Predation by omnivorous copepods on early developmental stages of Calanus finmarchicus and Pseudocalanus spp.

Sell, Anne F., Donna van Keuren, Laurence P. Madin

Limnol. Oceanogr., 46(4), 2001, 953-959 | DOI: 10.4319/lo.2001.46.4.0953

ABSTRACT: Predation is thought to be an important source of mortality in the early life stages of fish and copepods on Georges Bank. Omnivorous copepods may be predators on copepod eggs and nauplii, but data on feeding rates or selectivity are scarce. As part of the GLOBEC Georges Bank program, we generated functional response curves for the omnivorous copepods *Metridia lucens*, *Centropages typicus*, and *Temora longicornis* feeding on the eggs and nauplii of *Calanus finmarchicus* or *Pseudocalanus* spp. in shipboard predation trials. Neither *C. typicus* nor *M. lucens* reached saturation feeding on *Calanus* eggs until prey concentration was >400 L^{-1}. Individual *M. lucens* and *C. typicus* ingested up to 34 $\pm$ 9 (mean $\pm$ SD, n = 3) and 24 $\pm$ 14 eggs d^{-1}, respectively (6°C). **T. longicornis** was more abundant in late spring, when they ingested *Calanus* eggs at rates similar to those of *C. typicus*. At ambient prey concentrations, ingestion rates of *Calanus nauplii* were higher than rates of *Calanus* eggs for the predator *M. lucens* but were similar for *C. typicus*. Advanced naupliar stages were less susceptible to predation than young stages. *Pseudocalanus* nauplii moved faster and were ingested at lower rates than similarly sized *Calanus nauplii*. Predation rates increased with increasing temperature for the warm-water species *C. typicus* but decreased for the cold-water species *M. lucens*. These results may contribute to models predicting the development of copepod populations and their availability to larval fish.

Article Links

Download Full-text PDF

Return to Table of Contents