

ベーリング海北部およびチャクチ海におけるホッキョクダラの食性と栄養状態

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Diets and body condition of polar cod (*Boreogadus saida*) in the northern Bering Sea and Chukchi Sea

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To understand trophic responses of polar cod *Boreogadus saida* (a key species in Arctic food webs) to changes in zooplankton and benthic invertebrate communities (prey), we compared its stomach contents and body condition between three regions with different environments: the northern Bering Sea (NB), southern Chukchi Sea (SC), and central Chukchi Sea (CC). Polar cod were sampled using a bottom trawl, and their potential prey species in the environment were sampled using a plankton net and a surface sediment sampler. Polar cod fed mainly on appendicularians in the NB and SC where copepods were the most abundant in the environment, while they fed on copepods, euphausiids, and gammarids in the CC where barnacle larvae were the most abundant species in plankton samples on average. The stomach fullness index of polar cod was higher in the NB and SC than CC, while their body condition index did not differ between these regions. The lower lipid content of appendicularians compared to other prey species is the most plausible explanation for this inconsistency.

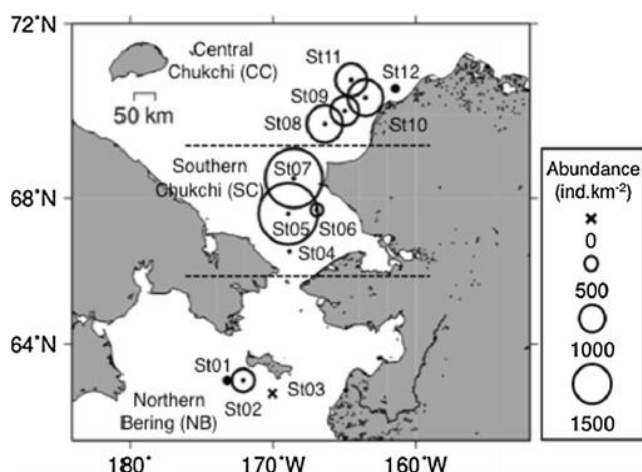


Fig. 1

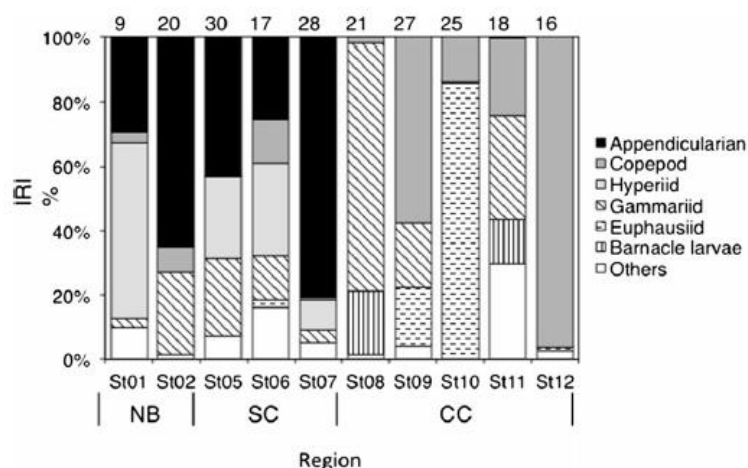


Fig. 2

Fig. 1 Sampling stations (St) and abundance of polar cod (catch per unit effort as number of fish per km² of area swept by bottom trawl) in the northern Bering Sea (NB), southern Chukchi Sea (SC), and central Chukchi Sea (CC). No fish were collected at St03

Fig. 2 The percentage composition of prey taxa, shown by the index of relative importance (%IRI), found in the stomachs of polar cod collected in the northern Bering Sea (NB), southern Chukchi Sea (SC), and central Chukchi Sea (CC). Sample sizes (number of stomachs) are shown at the top of bars

References

Nakano T., Matsuno K., Nishizawa B., Iwahara Y., Mitani Y., Yamamoto J., Sakurai Y., Watanuki Y., Diets and body condition of polar cod (*Boreogadus saida*) in the northern Bering Sea and Chukchi Sea, *Polar Biology*, 2015.