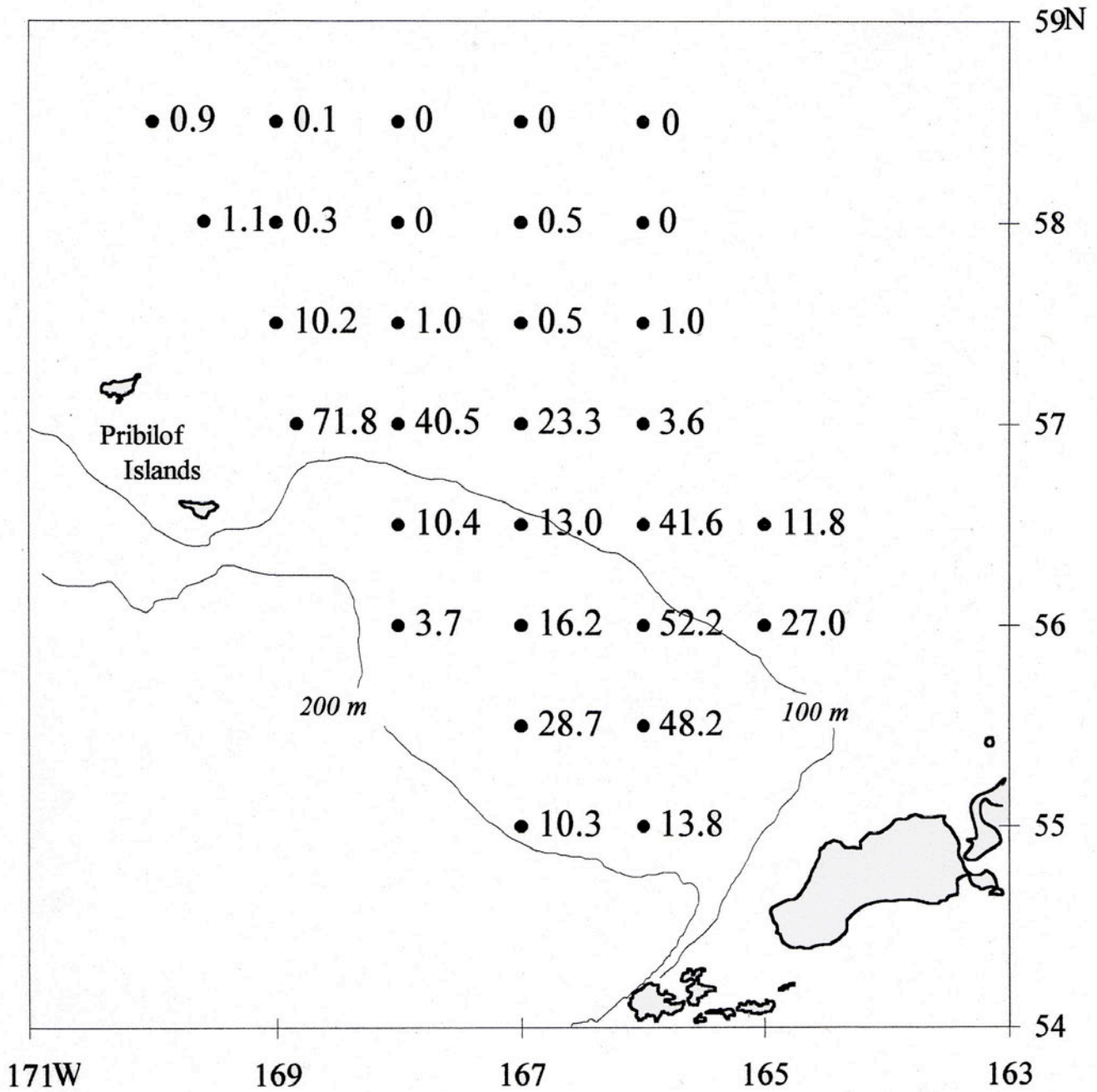


Figure 3. Catches of age-0 pollock standardized per 10 m² sea surface area. Catches are based on rough counts made at sea.

Oshoro Maru
 17 July - 1 August 1995
Theragra chalcogramma

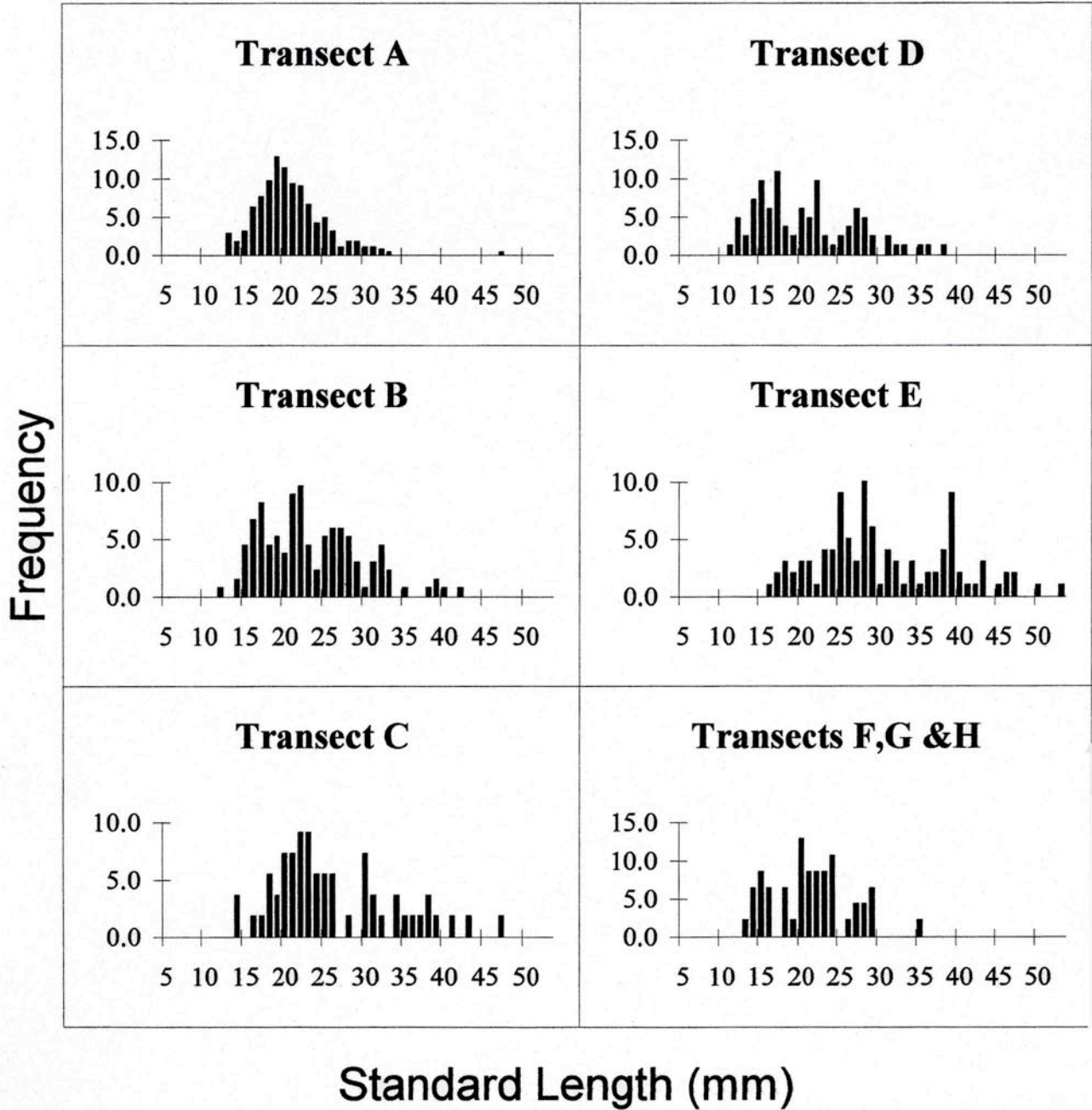


Figure 4. Percent frequency distributions of lengths by East-West transect with Transect A being the southernmost.