Feeding Habits and Distribution of *Stenobrachius leucopsarus* (Myctophidae) in the Central Bering Sea during Late Summer

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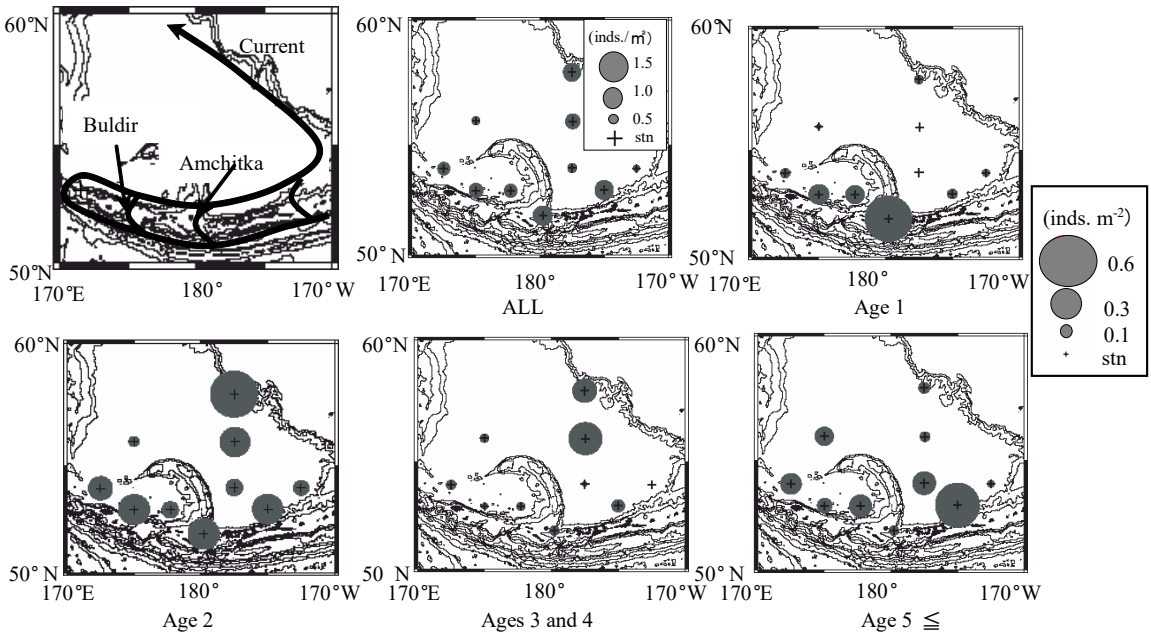
Stenobrachius leucopsarus is one of the most abundant fish species in the Bering Sea and play an important role in transporting organic matter from the productive epipelagic zone to the deep sea (Longhurst and Harrison, 1988). Besides being an important prey for higher trophic levels, *S. leucopsarus* is also a potential competitor for zooplanktivorous salmon, which utilize the Bering Sea as a nursery area during summer. In the present study, we examined the distribution, density and feeding habits of *S. leucopsarus* in the central Bering Sea during late summer.

We collected micronekton at 10 stations in the central Bering Sea using an RMT net on board the R/V *Kaiyo maru* during September 3–18, 2002. Oceanographic data were collected at 27 stations in the central Bering Sea using a CTD instrument. We towed the midwater trawl obliquely from 500 m depth to the surface one hour after sunset at each station. We then measured and weighed each *S. leucopsarus* collected, and removed the stomachs from up to 20 individuals at each station. The age of individuals was presumed from their standard length accordingly based on the length-age relationship described in Nishimura *et al*. (1999).

S. leucopsarus was the most abundant micronekton collected (mean abundance: 0.8 inds. m^{-2}; mean biomass: 2.0 wwt g m^{-2}). Although no clear patterns were found in the overall distribution, distribution patterns of *S. leucopsarus* differed by age (Fig. 1). Age-1 fish were abundant inshore near Amchitka Pass and Buldir Pass whereas age-2 fish were abundant both near the Aleutian Islands and in offshore waters. Age-3 and Age-4 fishes were both most abundant offshore, and fishes Age-5 and above were most abundant near the Aleutian Islands. These changes in the distribution with age suggest the early stages moved northward from near the Aleutian Islands in the counterclockwise current flow. The older stages were abundant near the islands, suggesting a possible southward return migration.

Fig. 1. Schematic of water current in study area and horizontal distribution of *Stenobrachius leucopsarus* at different ages.



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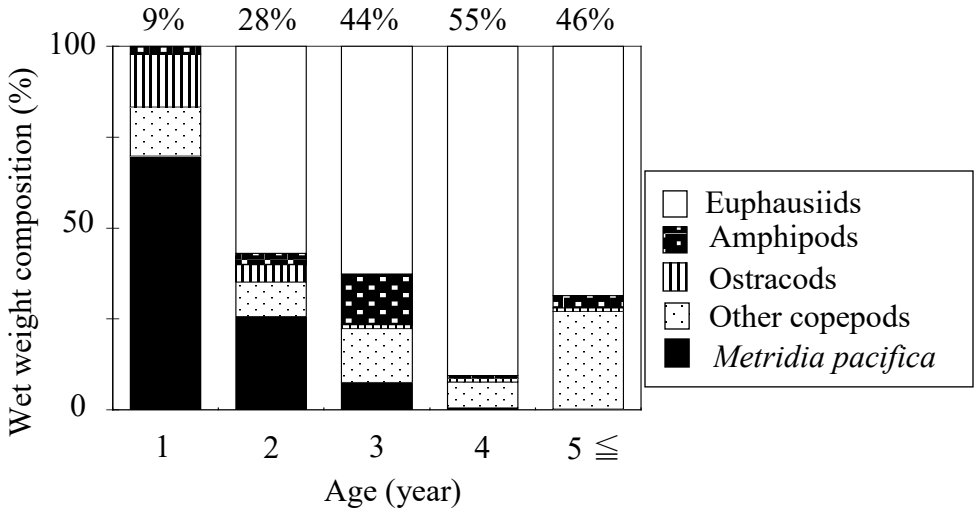
Age-1 fish fed mainly on *Metridia pacifica*, however predation on this copepod decreased with increasing age (Fig. 2). Older ages fed increasingly on euphausiids. Small *S. leucopsarus* fed heavily on *Metridia* spp, suggesting there is little diet overlap with salmon. However, as *S. leucopsarus* grew, it began to prey heavily on euphausiids, which are also preyed upon by salmon. This suggests that *S. leucopsarus* becomes a potential competitor with salmon as it grows, especially with sockeye salmon, which prey heavily on euphausiids (Radchenko and Mathisen, 2004). More research is needed to better understand the role of *S. leucopsarus* in the Bering Sea ecosystem, especially regarding its role as a potential competitor with salmon.

Fig. 2. Diet of *Stenobrachius leucopsarus* expressed as wet weight composition for different age. Each number above columns was empty stomachs percentage.



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