Species Assessments

We identified 80 freshwater mollusk species we believe are currently sold in the Great Lakes region and conducted a risk assessment for each using the Notre Dame STAIR*mollusk* tool, answering as many of the six questions as possible. Using a fecundity of 158 as the divide between low and high risk (see STAIR*mollusk* tool, question 2), each species was ranked according to the likelihood that it will become invasive.

Risk	Explanation
Low	Species either has no climate match to the Great Lakes OR has a fecundity of less than 158, no record of pathogens and no history of invasion elsewhere.
High	Species has a climate match to the Great Lakes and at least one of the following characteristics: a fecundity over 158, known pathogens, or a history of invasion elsewhere.
Potential	Species has a climate match to the Great Lakes but fecundity is unknown.
?	Data to assess climate match is insufficient and fecundity is unknown.

Mollusk Species Risk Assessments for the Great Lakes Using 2020-2029 Climate Conditions
(Great Lakes = Hardiness Zone 8 or below)

Species Name	Established in Great Lakes	Hardiness zone ≤ 7?	Risk Factor(s) in Evidence?*	Risk
Ancylus fluviatilis		Yes	N/A	Low
Anodonta cygnea		Yes	No fecundity data	Potential
Bellamya chinensis (=Cipangopaludina chinensis, C. chinensis maleata, and Viviparus malleatus)	Yes	Yes	Pathogens	High
Bellamya japonica (=Cipangopaludina japonica)	Yes	Yes	Pathogens	High
Biomphalaria alexandrina		No	Fecundity, pathogens	Low
Biomphalaria glabrata		Yes	Fecundity, pathogens, Invasion history	High
Biomphalaria havanensis		No	No fecundity data, pathogens, invasion history	Low
Biomphalaria pfeifferi		Yes	Fecundity, pathogens, Invasion history	High
Biomphalaria straminea		No	Fecundity, pathogens, invasion history	Low
Bithynia tentaculata	Yes	Yes	Fecundity, pathogens, invasion history	High
Bulinus abyssinicus		No	Fecundity, pathogens	Low
Bulinus globosus		No	Fecundity, pathogens	Low
Bulinus tropicus		No	Fecundity, pathogens	Low
Bulinus truncatus		Yes	Fecundity, pathogens	High
Campeloma decisum		Yes	N/A	Low
Clea helena		No	No fecundity data	Low
Clithon corona		Yes	No fecundity data	Potential
Corbicula fluminea	Yes	Yes	Fecundity, invasion history	High
Dreissena bugensis	Yes	Yes	Fecundity, invasion history	High
Dreissena polymorpha	Yes	Yes	Fecundity, invasion history	High
Drepanotrema aeruginosus		?	No fecundity data	?

Drepanotrema cimex		No	No fecundity data, invasion history	Low
Drepanotrema kermatoides		?	No fecundity data, invasion history	?
Elimia livescens (formerly Goniobasis)		Yes	Fecundity, invasion history	High
Elimia virginica	Yes	Yes	No fecundity data, invasion history	High
Eupera cubensis (Pisidium singleyi)		Yes	Invasion history	High
Fossaria viridis		?	No fecundity data, invasion history	?
Fusconaia flava		Yes	Fecundity, invasion history	High
Gillia altilis	Yes	Yes	No fecundity data	Potential
Helisoma anceps		Yes	Fecundity	High
Helisoma sp.		?	No fecundity data	?
Helisoma trivolvis (Planorella trivolvis)		Yes	Pathogens, invasion history	High
Indoplanorbis exustus		No	Fecundity, pathogens, invasion history	Low
Lasmigona subviridis	Yes	Yes	No fecundity data	Potential
Limnoperna fortunei		Yes	No fecundity data, invasion history	High
Lymnaea natalensis (Radix natalensis)		No	Fecundity, pathogens	Low
Lymnaea palustris (Stagnicola palustris)		Yes	Fecundity, pathogens	High
Lymnaea peregra (= Radix peregra)		Yes	Fecundity, pathogens	High
Lymnaea stagnalis		Yes	Fecundity, pathogens	High
Marisa cornuarietis	No	No	Fecundity, invasion history	Low
Melanoides tuberculata	No	No	Fecundity, pathogens, invasion history	Low
Melanoides turriculus	No	No	No fecundity data, invasion history	Low
Musculium lacustre		Yes	Invasion history	High
Musculium partumeium		?	N/A	Low
Neothauma tanganyicense		No	N/A	Low
Nerita natalensis sp. "Tracked"		No	No fecundity data	Low
Nerita sp.		No	No fecundity data	Low

Neritina reclivata		No	No fecundity data	Low
Physa fontinalis		Yes	Fecundity, pathogens	High
Physella acuta		Yes	Invasion history	High
Pila conica		No	No fecundity data	Low
Pisidium amnicum	Yes	Yes	Pathogens	High
Pisidium corneum (Sphaerium corneum)	Yes	Yes	Pathogens	High
Pisidium henslowanum	Yes	Yes	N/A	Low
Pisidium hibernicum		Yes	N/A	Low
Pisidium moitesserianum	Yes	Yes	N/A	Low
Pisidium punctiferum		Yes	No fecundity data, invasion history	High
Pisidium supinuum	Yes	Yes	Invasion history	High
Planorbella duryi		No	No fecundity data, invasion history	Low
Planorbis contortus (Bathyomphalus contortus)		Yes	Pathogens	High
Pomacea bridgesi		Yes	Fecundity, pathogens, invasion history	High
Pomacea canaliculata		No	Fecundity, pathogens, invasion history	Low
Pomacea cumingii		No	No fecundity data, invasion history	Low
Pomacea haustrum		No	Fecundity, pathogens, invasion history	Low
Pomacea insularum		No	Fecundity, pathogens, invasion history	Low
Potamilus alatus		Yes	No fecundity data	Potential
Potamopyrgus antipodarum	Yes	Yes	Fecundity, pathogens, invasion history	High
Radix auricularia	Yes	Yes	Fecundity, pathogens, invasion history	High
Sinanodonta woodiana		Yes	No fecundity data, pathogens, invasion history	High
Stenophysa marmorata		No	No fecundity data, invasion history	Low

Stenophysa maugeriae		No	No fecundity data	Low
Tarebia granifera (Thiara granifera)		Yes	Fecundity, pathogens, invasion history	High
Tylomelania cf. gemmifera		No	N/A	Low
Tylomelania gemmifera X zeamais		No	N/A	Low
Tylomelania gemmifers		No	N/A	Low
Tylomelania kruimeli		No	N/A	Low
Tylomelania patrichalis		No	N/A	Low
Tylomelania spec		No	N/A	Low
Tylomelania towutica		No	N/A	Low
Tylomelania zeamais		No	N/A	Low
Valvata piscinalis	Yes	Yes	Fecundity, pathogens	High
Viviparus georgianus	Yes	Yes	Pathogens, invasion history	High
Viviparus subpurpureus		Yes	No fecundity data, invasion history	High

* N/A = no risk factors found; Fecundity = annual fecundity is >158; Pathogens = pathogens of concern are known to infest this species; Invasion history = species has a prior history of invasion.