

What can we learn about changes in coastal food web structure after the round goby invasion?

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The round goby (*Neogobius melanostomus*) is extremely invasive fish species, capable to reach high abundance and make significant impact on invaded ecosystem. First round gobies occurred in the Lithuanian part of the Baltic Sea in 2002. The population passed establishment (2002-2010), expansion (2011-2012) and adjustment (2013-2015) phases. Rapid round goby abundance increment induced dramatic decline of its major prey - the blue mussel (*Mytilus edulis*), which in turn negatively affected population of wintering long-tailed duck (*Clangula hyemalis*). Food competition between round goby and long-tailed duck was evaluated analysing changes in their diet composition, feeding efficiency and feeding niche overlap during different round goby invasion phases. During establishment both species preyed mainly on *M. edulis*; during expansion, the diet of round goby was dominated by *M. edulis*, *Crangon crangon* and *Macoma balthica*, while in the last invasion period it shifted to polychaetes. Long-tailed duck shifted its diet from epibenthic blue mussel to fish prey during round goby expansion and adjustment phases. Feeding efficiency of the round goby decreased from 100% (percentage of full guts) determined during establishment to 80% and 68% during expansion and adjustment phases, respectively. The highest percentage of feeding long-tailed ducks was observed in the beginning of round goby invasion (74%), it dramatically declined during 2011-2012 (26%) and recovered (53%) during 2015-2016. Feeding niche overlap between round goby and long-tailed duck was biologically significant during round goby establishment, but it lost significance after drastic decline of the blue mussel in natural environment.