

CRUISE REPORT

Oshoro Maru Cruise 78
18 July - 2 August, 1997
FOCI Cruise 10M97

1.0 Introduction

Fisheries Oceanography Coordinated Investigations (FOCI) is a joint effort by scientists at the Pacific Marine Environmental Laboratory (PMEL) and the Alaska Fisheries Science Center (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 physical and biological environment on the early life stages of walleye pollock spawned in the Bering Sea. This report represents the summary of the FOCI operations conducted 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, with emphasis placed on determining the abundance and abundance of juvenile walleye pollock,
- (2) to collect temperature, salinity, and chlorophyll profiles in the study area,
- (3) to collect information on the species composition, size, and weight of jellyfishes and to collect tissue samples of jellyfishes and their prey for stable isotope analysis,
- (4) to collect genetic samples of sculpins (family Cottidae) and Arctic cods (family Gadidae) for molecular based phylogenetic studies.
- (5) to collect rare and unusual fish specimens for taxonomic studies.

2.0 Operations

Departed from Seward, Alaska 18 July and proceeded to Eastern Bering Sea Shelf to conduct juvenile survey. Arrived at first station on 21 July and began sampling with the *Oshoro Maru* beam trawl frame with a Methot net (5 m² mouth opening, 2x3 mm mesh, 1 mm codend) attached. The beam trawl was fished in oblique manner from 100 meters depth to the surface or to within 10 meters of the bottom at shallower stations. A pre-planned grid pattern of stations was set up within the allowed fishing area with station spacing of 30 nm (Fig. 1). Standardized catches of age-0 walleye pollock, based on rough counts at sea, were the highest in the northwest part of the grid and in the area closest to the Pribilof Islands (Fig. 2). Relatively few fish were caught in the southern portion of the grid. Noticeably larger age-0 walleye pollock tended to occur in the eastern part of the survey area in areas of lower abundance. There appeared to be two size classes of late larval/early juvenile walleye pollock of approximately 15-25 mm and 35-50 mm. Actual length measurements will not be taken until the samples are processed. The S.E. Bering Sea ichthyoplankton survey was completed on July 26 to proceed to the area around St. Lawrence Island in the northern Bering Sea. Several genera of sculpins (family Cottidae), were collected in bottom trawls from the both study areas. In addition, poachers (family Agonidae), snailfishes (family Liparidae), and Arctic cod (*Boreogadus saida*) were collected in bottom trawls from the

area around St. Lawrence Island for research staff at the AFSC.

3.0 Summary

This survey represented the latest in a series attempting to map the seasonal distribution patterns of walleye pollock from spawning to early juvenile stage. Based on the results of this cruise, and previous surveys, we are now able to describe in general the horizontal distribution and size distribution of age-0 walleye pollock over a large portion of the Eastern Bering Sea shelf in summer. The spatial distribution of the largest catches was similar to that observed during the 1996 cruise of the Oshoro Maru (cruise 68, 1OM96) but different than that observed during the 1995 cruise of the Oshoro maru (cruise 60, 1OM95) being displaced to the Northwest near the Pribilof Islands. The size distribution of age-0 walleye pollock was notably larger in the eastern portion of the grid where densities were lower. Many of the age-0 walleye pollock collected were in poor physical condition possibly due to being crushed in the net by the weight of numerous jellyfish (mostly *Chrysaora melanaster*) that were collected in most hauls.

4.0 FOCI Personnel

July 18- August 2

Morgan Busby
Hiroya Sugisaki

5.0 Cruise Statistics

Methot Beam Trawls (MBT)	26 (S.E. Bering Sea) 8 (St. Lawrence Island area)
Juvenile walleye pollock collected	7599
Arctic cod collected	3
Genera of sculpins collected	9

6.0 Acknowledgments:

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. Yasunori Sakurai of Hokkaido University. We also greatly appreciate the assistance of Mr. Manabu Seo of Hokkaido Tokai University who helped us sort and count many jellyfish and age -0 pollock.

Figure 1. Locations of beam trawl sampling stations in the southeastern Bering Sea.

Figure 2. Catches of age-0 pollock standardized per 1000 m³ volume seawater filtered. Catches are based on rough counts made at sea.

Oshoro Maru 1997

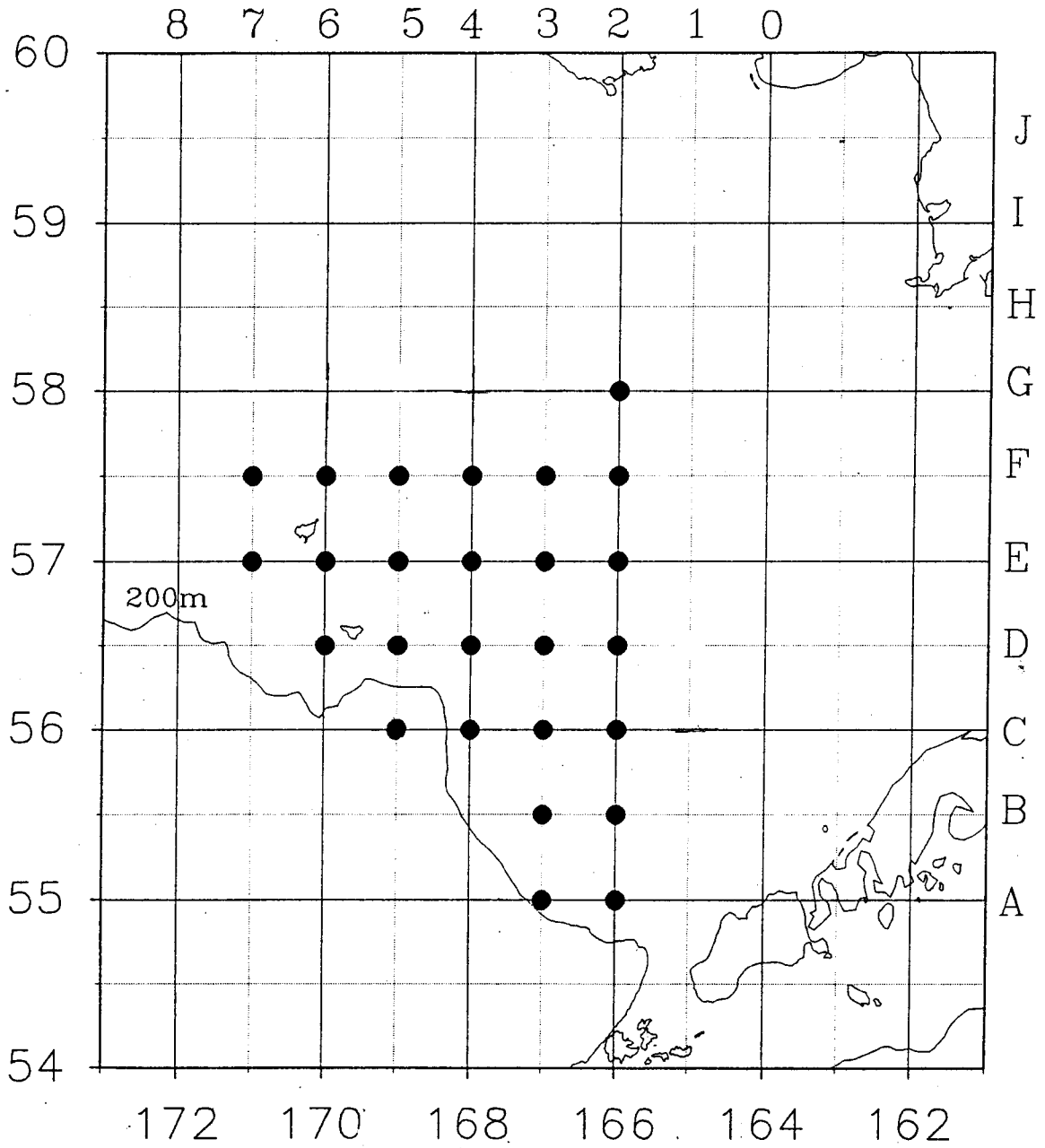


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Oshoro Maru 1997 Pollock Densities

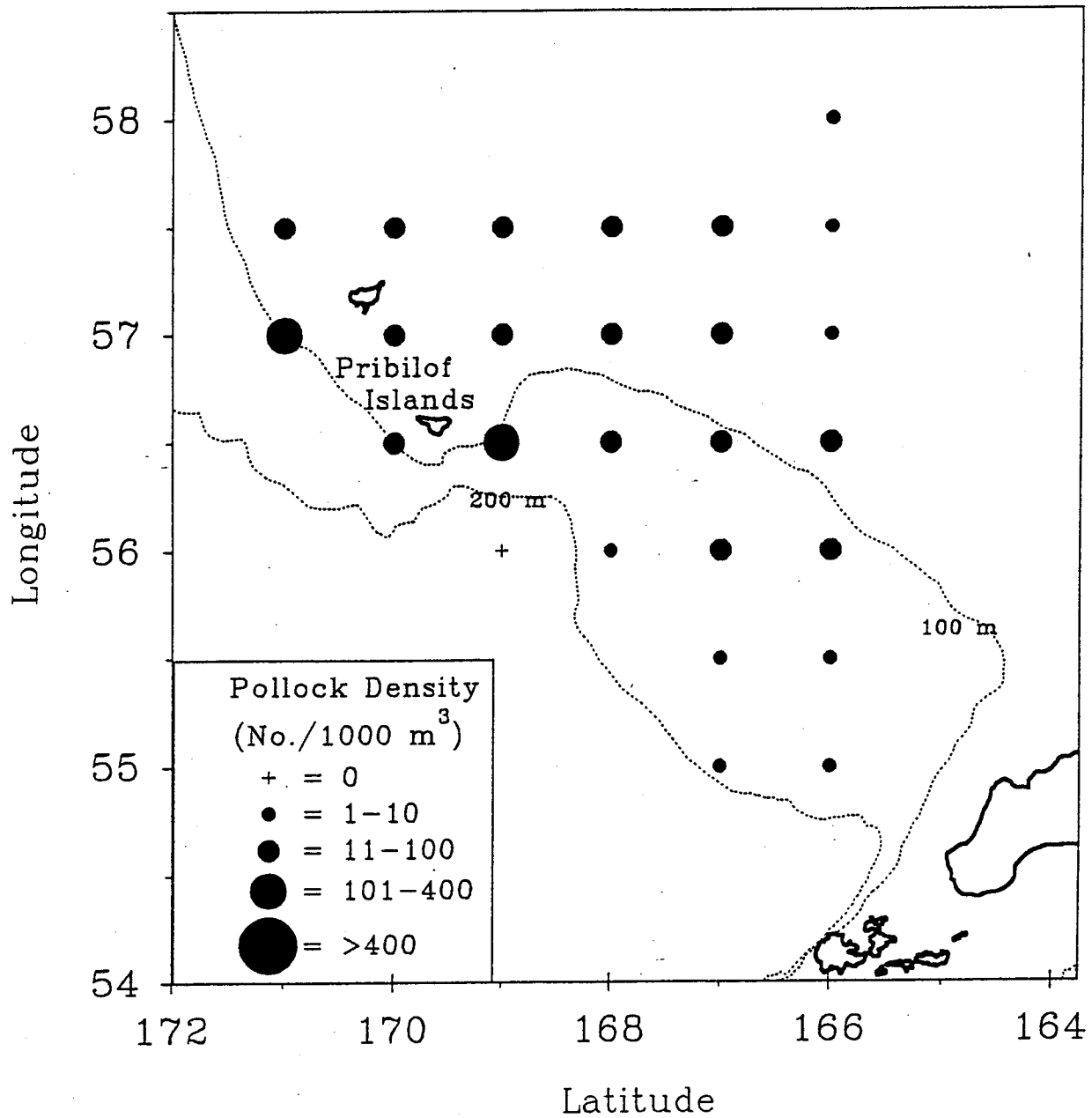


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