Migration and Homing Behavior of Chum Salmon Tagged in the Okhotsk Sea, Eastern Hokkaido

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Keywords: archival tag, chum salmon, tagging, water temperature

Chum salmon is an important species for the commercial fishery in Hokkaido. Recently, coastal sea water temperatures in autumn have been higher than the historic mean. In years when these temperatures are high, the timing of the chum salmon return is delayed.

To elucidate the influence of sea water temperature on the migration behavior of chum salmon in coastal waters, we visually counted the number of swimming chum salmon from the research vessel and captured individuals by angling in early September 2016 and in late August in 2017, 2018 and 2019. We released the captured fish into the Okhotsk Sea after tagging them with archival tags.

After release, the tagged fish were recaptured in coastal waters or rivers. In 2016, 2017, 2018, and 2019, 14, 14, 10, and 25 chum salmon were tagged and released, respectively, with six, two, one, and 11 fish being recaptured. Many of the individuals tagged each year were recaptured along the Okhotsk coast of Hokkaido, except for those tagged in 2018. The tagged chum salmon released in late August showed clear diurnal vertical migration between the surface and a depth of 200 m and later showed vertical movement in water shallower than 50 m. In contrast, those released in early September 2016 did not show clear diurnal patterns, and just moved vertically in water shallower than 50 m. The tagged individuals released in late August preferred to remain in the 2°C sea water at 200 m depths during the daytime. This behaviour is considered to regulate their cavity temperature (Azumaya and Ishida 2005). In contrast, those released in early September preferred the 17°C sea water of the surface layer. At the release site, the sea surface temperature in late August 2017 and early September 2016 was 16.8°C and 17.2°C, respectively, but the swimming behaviour of the two groups of fish was different.

The difference in swimming behavior of fish with different release timing did not seem to be related to ambient water temperature at that time. We believe that differences in maturity and changes in water temperature before recapture may also have an effect.

REFERENCES

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