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Investigations of Epipelagic Resources Beyond the Limits of
the Canadian 200-mile Zone

by

V. A. Poletayev

Polar Research Institute of Marine Fisheries and Oceanography (PINRO)
Murmansk, USSR

Abstract

In August and October 1979, epipelagic investigations were conducted in the NAFO Area beyond the limits of the Canadian 200-mile fishing zone by midwater trawling and attracting fish with electric lights. Small catches of epipelagic fishes (Myctophidae) were taken in five of the ten trawl hauls carried out.

Materials and Methods

During 21-24 August and 12-21 October 1979 the research vessel *Gemma* conducted ten trawl hauls (each lasting one hour) in the region of the southeastern slope of the Grand Bank (Fig. 1). The midwater trawl, with a fine meshed net inserted in the codend, was towed at depths of 10-80 m over bottom depths of 150-1750 m at different times of the day. In addition, a search was conducted for saury (*Scomberesox saurus*) with lights during the running of the vessel and every two hours observations were made during drifting with lights.

Results

Macroplankton was present and dominated by their biomass in all trawl hauls. Large Medusae (up to 20 liters per trawling) and Ctenophora were most often present, and sometimes there were young shrimp. As it was expected, lantern fishes (Myctophidae) were present in the catches, the maximum catch being about 7 kg. *Myctophum punctatum* dominated, the length range being 48-89 mm (average 73.3 mm). The average index of stomach fullness was 0.85, the food consisting mainly of *Calanus* sp. *Ceratoscopelus maderensis* occurred in fewer hauls but this species was the most numerous in the Canadian zone (maximum catch about 10 kg). The length range was 35-68 mm with the average being 59.0 mm. *Benthosema glaciale* was the rarest of the near-surface Myctophidae,

the length range of the specimens being 35-56 mm with a mean length of 48.4 mm. A lumpfish was taken in one haul and a sea lamprey (74.8 cm long) in another.

During the searching with lights, scattered aggregations of saury (billfish) were observed practically everywhere to the southeast of the Canadian 200-mile zone near the surface at temperatures from 11.3° to 19.0°C. However, the reaction of the fish to blue light was slight, and during the drifting only scattered specimens were observed in the zone of the light. Saury caught by dip-net were 26-34 cm in length, at maturity stage II, with fatness degree of the visera being 1-2, and feeding on *Calanus* sp. was poor.

Troyanovsky (1966) considered the southeastern slope of the Grand Bank area to be a prospective area for Myctophidae and other epipelagic aggregations. Although some dense epipelagic concentrations were recorded over the continental slope, the small volume of research conducted so far is inadequate to make definite conclusions. Although commercial concentrations of saury were not found in the searching with lights, the imperfection of lighting equipment and the short period of investigation do not allow us to consider this area to be unpromising. In some years, saury migrate far northward to feed in the Grand Bank area (Leim and Scott, 1966) and form commercial concentrations outside the Canadian 200-mile zone during their southward autumn migrations.

References

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- TROYANOVSKY, F. M. 1966. Prospects of fishery for some bathypelagic fishes in the North Atlantic. "Rybnoye khozyaistvo", No. 11: 4-7.

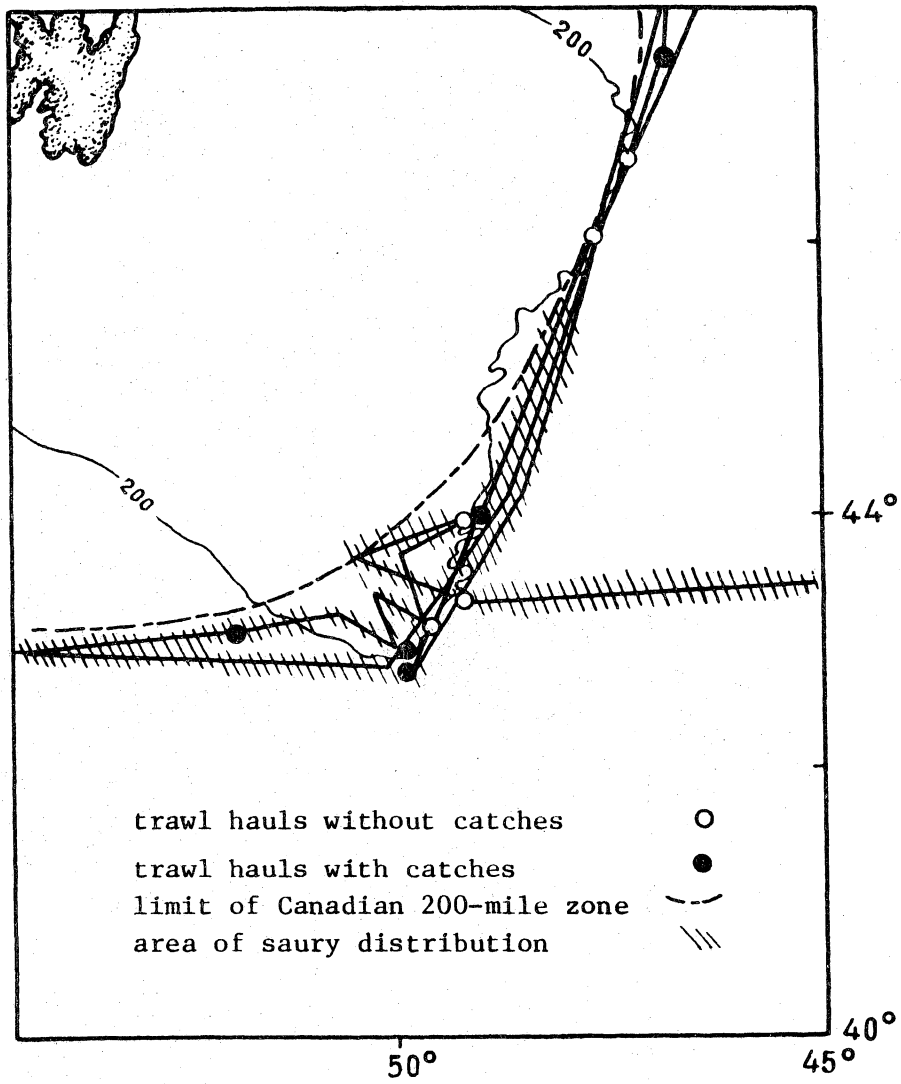


Fig. 1. Area of research by the RV *Gemma* in August and October 1979.