

## The Influence of Different Levels of Dietary Salt on the Growth and Physiological Function of Rainbow Trout and Japanese Flounder

Toshio Takeuchi (Tokyo University of Fisheries)

Shuichi Satoh (Tokyo University of Fisheries)

Masahito Yokoyama (National Research Institute of Fisheries Science)

### Summary

This study was conducted to clarify the influence of different levels of dietary salt (NaCl) on the growth and physiological function of rainbow trout, *Oncorhynchus mykiss* and Japanese flounder, *Paralichthys olivaceus*.

Japanese flounder juveniles, 0.1-0.2g and 0.8g or 1.4g of body weight, were fed a diet containing mysid meal or mysid desalted meal for 14 days. Fish fed a mysid meal diet showed low growth performance, such as a low growth rate, feed efficiency, and protein efficiency ratio (PER). These aspects of growth performance were improved by the treatment of desalting mysid, and the results suggested that a diet containing more than 5% salt (NaCl) has an ill-effect on Japanese flounder.

Five groups of juvenile (1.7g) and young (59g) rainbow trout were fed different levels of NaCl(0-15%) for four or seven weeks and survival rate after transferring them to salinity (33‰) were examined during one week. A more-than-10%-NaCl-supplemented diet showed a low growth rate for young rainbow trout. However, survival rates were not decreased when these treated fish were transferred to seawater. On the other hand, fingerlings fed a more-than-7.5%- NaCl- supplemented diet showed a low growth rate, low feed efficiency and a high mortality rate after a six-week feeding trial. The highest growth performance was obtained with fish fed a 2.5% NaCl-supplemented diet. The fingerling fish fed different levels of NaCl was also influenced by seawater acclimation. High mortality was observed with fish fed 7.5% and 10% NaCl supplemented diets during seawater acclimation.

These results suggested that the suitable NaCl level in the diet for Japanese flounder and rainbow trout fingerlings was 2.5% (1.5g and 0.5g/kg · fish /day, respectively), and the excess amount of the diet for flounder, rainbow trout fingerlings and young trout was 5% (3.2g/kg · fish/day), 7.5% (1.4g/kg · fish/day) and 10% (1.3g/kg · fish/day), respectively.