



Tubenose Goby

Proterorhinus Semilunaris (Heckel, 1837)

syn. *Gobius semilunaris*, *Gobius marmoratus*, *Proterorhinus marmoratus*

ALBERTA REGULATION:
FISHERIES ACT

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Overview:

The tubenose goby is a ray-finned fish of the Gobiidae family, one of the largest fish families. This small fish is native to the Black Sea basin of Europe. It is believed to have been introduced to North America in 1991 via ballast water.² Tubenose gobies are a bottom-dwelling fish of freshwater and estuaries.

Previously, all freshwater tubenose gobies were included under *P. marmoratus* but genetic analysis has separated out some species and *P. semilunaris* is the only tubenose introduced to North America.¹

A dietary study of *P. semilunaris* in Lake Erie found that it was composed almost entirely of invertebrates, which is in direct competition for food resources with several native, benthic fish species.⁵ They will also consume

insect¹ and fish larvae, which negatively impacts natural food webs.⁴

The tubenose goby serves as prey for many native fish,⁴ thus, it is popular choice for a bait fish - some commercially made lures are made to imitate them - which presents a form of introduction to new waters bodies.

P. semilunaris can be distinguished from other species by the presence of a fused pelvic fin. Another introduced goby, the round goby (*Neogobius melanostomus*), also has a fused pelvic fin, but can be differentiated from the tubenose goby by its lack of elongated tube-like nostrils and the presence of a black spot on the rear base of the dorsal fin.¹ Both the tubenose goby and the round goby are invasive species.

As of January 1, 2016, the possession,

sale, or transport of this species in Alberta is illegal under the Fisheries Act.

Habitat:

P. semilunaris inhabits shallow (less than 5m), slow-flowing to still waters of all sizes. They prefer dense vegetation and rocky bottoms, common to shorelines.⁴ They can be very abundant in backwaters.² Data on climatic water tolerances are lacking; however, climate matching with the contiguous U.S. is high, especially within the Great Lakes.¹

Identification:

The tubenose goby has two dorsal fins and no black spot on the first dorsal fin. The pelvic fins are fused into a single suction cup shaped fin.⁸ The cylindrical body is a light brown color with dark blotches and banding on the



Tubenose Goby (continued)

sides. Distinguished by small tubular nostrils that extend to or just beyond the tip of their snout. Their heads are large and frog-like with bulbous eyes and large lips. Total body length is generally 5-8 cm⁸ with a maximum recorded length of 9 cm.²

Ecology:

P. semilunaris spawn at 1-2 years of age, from April to August, and only for 1-2 seasons. Females may spawn more than once over a breeding season¹ and the eggs are deposited in cavities.² Males guard the nest.¹ Females grow rapidly and mature in the early spring, approaching spawning. A study in the Czech Republic found offspring numbers ranged from 379 to 628.⁷

Adults may migrate to deeper waters to overwinter.⁷ Information on life span varies from annually to just a few years.

Economic Impacts:

Tubenose gobies compete directly with native benthic fish for resources and habitat.¹ The decline of native fish populations could have impacts on recreation and tourism.

Environmental Impacts:

Tubenose gobies compete directly with native benthic fish for resources and habitat.¹ While the tubenose goby serves as prey for many native fish, natural food webs are still negatively impacted.⁴

Sociological Impacts:

The transformation of native aquatic communities results in the intrinsic loss of natural capital and enjoyment of natural areas.

Prevention:

Learn how to identify tubenose goby and how to prevent spread. Do not use tubenose goby for bait. Never empty your aquarium into natural water bodies. Inspect boats, trailers and recreational equipment upon leaving a waterbody, and clean, drain and dry all mud and vegetation.

Control:

Currently, there are no widely established control options for tubenose goby other than preventing introduction. If caught, tubenose goby should be killed and not released. Report any sightings.



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Illustration by Joe Tomelleri Tubenose Goby



Tubenose Goby *(continued)*

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