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**Changes  
in the Gulf of Gdansk  
biocenosis by Round Goby  
(*Neogobius melanostomus*)  
invasive Ponto-Caspian fish**



Round goby is a typical shallow water fish. Adult gobies feed primarily on bivalves. Filter feeders, primarily bivalves, are treated as dead end in the trophic net of shallow water zones of seas. This also applies to the Gulf of Gdańsk. There are some fish species feeding sporadically on bivalves but for none of the species do bivalves represent such an important source of food. Additionally general changes in the biocenosis during last thirty years resulted in increased bivalve quantity and areas covered by them. New invasive fish species removed part of this bottom deposit. A fraction of organic matter caught in bivalves is moved back to the trophic net. Colonies of bivalves do not only represent deposits of organic matter but also act as a sink for many toxic substances. Round goby feeding on bivalves returns toxic substances into the food web. It is uncertain what impact the returned toxins might be on the ecosystem.

Up to now the round goby has been documented only in the west part of the Gulf of Gdańsk. It inhabits the shallow water zone of an area of about 400<sup>2</sup> km. The quantity of round goby varies from less than one to 600 individuals on 100<sup>2</sup> m. Each year on average an adult round goby consumes about 1.5 kg of bivalves. Given the density of round gobies, thousands of tons of bivalves are consumed by this species each year. This is likely to be an important change to the Gulf of Gdańsk food web. Tons of blue mussel (dominant bivalve in the Gulf of Gdańsk) consumed represent a large quantity of copper being returned to the trophic net.

Due to degradation of ichthyofauna structure in the Gulf of Gdańsk (lack of predators in shallow water zone) the round goby is not an important food source for other fish. Instead, the round goby is the main food supply for birds – black cormorants feeding in that area. The round goby is also potentially a market fish.

Concluding, the invasion of round goby greatly changed the shallow water biocenosis of the Gulf of Gdańsk.