

Threatened fishes of the world: *Boleophthalmus pectinirostris* (Linnaeus 1758) (Gobiidae)

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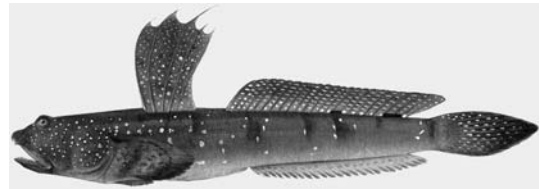
Common name: Mutsugorou (Japanese).

Conservation status: VU in the Red Data Book of Japan (Ministry of the Environment of Japan 2003).

Identification: D V-26; A 25; P₁ 19; P₂ I, 5; LR 100; TR 33; Pred. S 44. Body elongate and compressed; mouth downward; eye protruded; widespread dorsal fins. Greenish dark grey body and numerous small sky-blue spots on the body and fins. Maximum size 220 mm TL (Onohara 1980). Illustration from Glover Atlas (1999).

Distribution: *B. pectinirostris* is distributed in temperate to tropical mudflats along the coast of eastern Asia, including Japan, Korean Peninsula, mainland China, and Taiwan (Akihito et al. 2000). In Japan, it is found only in Ariake Bay and in the adjacent Yatsushiro Bay in Kyushu.

Abundance: In 2003, the average population density of 95 Japanese habitats was 24.3 individuals per 100 m² of mudflat (Takegaki et al. 2005). Although, extremely high densities were observed in some habitats (>50 individuals/100 m²), which were comparable or more than those observed in past surveys, the densities in many other habitats were much lower than their peak levels. The total



annual catch in 1988 was less than one-hundredth of the peak (216 t in 1964). In recent years, it has tended to increase but even in 2005 only 5% of the peak.

Habitat and ecology: *B. pectinirostris* is an amphibious gobiid fish which mainly inhabits in the mud flat (5–8 phi in median grain size) around river mouth located between mean high and low water of neap tides (Washio 1992). They are active on the mudflat during the daytime low tide and stay in the mud burrows during the high tide and at night. This species is herbivorous feeding mainly on diatoms on the mudflat surface (Yang et al. 2003). The maximum age was estimated at 3–7 years (Zhang et al. 1990; Washio 1992; Jeong et al. 2004; Nanami and Takegaki 2005).

Reproduction: Breeding season is from early May to early August in Japan (Nanami and Takegaki 2005). The age of sexual maturity is generally over 2 years (Washio 1992). Mating system is a male-territory-visiting polygamy. Spawning is performed in the pair in a spawning room made in the burrow. Eggs are deposited on the ceiling of the room, and are tended by the male until

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hatching (about 6–9 days). The pelagic stage lasts for about 35 days, and juveniles recruit to mudflat at about 18 mm TL (Koga et al. 1989).

Threats: Commercially exploited in Japan, Korea, China and Taiwan. In the 1970s and 1980s, the population density in Japan declined dramatically, probably partially because of overexploitation of stock. Most serious threat is habitat destruction caused by coastal development. The population in the inner part of the Isahaya Bay was likely to be extinct undoubtedly due to the Isahaya Bay reclamation project, resulting in about 90% loss of the habitat in Nagasaki Prefecture (Takegaki et al. 2005). The habitat has also been polluted by wastewater discharges from coastal area.

Conservation actions: Since 1986, fisheries regulations, such as minimum catch size (100 mm TL), closed seasons (May), and closed areas (Rokkaku River mouth), have been introduced to Saga Prefecture, but in the other habitats in Japan, there is no regulation for both species and habitat conservation. Artificial propagation technique has been established in Japan.

Conservation recommendations: Critical habitats should be designated as protected area. Especially, immediate measures are needed for Yatsushiro Bay population, because of the genetic difference between Ariake and Yatsushiro Bay populations (Kanemori et al. 2006) and its small habitat area of about 8 km² (Takegaki et al. 2005). In order to predict the population dynamics, researches for the effects of environmental factors on life history characteristics and continual monitoring of the distribution and population density are needed.

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