

O22.5**Baited remote underwater video survey of winter fish communities in Keret Archipelago, the White Sea**

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Abstract

Understanding of winter state of Subarctic and Arctic marine communities is crucial, as shifts in high-latitude ecosystem functioning occur faster than in temperate regions due to the ongoing climate change. The White Sea is covered with sea ice during winters and thus while data from summer monitoring studies of marine species are widely available, winter state of either benthic or fish fauna is limited. In mid-March 2021, we used the baited remote underwater video (BRUV) system to evaluate the depth distribution of species in combination with the 24h gillnet survey. The 1.5-hour video deployments were implemented across five sites within the 6 sq. km. area of Keret Archipelago at a depth ranging between 5 to 58 meters (more than 20h of exposure). The bait consisted of a mixture of cat food, rice and pelleted poultry feed placed in soft net bags. In total, we recorded eleven fish species, three of which (*Myoxocephalus scorpius*, *Gymnocanthus tricuspis* and *Limanda limanda*) were observed using both techniques, six (*Amblyraja radiata*, *Clupea pallasi*, *Eleginus nawaga*, *Gadus morhua*, *Lycodes pallidus*, *Triglops murrayi*) were only caught in the gillnets and two (*Platichthys flesus* and *Lumpenus fabricii*) were observed using BRUV system only. Highest fish diversity was observed at 40-meter depth where water temperature approached maximum (+1.5°C), and decreased in either shallow nearshore sites or deep sites align with decreasing water temperature. The bait also attracted amphipods *Anonyx nugax* and *Halirages fulvocintus*, sea stars *Urasterias lincki*, whelks *Buccinum undatum* and hermit crabs *Pagurus pubescens*. *L. limanda* and *P. flesus* were probably attracted by both bait and amphipods, while *L. fabricii* as well as shrimps *Pandalus sp.* and *Sclerocrangon boreas* were attracted by camera light. Our data demonstrate that BRUVs may provide substantial information for monitoring fish communities under the ice. The study was supported by RSF grant 19-14-00092.

Keywords

BRUV, under-ice fish communities, Subarctic, The White Sea