

Importance of cold-water zooplankton as prey of chum salmon fry *Oncorhynchus keta* in Yamada Bay, Iwate, northern Japan

Yamada, Y.<sup>(1)</sup>, Yamane, K.<sup>(2)</sup>, Sasaki, K., Nikaido, H., Nagakura, Y., Kurokawa, T.<sup>(3)</sup>

<sup>(1)</sup>School of Marine Biosciences, Kitasato University

<sup>(2)</sup>Iwate Fisheries Technology Center

<sup>(3)</sup>Tohoku National Fisheries Research Institute

After the migration into the sea from the river, chum salmon fry stay in the estuarine or nearshore marine environment during spring to early summer, subsequently migrate to the northern North Pacific Ocean. The availability of prey organisms in this early marine period is one of the most important factors affecting growth and survival of salmon fry. To reveal the food environment, feeding habit and preference for prey organisms of salmon fry during this period, we investigated stomach contents of salmon fry and *in situ* zooplankton community structures in Yamada Bay, northern Japan. Salmon fry and zooplankton samples were collected during April to June 2013 and 2014. Major stomach contents of salmon fry consisted of cold-water pelagic zooplanktons, e.g. hyperiid amphipod *Themisto japonica*, large calanoid copepod *Neocalanus plumchrus* and *Eucalanus bungii*, and small copepod *Pseudocalanus newmani*. As the result of analysis of *in situ* zooplankton community structure, *P. newmani* was the most abundant, although, *T. japonica*, *N. plumchrus* and *E. bungii* were not necessarily dominant. These result suggested that salmon fry has a strong preference for these large cold-water zooplankton. Benthic crustaceans, e.g. decapod larvae, cumaceans and gammarid amphipods were frequently observed in the *in situ* zooplankton samples, however, hardly included into the stomach contents of salmon fry. Because of major prey items of salmon fry were pelagic zooplanktons and has been transported from the outside of Yamada Bay, the food environment of salmon fry was affected by the incursion of Oyashio water. This work was supported by AFFRC, Japan.