

# Early marine life of chum salmon under different marine environments in eastern Hokkaido, Japan

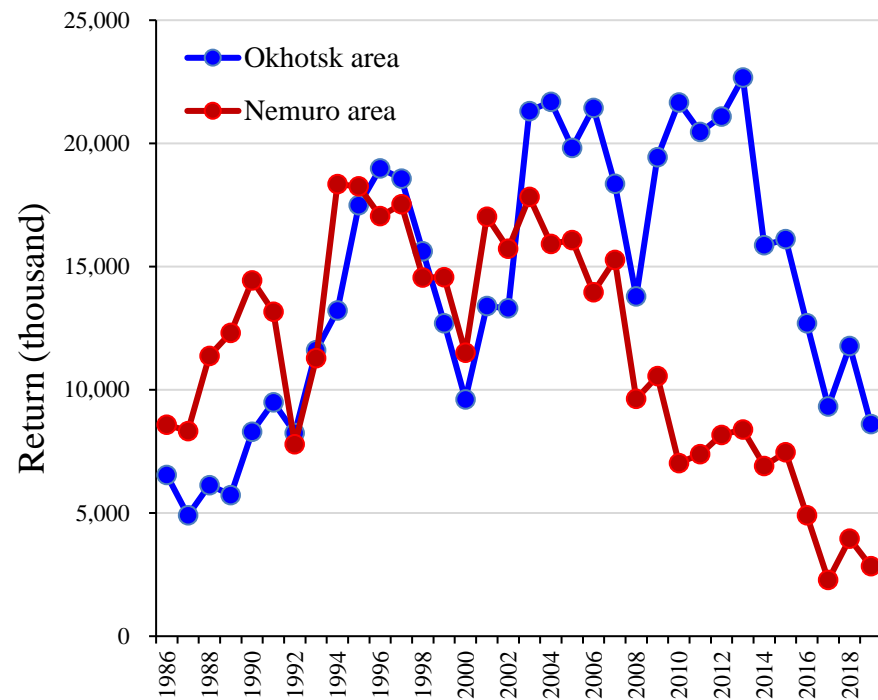


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# Introduction



- In the eastern Hokkaido, the number of returning chum salmon is declining.
- However, Abashiri (Okhotsk area) and Shibetsu (Nemuro area), which are not far apart in distance, show different return trends.
- In this study, we compared the feeding habits and growth of juvenile salmon in both regions at their early marine life, which are thought to affect their survival.

# Materials & Methods

**Sampling period: Late May to early June, 2019**

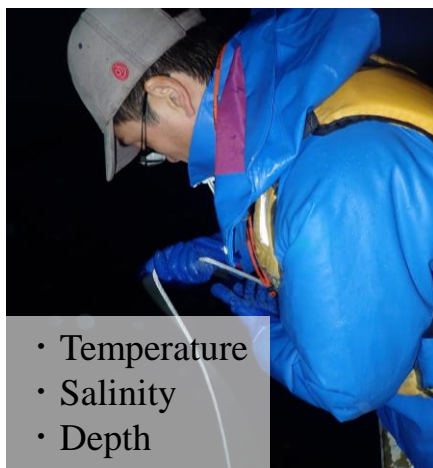
Surface trawl (in Abashiri)



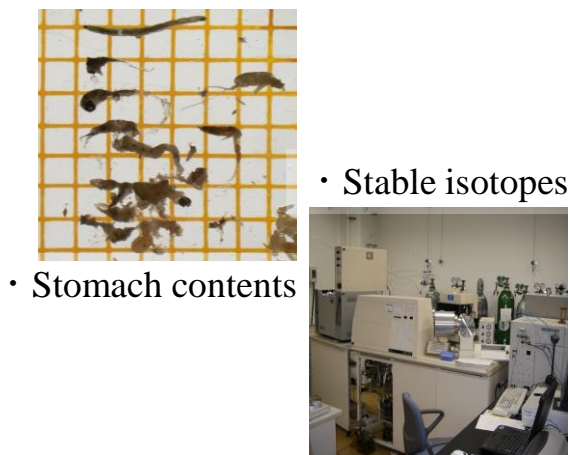
Brail net (in Shibetsu)



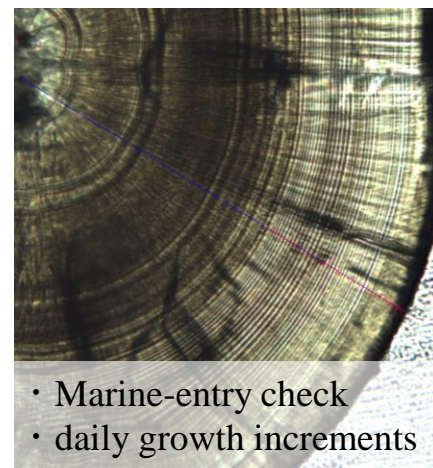
CTD observation



Food habits analysis



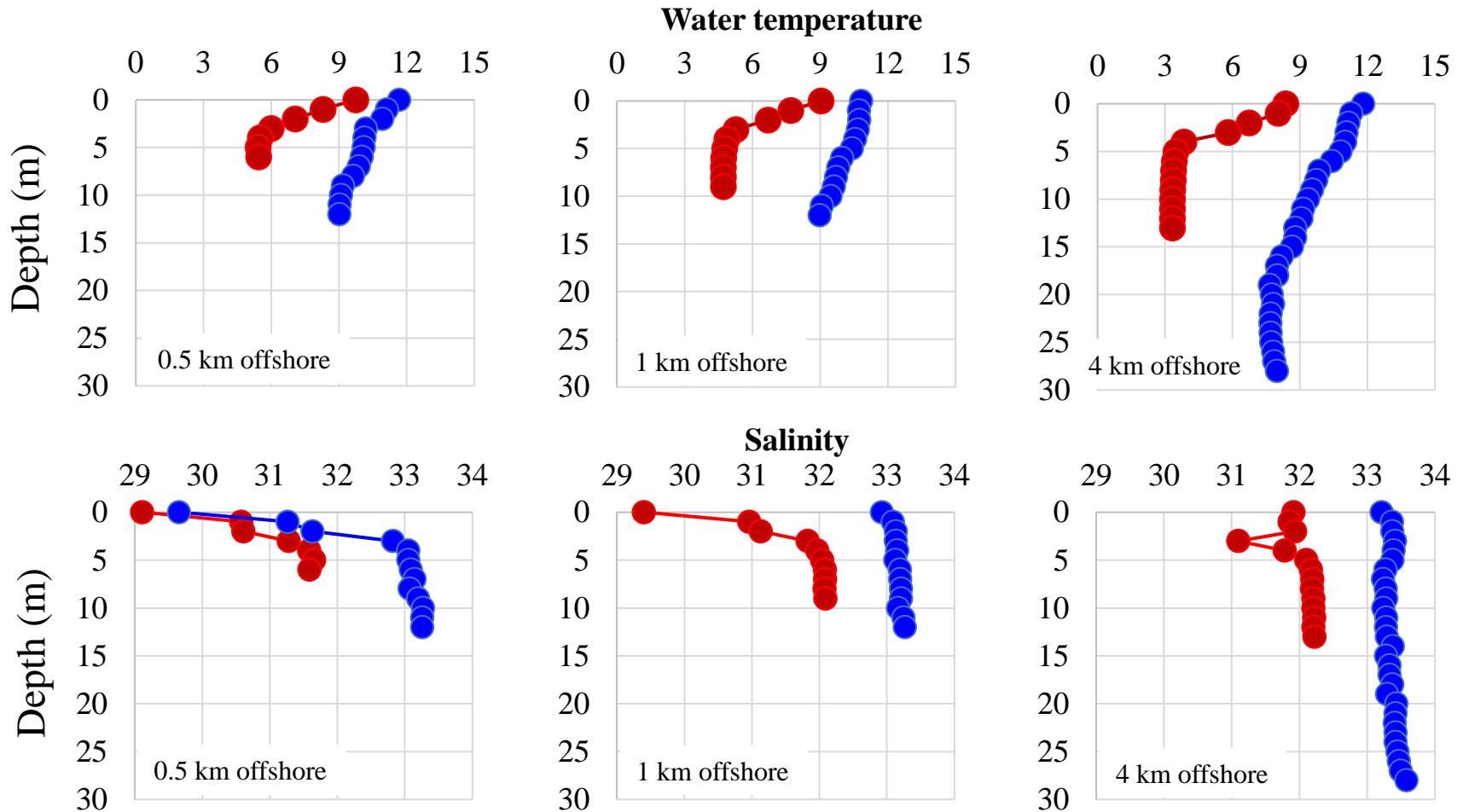
Otolith analysis



# Results

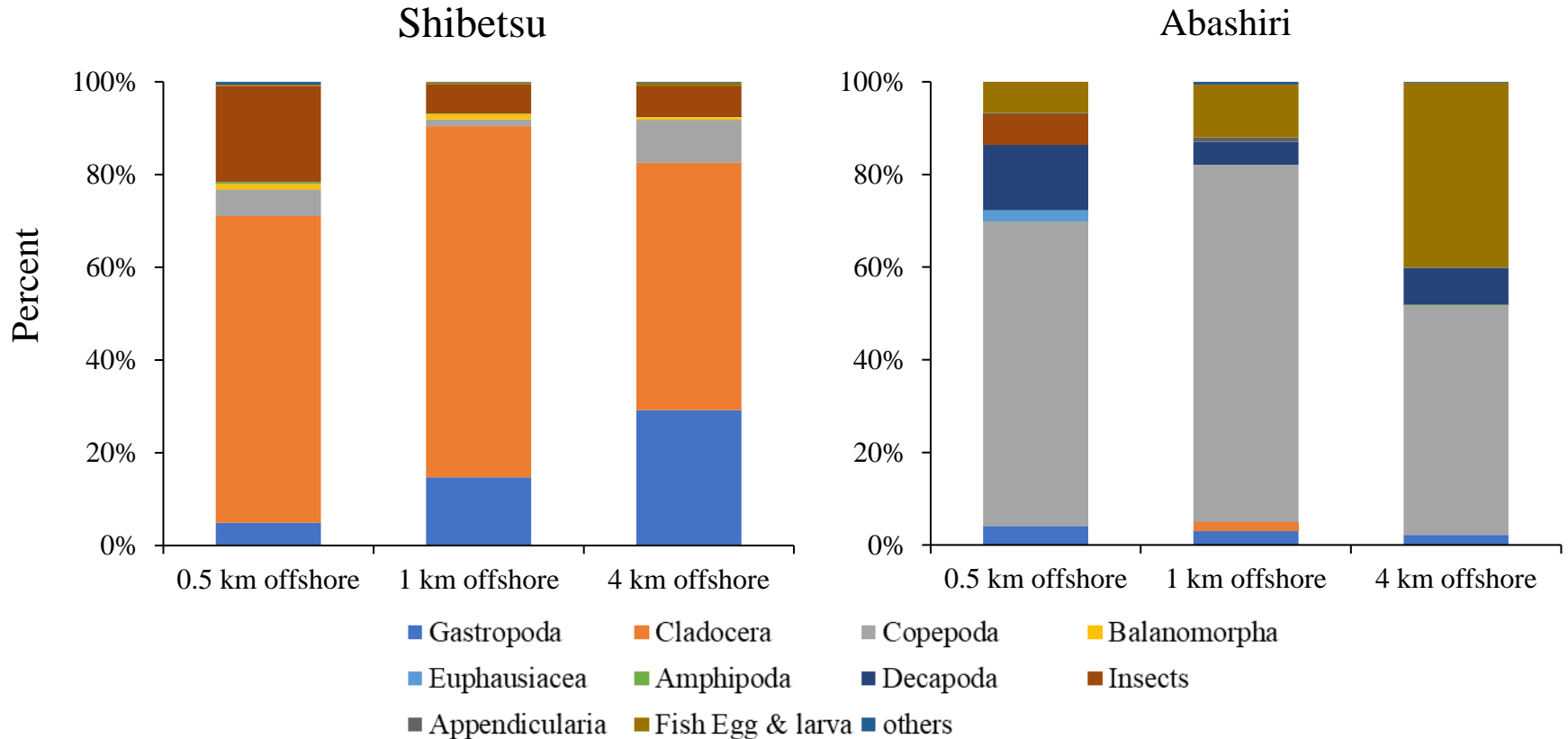
## Vertical profile of water temperature and salinity

● Shibetsu  
● Abashiri



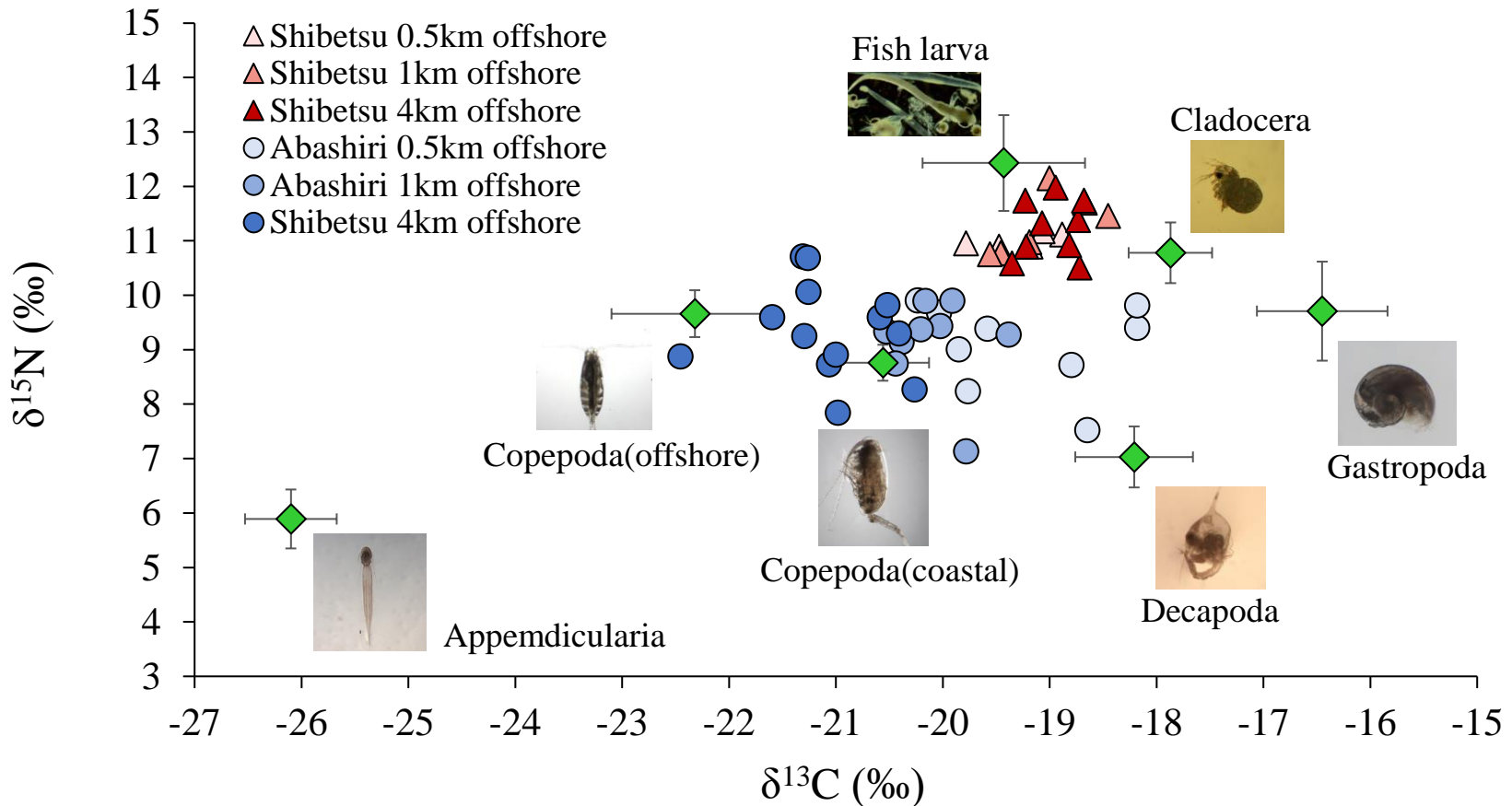
● The Shibetsu coast was shallower than the Abashiri coast, and was characterized by higher water temperature and lower salinity.

# Percent composition of stomach contents by wet mass



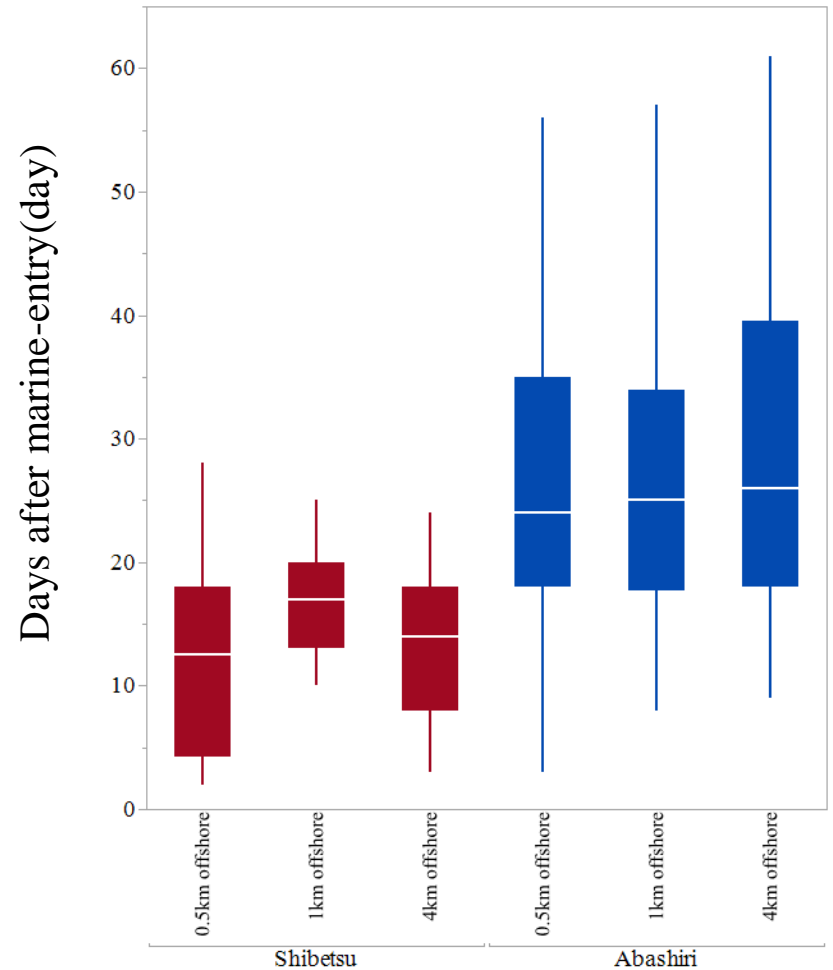
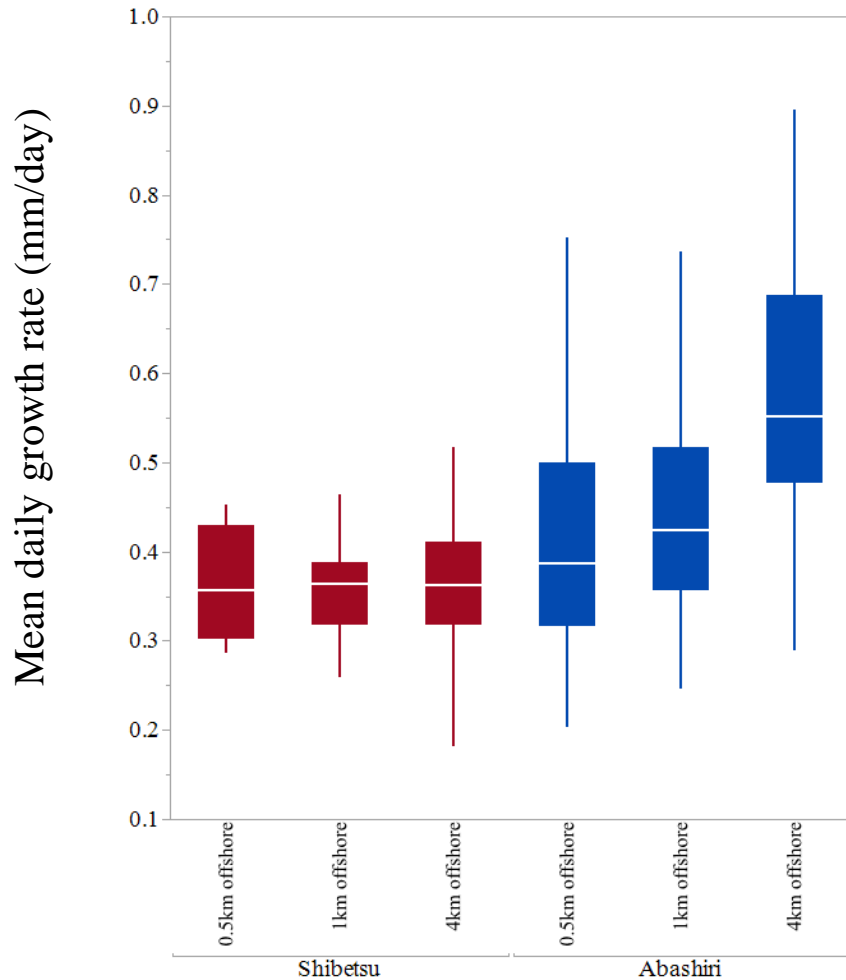
- Cladocera, Gastropoda, and terrestrial insects were eaten by juvenile chum salmon in the Shibetsu coast.
- Meanwhile, crustaceans such as copepods and fish eggs and larva were mainly consumed in the Abashiri coast.

# Stable carbon and nitrogen isotope ratios for juvenile chum salmon and main food resources



- The  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of juvenile salmon in the Shibetsu coast tended to be higher than those in the Abashiri coast.
- Isotopic values of salmon at the Abashiri coast are similar to those of copepods.

# Otolith microstructure analysis



The growth rate of juveniles collected from the Shibetsu coast was low, and most of them were leave to offshore immediately (about 10–20 days).

# Conculusion



- **Juvenile chum Salmon collected from the Abashiri coast fed on more suitable prey than those from the Shibetsu coast, and their growth rate was higher.**
- **The differences in coastal environments (i.e. water temperature, food environment) between the two regions are reflected in feeding habits and growth rates of juvenile salmon.**