

| |
|------------------------------------------------------|
| INPFC DOCUMENT Ser. No. 3464 Rev. No. _____ |
|------------------------------------------------------|

SUMMARY OF COOPERATIVE US - JAPANESE ACOUSTIC/MIDWATER- TRAWL
SURVEYS OF WALLEYE POLLOCK IN THE CENTRAL AND EASTERN BERING
SEA DURING JANUARY AND FEBRUARY, 1989.

BY

EDMUND P. NUNNALLEE

Alaska Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
7600 Sand Point Way N.E.
Bin C15700
Seattle, Washington 89155

October 1989

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:

Nunnallee, Edmund P. 1989. Summary of cooperative US - Japanese acoustic/midwater trawl survey results for walleye pollock in the central and Eastern Bering Sea., Unpubl. Rep., 10 p. Alaska Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, 7600 Sand Point Way N.E., Bin C15700, Seattle, Wa. 98115. (Submitted to The International North Pacific Fisheries Commission in October, 1989).

SUMMARY OF COOPERATIVE US - JAPANESE ACOUSTIC/MIDWATER TRAWL SURVEYS OF WALLEYE POLLOCK IN THE CENTRAL AND EASTERN BERING SEA DURING JANUARY AND FEBRUARY, 1989.

BY
EDMUND P. NUNNALLEE

Most of the international zone East of the US - USSR convention line and the Eastern Aleutian basin was surveyed during January and February, 1989 by cooperative efforts of the Alaska Fisheries Science Center (AFSC) and The Far Seas Fisheries Research Laboratory (FSFRL) using the NOAA R/V Miller Freeman and the R/V Kaiyo Maru, respectively. The major objectives of the work were to collect echo integrator and midwater trawl data to determine the biomass and distribution of walleye pollock spawning concentrations and to collect biological samples/data for use in determining their biological characteristics.

Echo integrator/midwater trawl survey operations were conducted by the Miller Freeman and the Kaiyo Maru on a 24 hours per day schedule, during two similar time periods. Both vessels concentrated their survey efforts in the central Aleutian Basin, generally East of 175 ° W. longitude during January 19 through February 8. Their effort was divided about equally between the international zone and the portion of the Aleutian Basin to the South. The remainder of the Aleutian Basin and part of the shelf East of 175 ° W. Longitude was surveyed during February 5 (both vessels) through February 26 (Japanese) and March 1 (US). The tracklines and midwater trawl stations occupied by the Miller Freeman are shown in Figure 1, 2 and 3. Figure 4 and 5 show the survey tracklines and Figure 6 shows the locations of midwater trawl stations occupied by the Kaiyo Maru.

Significant walleye pollock aggregations were found in only very limited areas throughout the Aleutian Basin survey. The only fish encountered in the international zone was a thin layer near it's eastern extent (haul location, Fig. 1). The only heavy aggregations of pollock found within the Aleutian Basin were between 167 ° 30 ' and 170 ° W longitude, just north of the Aleutian Island chain (see haul locations, Fig. 3). Moderate aggregations of pollock were found between the shelf break and the 100 m depth contour on most of the transects East of 175 ° W. longitude. The highest abundances were encountered in a small area SE of St George Island and in a considerably larger area NW of Unimak Island (haul locations, Fig. 2). The shelf aggregations likely represent the majority of the total population of pollock encountered during this survey.

There is very good agreement between the length frequencies of pollock as determined by US and Japanese observers for fish

obtained from within the Aleutian Basin (Fig. 7). An apparent offset of about 1 cm between the two sets of measurements was determined to be due to differences in measurement techniques; the differences are minimal after justification. The Japanese compared size compositions of fish from within and from outside of the international zone and show only a small difference between the two sets of measurements (Fig. 7, upper). Most of these fish, either from inside or outside the international zone, were obtained from within the Aleutian Basin. Similar measurements made by US observers of pollock obtained near Bogoslof Island (haul locations, Fig. 3) indicate a mean length of 48.5 cm. The size composition of the on-shelf portion of the population was found to be quite different (Fig. 7, lower), the mean length being 45.1 cm. The on-shelf pollock length distribution was much more broad than that of basin fish. There was considerable overlap, indicating a mixture of fish similar in length to those found in the basin plus smaller and probably younger fish.

Detailed analyses of the data set described above are currently in progress but have not been completed.

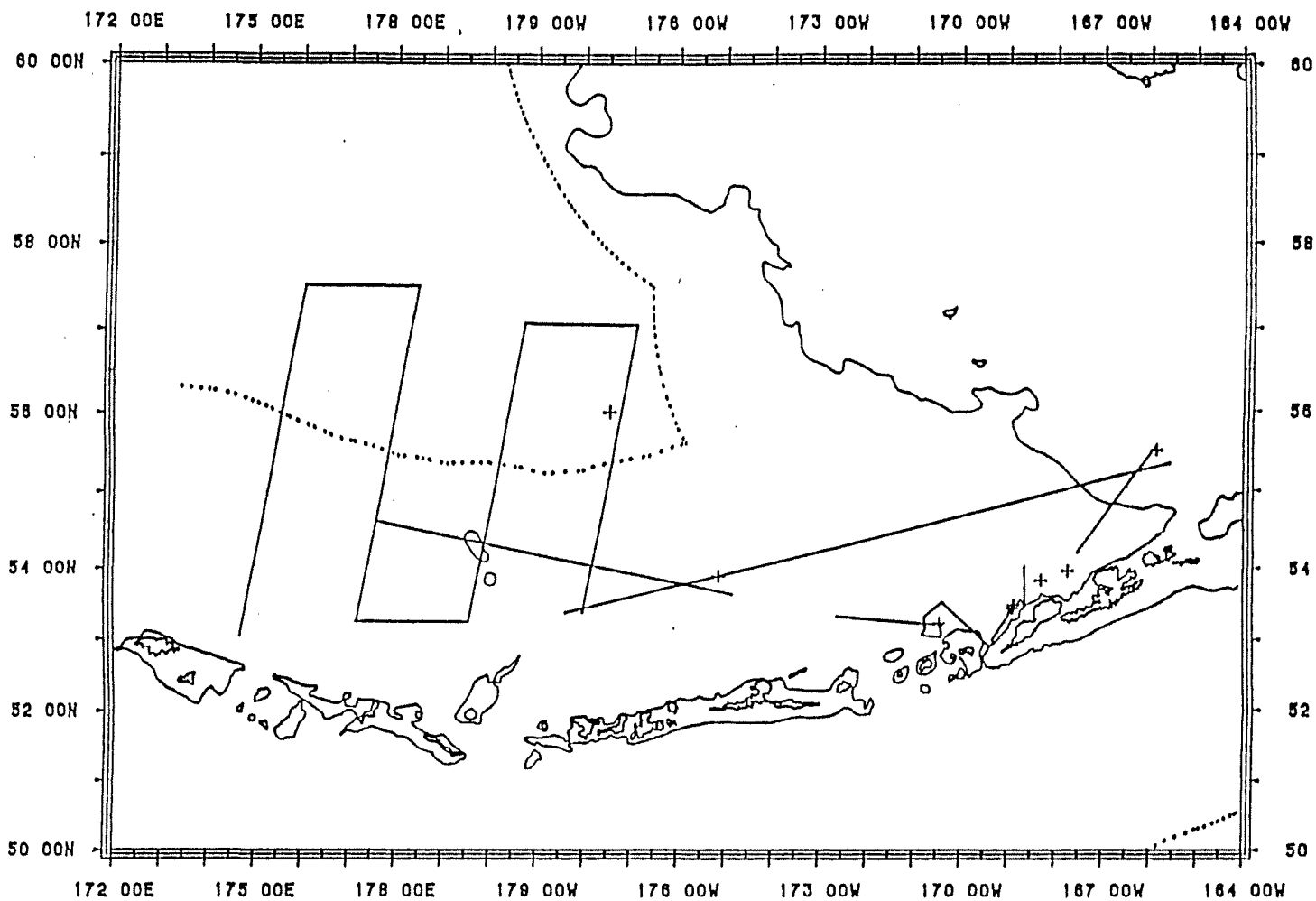


Figure 1. Tracklines and midwater trawl stations occupied by the US Research Vessel Miller Freeman during Jan 20 - Feb 8, 1989.

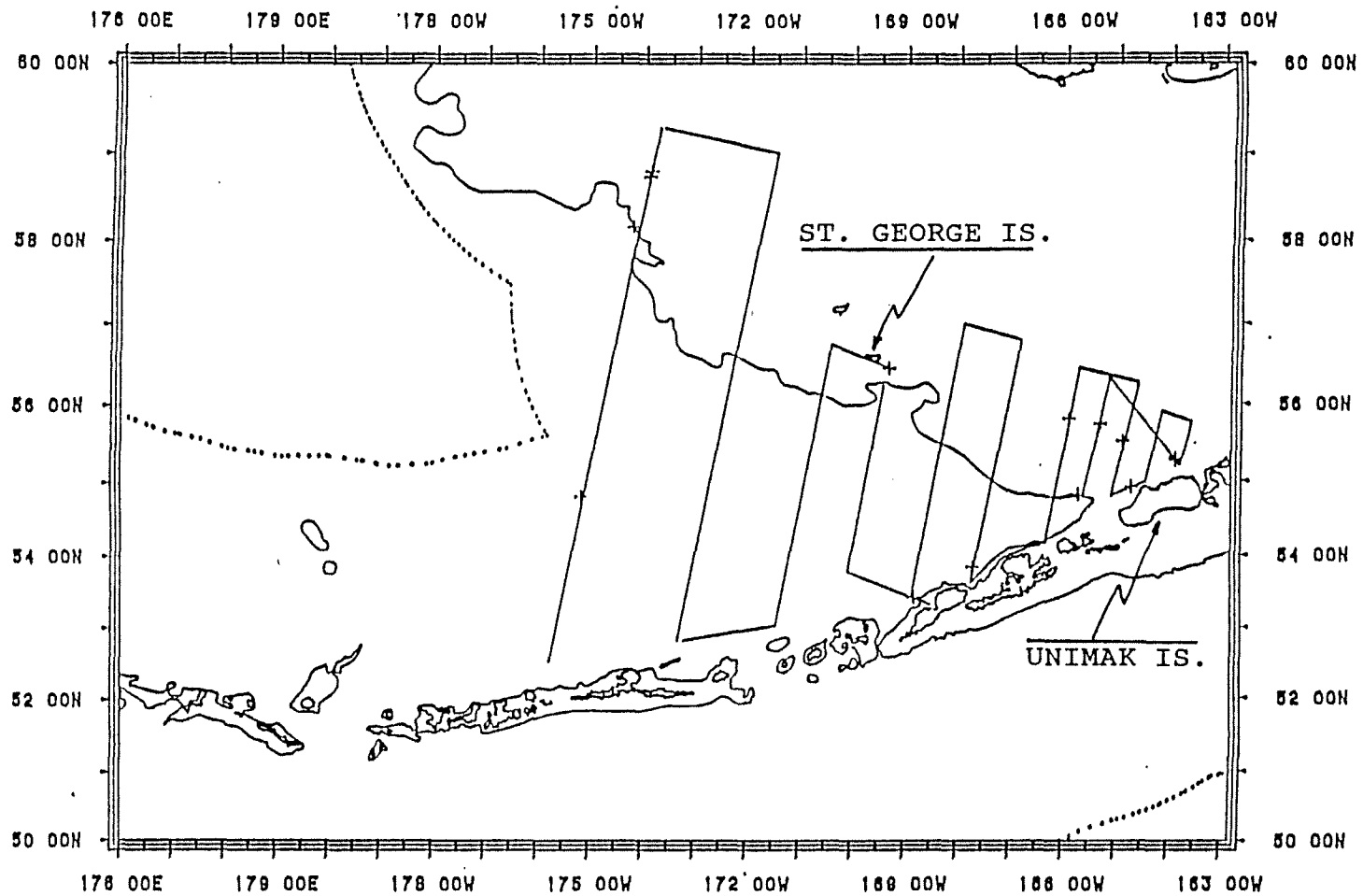


Figure 2. Tracklines and midwater trawl stations occupied by the US Research Vessel Miller Freeman during Feb 15 - Mar 1, 1989.

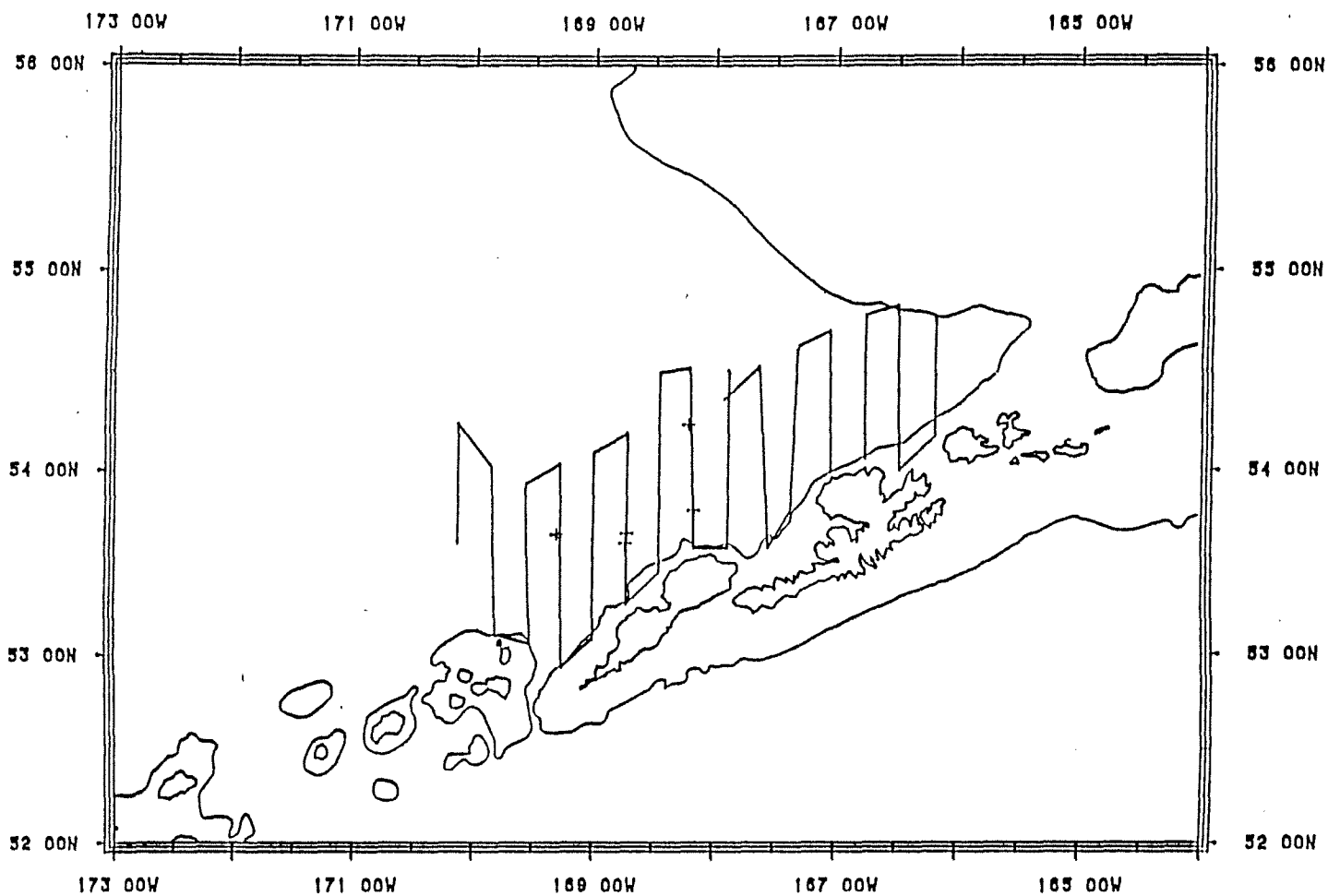


Figure 3. Tracklines and midwater trawl stations occupied by the US Research Vessel Miller Freeman during a detailed survey of the Bogoslof Island area, Mar 1 - 7.

LONGITUDE

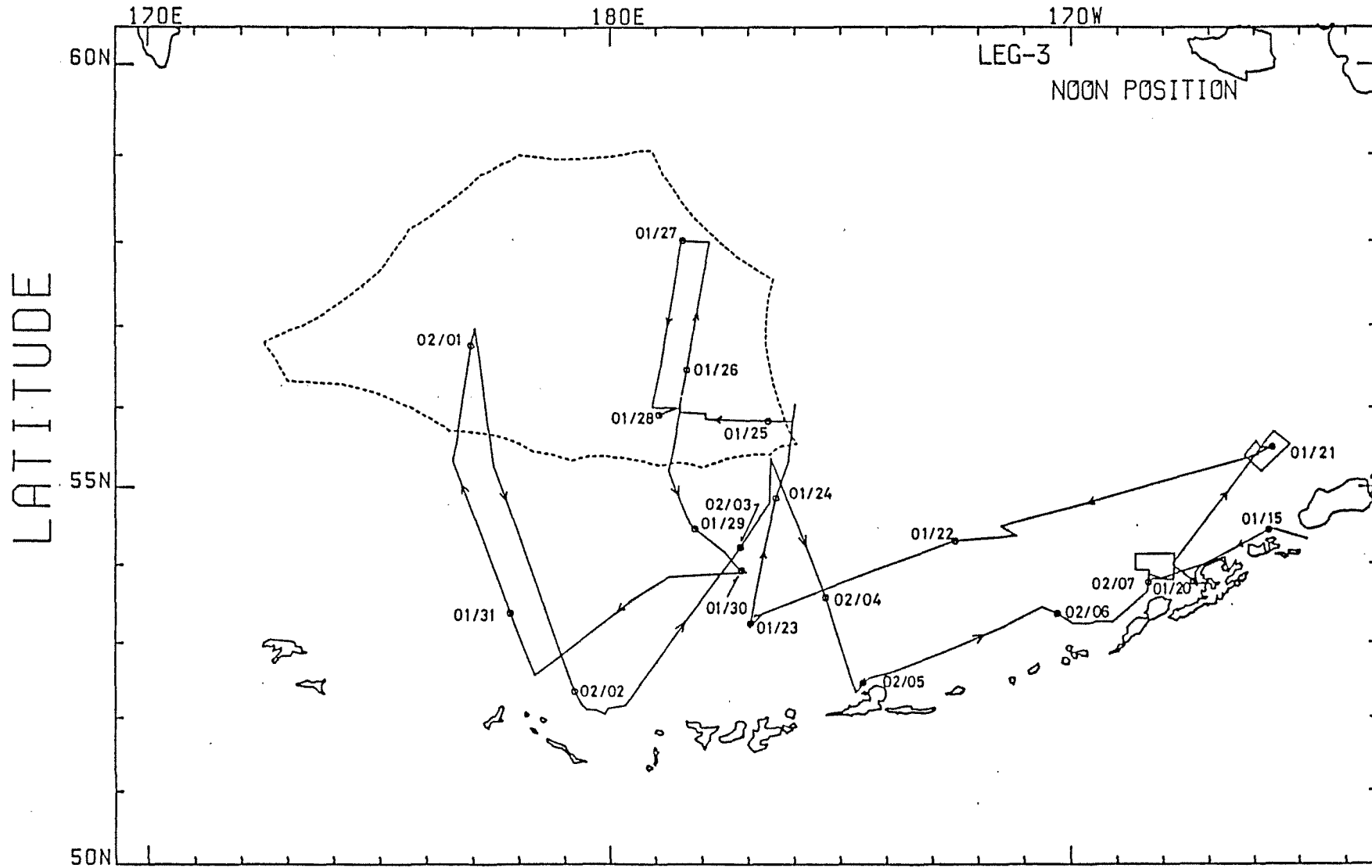


Figure 4. Trackline locations and noon positions for the Japanese Research Vessel, Kaiyo Maru during Jan 22 - Feb 7.

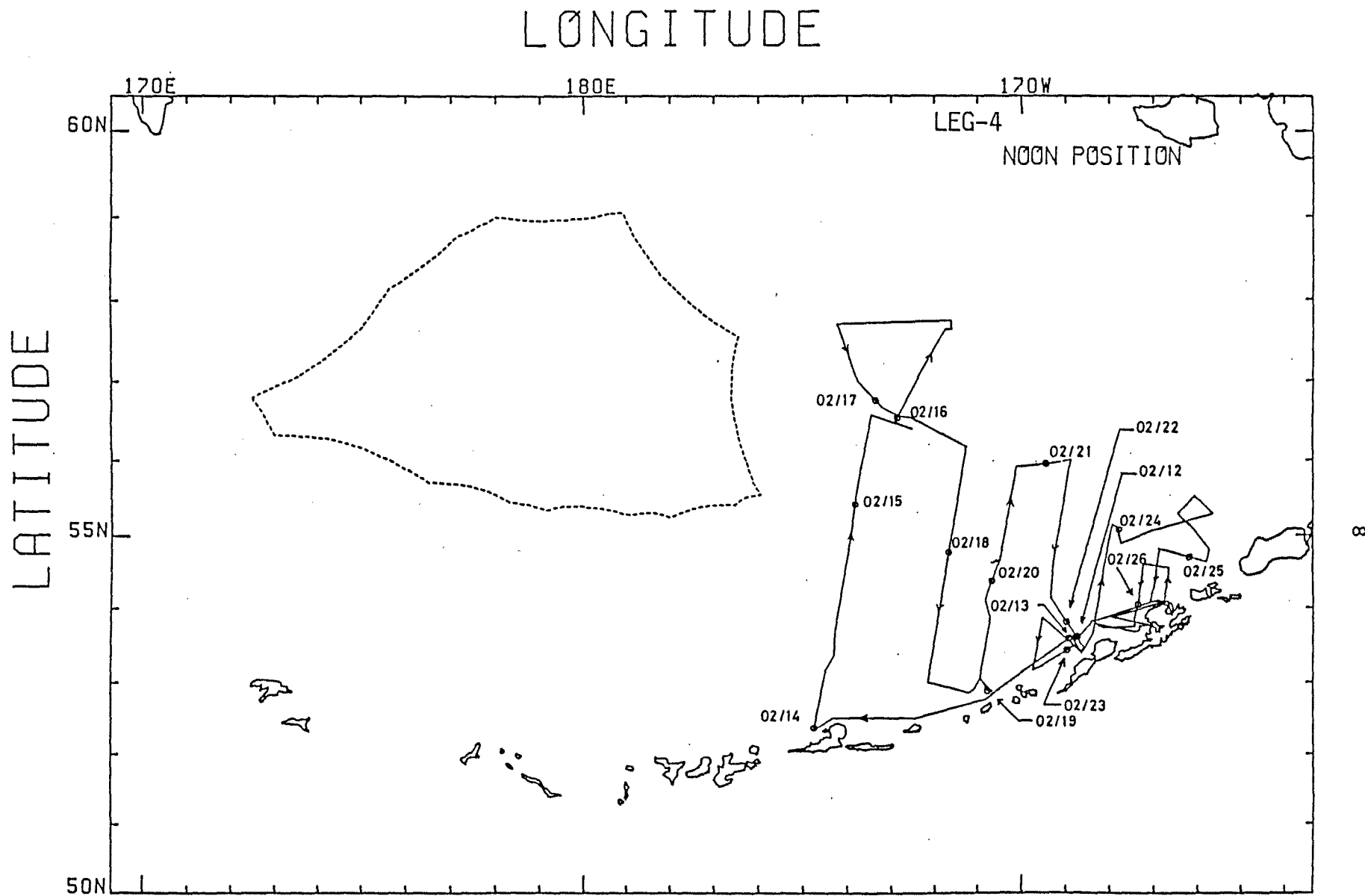


Figure 5. Trackline locations and noon positions for the Japanese Research Vessel, Kaiyo Maru during Feb 14 - 26.

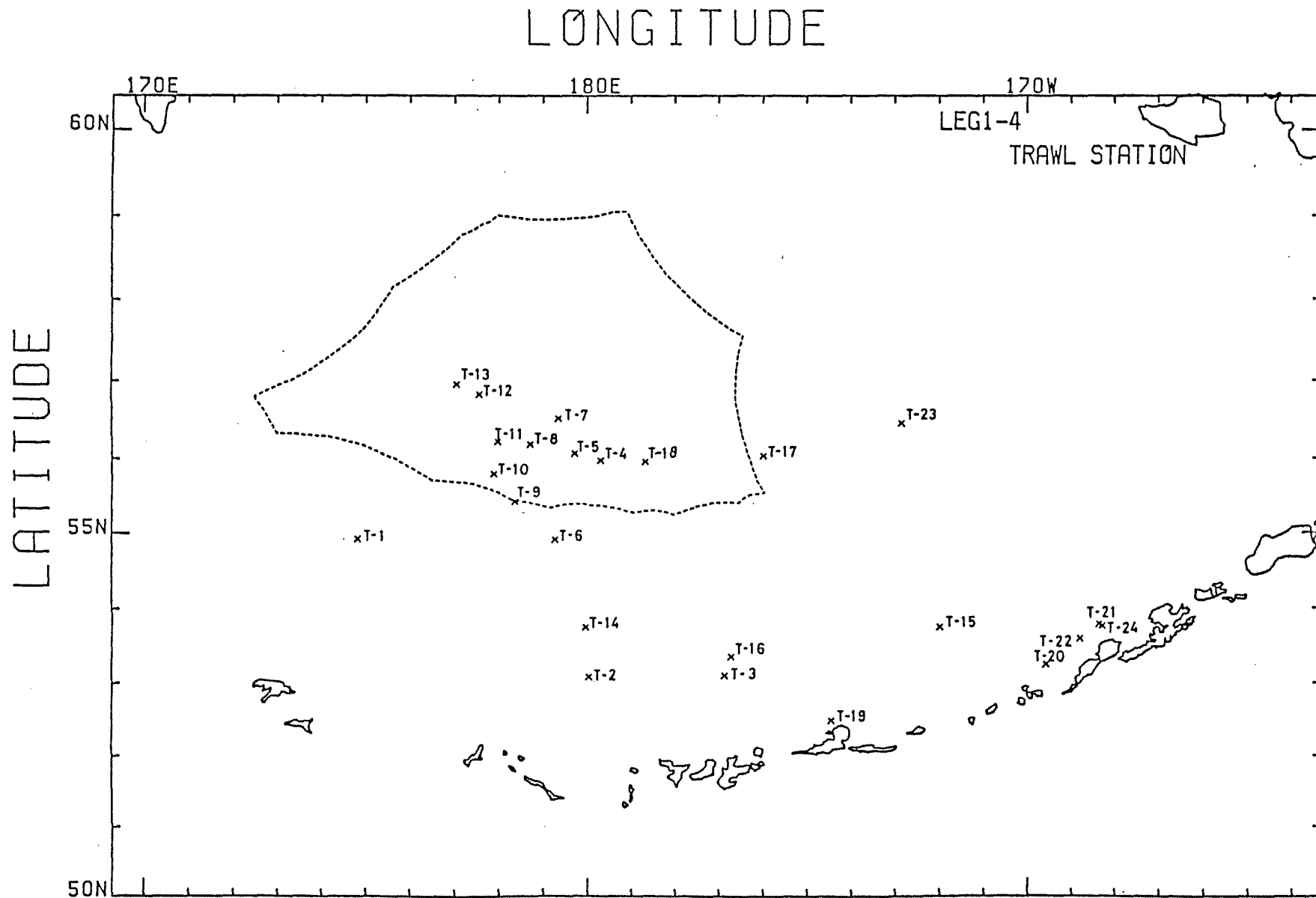


Figure 6. Midwater trawl stations occupied by the Japanese Research Vessel Kaiyo Maru during Jan 22 - Feb 26.

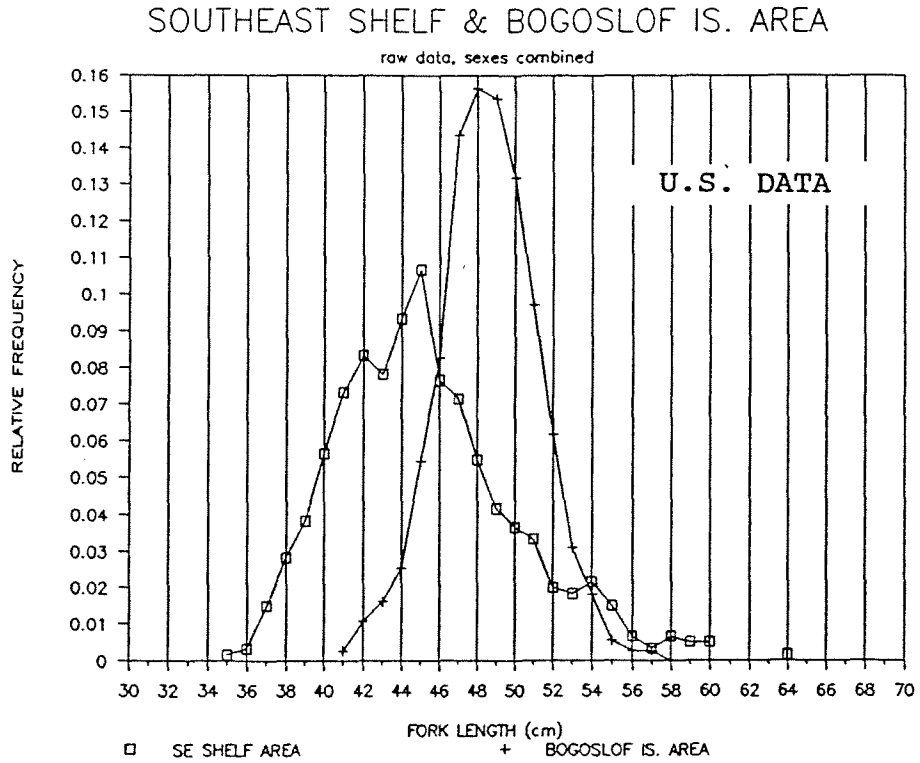
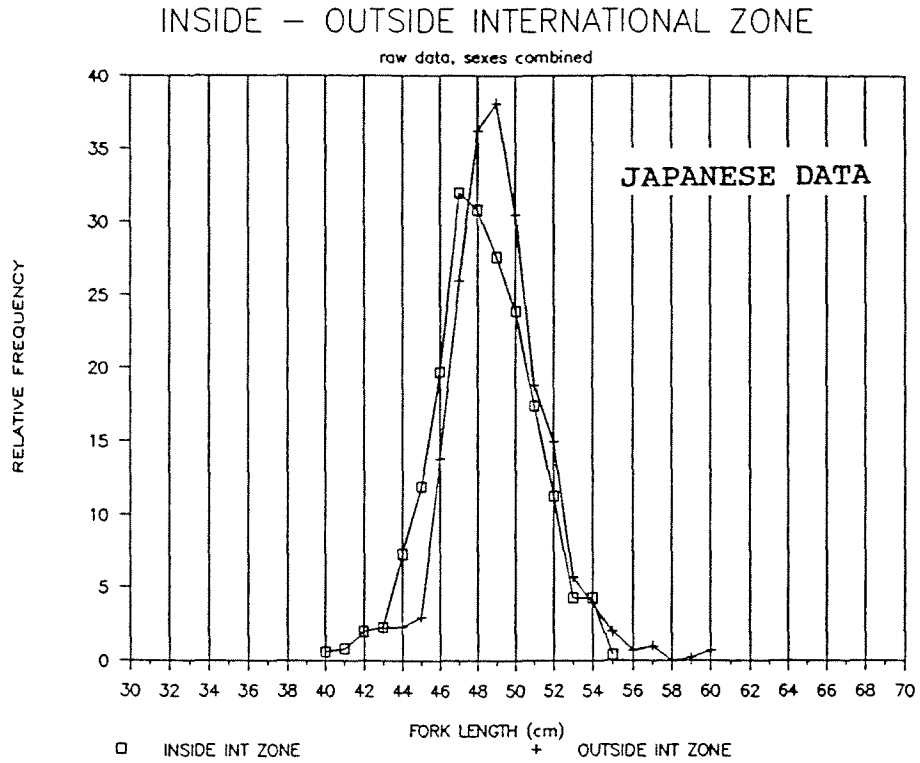


Figure 7. Size compositions of pollock obtained by Japanese observers from within and outside of the international zone of the Aleutian Basin (upper). Similar measurements of pollock size compositions obtained by US observers from near Bogoslof Island and from the SE bering sea shelf area (lower).