# Diet and prey selection in larval and juvenile Japanese anchovy Engraulis japonicus in Ariake Bay, Japan


## Abstract

We studied the diet of larval and juvenile Japanese anchovy Engraulis japonicus in the upper Ariake Bay, Japan. Diet was analyzed by examining the digestive tracts; feeding intensity, proportion of empty guts, and prey selectivity were calculated. Anchovy density was negatively influenced by temperature and positively by salinity and prey density. Diet was dominated by Acartia omorii, which was positively selected with two other copepods, Calanus sinicus and Pseudodiaptomus marinus. In contrast, Oithona davisae was highly dominant in the environment but was absent in anchovy guts; thus, this copepod was negatively selected, with two others, Tortanus derjugini and Sinocalanus sinensis. Overall, larger prey were positively selected and smaller ones were negatively selected; value of electivity index correlated negatively with prey size. Larvae [<18 mm of standard length (SL)] showed significantly lower feeding intensities and higher rates of empty guts than juveniles (≥18 mm SL). In juveniles, feeding intensity increased steadily as the fish grew in size, with a corresponding reduction in empty guts. Feeding intensity correlated positively and empty gut correlated negatively with fish size. We suggest that larger prey are important diets for postlarval Japanese anchovy in Ariake Bay.