

Population recovery and occurrence of the endemic Rhine sculpin (



The Rhine sculpin (*Cottus rhenanus*) is a benthic rheophilic fish species that is endemic to tributaries of the rivers Rhine and Meuse in North-western Europe. Little is known about its occurrence and individuals density in relation to habitat characteristics. A core population of *C. rhenanus* occurs in the River Geul in the Netherlands. Since the late 19th century, this river was heavily polluted by communal and industrial wastewater, causing a strong population decline. As the core population of *C. rhenanus* is recovering, the status, distribution, and habitat use could be studied to facilitate recovery in other locations. *Cottus rhenanus* density of individuals significantly increased over the period 2005–2015 and it became one of the most abundant fish species in assemblages. Negative relationships were observed between *C. rhenanus* densities and a high abundance of boulders (>200 mm), large structures such as woody debris, and water depth. The population increase and recolonization of *C. rhenanus* coincided with water quality improvement, which suggests that this fish species can be used to assess small streams ecosystem integrity. The recent range expansion of the Ponto-Caspian round goby (*Neogobius melanostomus*) poses a high risk of negative effects on *C. rhenanus* populations via food and shelter competition. Further water quality improvement, habitat conservation, and prevention of the spread of invasive gobies could favour *C. rhenanus* populations within their natural range.

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