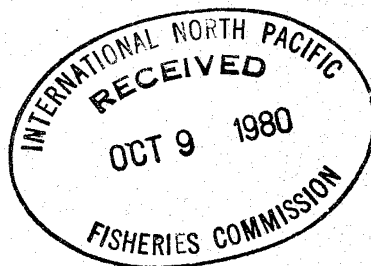


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Oceanographic survey in the Bering Sea, by the crab research
vessel in 1979 and 1980

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Oceanographic survey in the Bering Sea, by the crab research vessel in 1979 and 1980

Far Seas Fish. Lab. Seiwa KAWASAKI

The oceanographic survey has been made since 1978 (Kawasaki et al, 1978) on the continental shelf centered by fishing ground of tanner crab (Chionoectes spp.) and in the surrounding area.

The surveys were conducted from May 19 to June 15 (1st cruise), and from July 18 to August 8 (2nd cruise) in 1979 and from May 16 to June 16 (1st cruise) and from July 18 to August 16 (2nd cruise) in 1980 respectively. Water temperature data by means of BT and XBT were taken at each station; and multilayer temperature-salinity data were taken at 19 stations (1979), 20 stations (1980 1st cruise) and 24 stations (1980 2nd cruise) along the lines A and B traversing from northeast to southwest in the survey area. Aanderaa current meters were installed from one to two weeks and moreover two thousand sea-bed drifters were released in order to measure the bottom layer current (Figs. 1 to 4).

Although the data obtained by these surveys are now being analyzed, a preliminary result on water temperature distribution at the bottom layer in summer are described below:

Temperature distribution at the bottom layer in 1978, 1979 and 1980 are shown in Figs. 2 to 4; temperature at 200m depth was substituted as bottom temperature outside of the continental shelf in each year. As is shown these figures, the extension of cold waters below 2°C, although being different each year, intrudes southward both in the vicinity of St. Matthew I. and in the area 176°W-177°W. The southward intension of cold water, south of St. Matthew I., is considered associated with the distribution pattern of water above 3°C in the area east of 173°W. In 1979 when the cold water intension was weakest, the 3°C isotherm located as far north as 59°N, and moreover warm water above 5°C was observed at and around 57°45'N, north of Pribilof Is.; while in 1980 when the intension of the cold water was strongest, the 3°C isotherm was located as far south as 58°N, and the temperature at the bottom layer was below 4°C throughout the area north of 57°N. On the other hand the influence of the cold water intruding southward near 176°W-177°W was considered rather little, and the 3°C isotherm in the area west of 175°W located approximately in the vicinity of 59°N parallel in each year.

In the 1978 survey, a northward flow of comparatively warm water was observed along the continental shelf edge in the survey area. A portion of the northward flow proceeded along the outside of the continental shelf edge, while the other portion reversed the direction and proceeded southward along the inside of the continental shelf edge, the border among them being located at the vicinity of 58°N-59°N (Kitani et al, 1979). The reason of the comparative stableness of the temperature at the bottom layer of the area north of 58°N, west of 173°W (commercial fishing ground of the tanner crab) is considered due to the influence of the northward flows.

By result shown above, it is indicated the annual variation of the environment water temperature for tanner crab in the commercial fishing ground west of 173°W is relatively little, while it is rather big in the eastern shallow waters where small sized *Opilio tanner* crab (less than 80mm in width) dominates.

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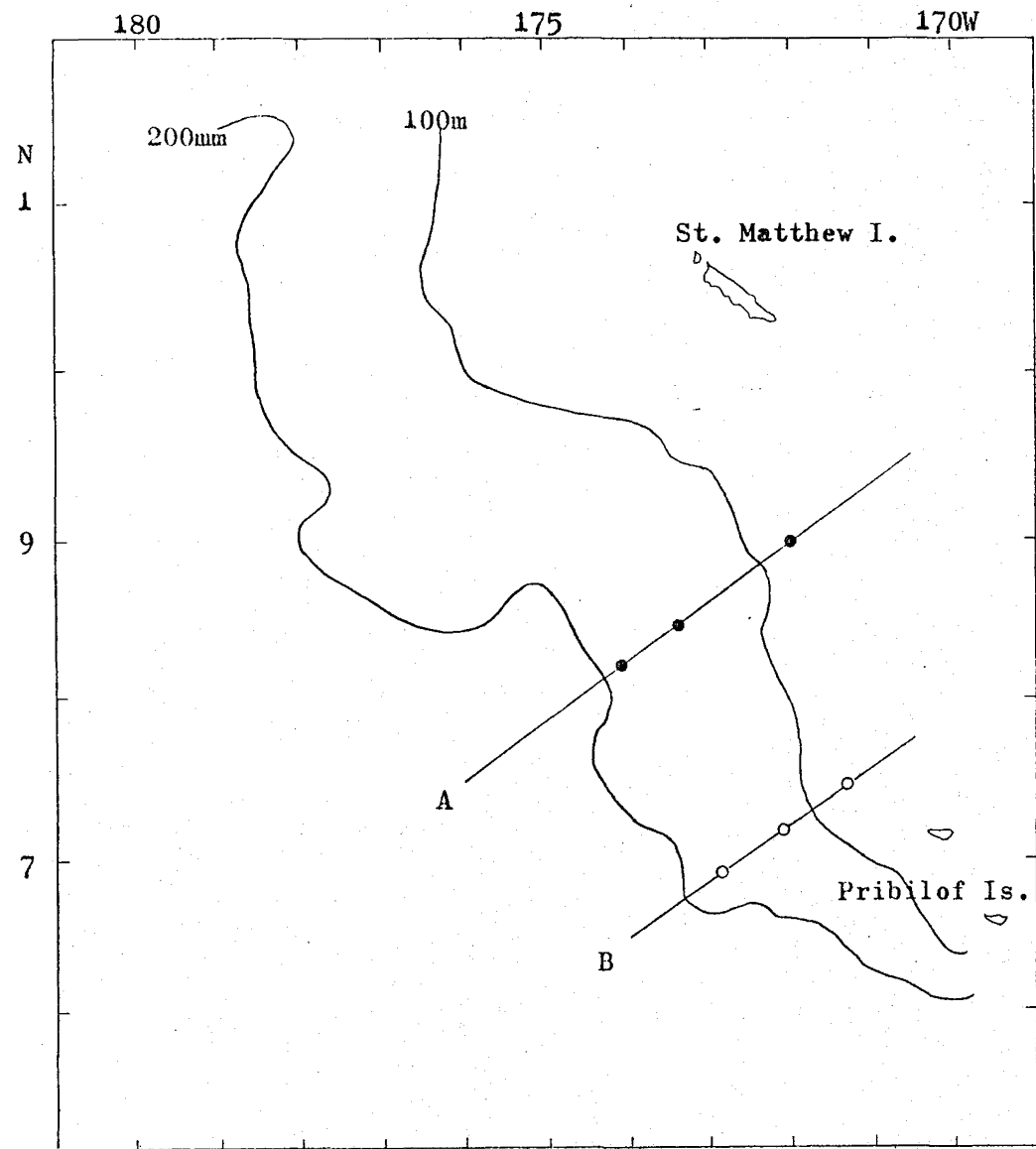


Fig. 1 Current measurement stations with serial observation line.

● 1979 ○ 1980

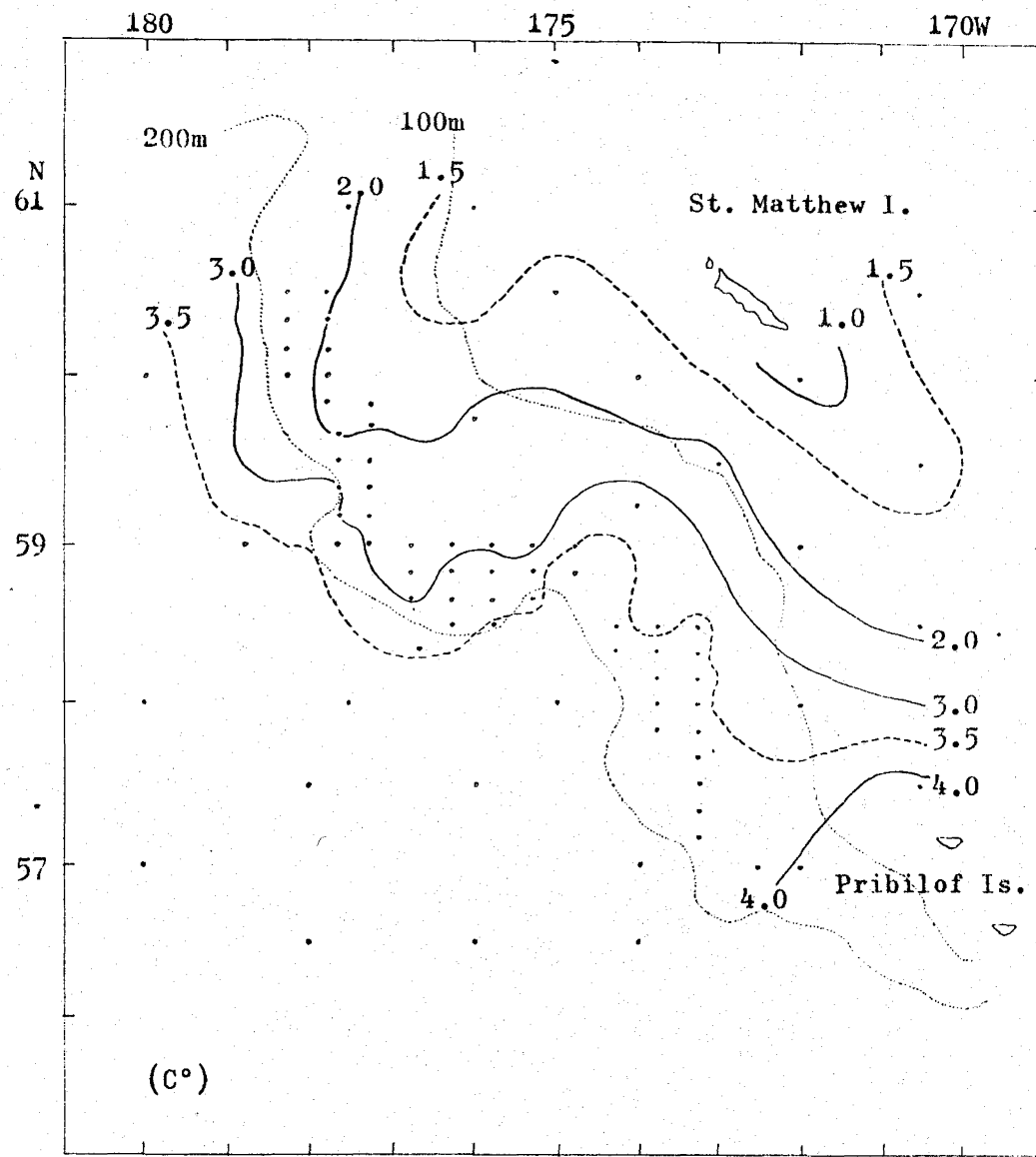


Fig. 2 Temperature distribution at the bottom layer, Jul. 24 - Aug. 23, 1978.

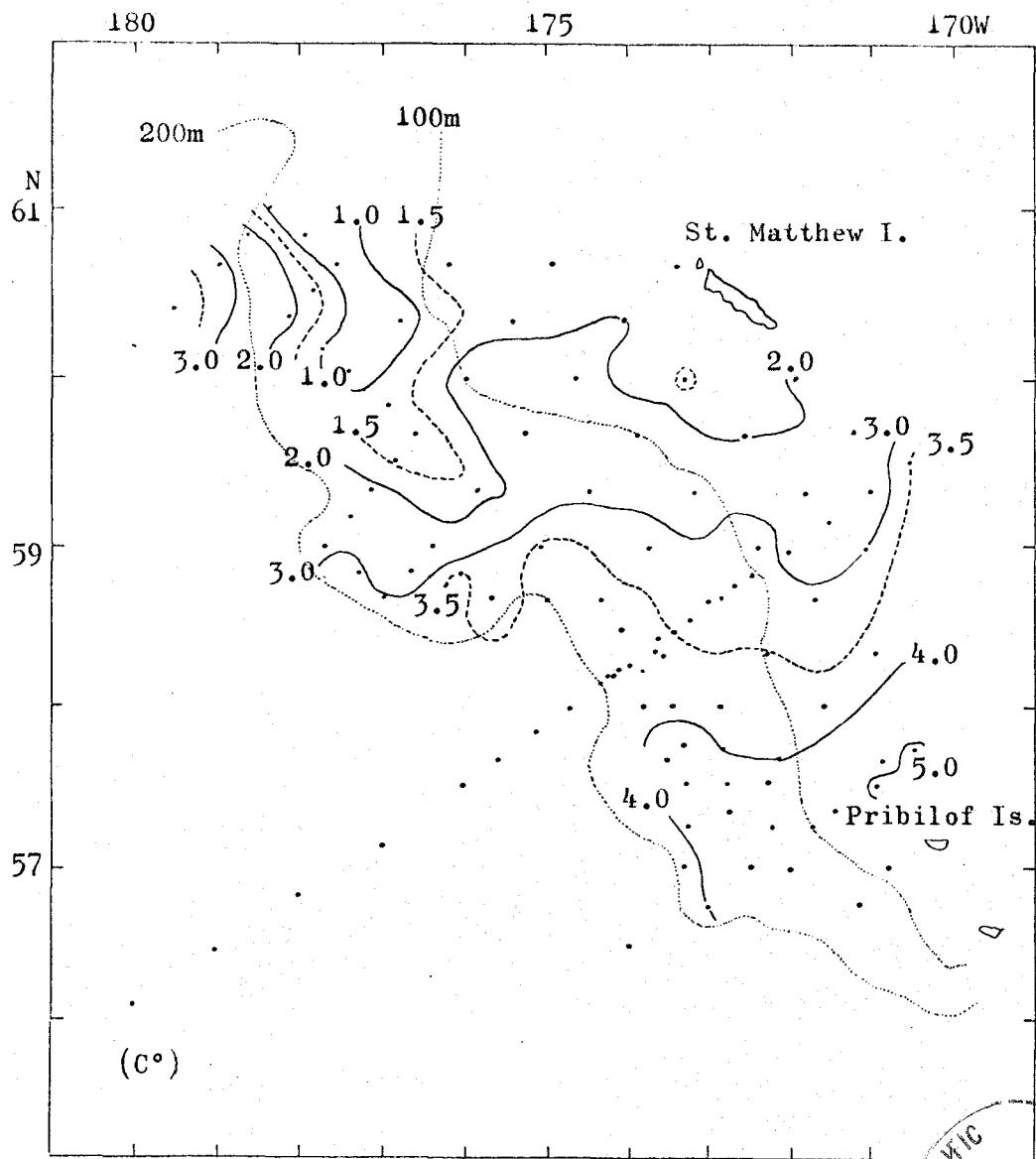


Fig. 3 Temperature distribution at the bottom layer, Jul. 18 - Aug. 8, 1979.

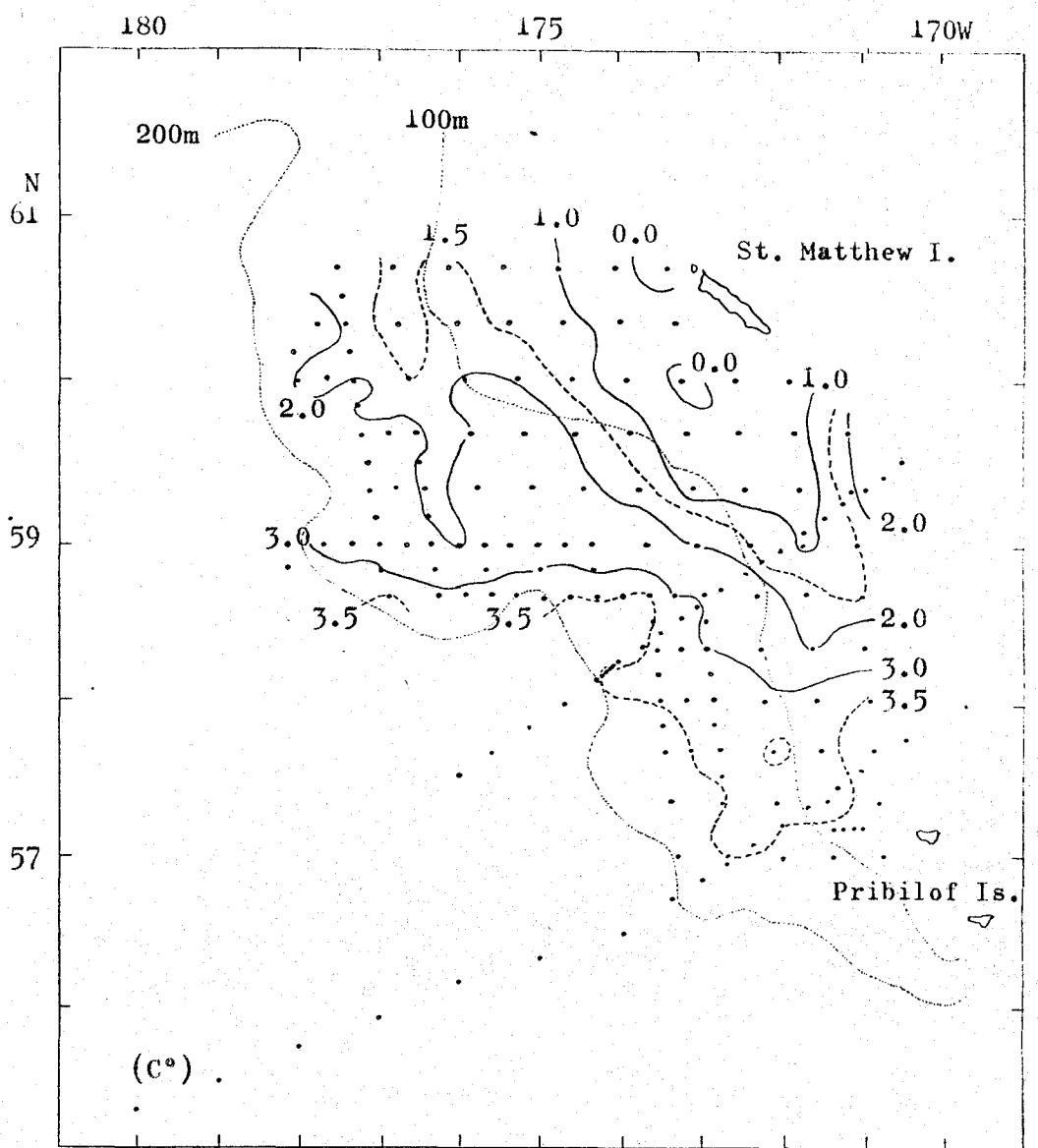


Fig. 4 Temperature distribution at the bottom layer, Jul. 18 - Aug. 16, 1980.

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