



Non-Native Species & the Great Lakes

A Series of Fact Sheets Identifying Species that Pose Invasion Threats

Species: Monkey Goby (*Neogobius fluviatilis*)



Introduction: The most recent U.S. Environmental Protection Agency model for predicting introductions of non-indigenous species to the Great Lakes shows that the monkey goby could find suitable habitat in most of Lake Erie and in some parts of Lake Ontario and Lake Huron.ⁱ As a member of the goby fish family, the monkey goby is closely-related to the round goby and the tubenose goby, each of which reached the Great Lakes in the ballast water of ships.ⁱⁱ Like the round and tubenose gobies, the monkey goby is native to the Caspian and Black Sea region of Central Asia.ⁱⁱⁱ If introduced into the Great Lakes, the monkey goby is likely to match the round goby in its capacity to outcompete native species.^{iv}

Description: Gobies can easily adapt to a wide range of salinities, as exhibited by broad distribution in habitats throughout both the inland freshwater areas and the saline waters of the Ponto-Caspian region.^v The monkey goby is capable of reaching 195 mm in length, a fairly large size for a member of the goby fish family, and lives in “shallow, sandy-bottom habitats.”^{vi} Male monkey gobies are territorial.^{vii} As a result, like the round goby, the monkey goby will probably defend its spawning areas, restricting the ability of other less aggressive fish to nest in prime spawning areas.^{viii} Gobies also have a “well-developed sensory system that enhances their ability to detect water movement.”^{ix} Consequently, gobies are able to “feed in complete darkness,” giving them an “advantage over other fish in the same habitat.”^x

Ecological Effects: The monkey goby has an invasion history in Europe, which has been connected to intensive consumption of plankton and crustaceans. Consequently, the monkey goby “competes with other small fish for food and space.”^{xi} To predict how the monkey goby might influence the Great Lakes ecosystem, it is helpful to look to the round goby.^{xii} Round gobies feed on darters, sculpins, logperch, and other small fish, and ingest the eggs and larval young of lake trout.^{xiii} There is also a likely substantial overlap in diet preference with native fish species (rainbow darters, logperch, and northern madtoms).^{xiv} Gobies can eat zebra mussels in addition to fish eggs, benthic zooplankton, fish, and benthic invertebrates.^{xv} Because zebra mussels are filter feeders that accumulate contaminants in their body tissues,^{xvi} gobies that eat zebra mussels may be consuming a high level of contaminants.^{xvii} Further along in the food-chain, this could put dangerous concentrations of contaminants into sport fish at a much faster rate.^{xviii}

Means of Introduction: The monkey goby is likely to arrive in the ballast water of ships and inhabit near-shore regions where it would compete with native species for food.^{xix}

ⁱ U.S. ENVTL. PROT. AGENCY, PREDICTING FUTURE INTRODUCTIONS OF NONINDIGENOUS SPECIES TO THE GREAT LAKES 40 (2008), available at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=190305#Download> (Ex. i). See also E. Baker et al., *Watchlist of Potential Great Lakes Aquatic Invasive Species*, GLANIS, <http://www.glerl.noaa.gov/res/Programs/glansis/watchlist.html>. (Ex. ii).

ⁱⁱ U.S. ENVTL. PROT. AGENCY, *supra* note 1, at 40, B-8 – B-9. See *Round Goby*, USGS GREAT LAKES SCIENCE CENTER, http://www.glsc.usgs.gov/main.php?content=research_invasive_goby (last modified Jan. 31, 2008) (Ex. iii).

ⁱⁱⁱ U.S. ENVTL. PROT. AGENCY, *supra* note 1, at 40, B-7; *Round Goby*, USGS GREAT LAKES SCIENCE CENTER, http://www.glsc.usgs.gov/main.php?content=research_invasive_goby (last modified Jan. 31, 2008).

^{iv} U.S. ENVTL. PROT. AGENCY, *supra* note 1, at 40, B-7; *Round Goby*, USGS GREAT LAKES SCIENCE CENTER, http://www.glsc.usgs.gov/main.php?content=research_invasive_goby (last modified Jan. 31, 2008).

^v *Monkey Goby Phylogeography*, UNIVERSITY OF TOLEDO: LAKE ERIE CENTER, <http://www.utoledo.edu/nsm/lec/goby/monkeygoby.html> (last updated Jan. 3, 2012) (Ex. iv).

vi *Id.*

vii *Id.*

viii *Fish of the Great Lakes: Round Goby*, WISCONSIN SEA GRANT,
<http://www.seagrant.wisc.edu/greatlakesfish/roundgoby.html> (last updated Feb. 5, 2002) (Ex. v).

ix *Id.*

x *Id.*

xi U.S. ENVTL. PROT. AGENCY, *supra* note 1, at B-7.

xii DANIELLE M. CROSIER & DANIEL P. MOLLOY, *ROUND GOBY*6, *available at*
http://el.erdc.usace.army.mil/ansrp/neogobius_melanostomus.pdf (Ex. vi).

xiii *Id.*

xiv U.S. ENVTL. PROT. AGENCY, *supra* note 1 at 37.

xv CROSIER & MOLLOY, *supra* note 7, at 7.

xvi *Zebra Mussels*, SEA GRANT MICHIGAN, http://miseagrant.umich.edu/downloads/ais/fs_zebra_mussel.pdf. (Ex. vii).

xvii CROSIER & MOLLOY, *supra* note 7, at 7.

xviii *See id.*

xix U.S. ENVTL. PROT. AGENCY, *supra* note 1, at 40, B-7.