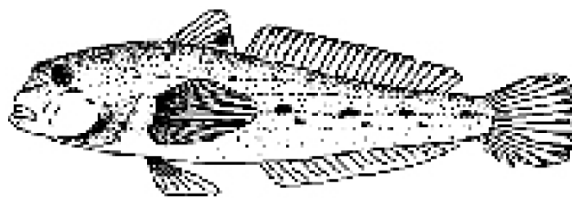


Introduction

Can you imagine what would happen if each of us, when unable to look after our aquariums, emptied the contents into a local lake? The impact on the lake and its inhabitants could be devastating. Due to characteristics that give them great advantage in the struggle for survival, the release of non-native species, originating from something as benign as an aquarium, has the potential to do serious damage to Ontario's aquatic ecosystems. This action, as well intentioned or innocent as it is, is one example of the many pathways that invading species can take to get into our waters and ultimately do great harm.



ROUND GOBY

Donna Francis, University of Michigan

The following, human-assisted pathways are a concern when we refer to aquatic invasive species:

- Ballast water dumping by foreign ships;
- Release through poor aquarium and water garden practices;
- Release of species from live food fish vendors;
- Release of baitfish from one body of water into another;
- Unauthorized fish stocking and aquaculture; and
- Failure to undertake proper cleaning and equipment transfer procedures when boating or participating in other recreational water-based activities (i.e. snorkeling, diving, float planes).

Invading species are considered by many experts to be among the greatest threats to Ontario's biodiversity. Originating from other regions of the world or outside of their present or historic range, these species, due to an absence of predators, have the potential to reproduce at a rapid rate and take over a habitat. Their impact, in fact, can reach far beyond the deterioration of native species populations, habitats and ecosystems to impact our economy, human communities and even human health.

Since European settlement, more than 180 non-indigenous aquatic species have become established in the Great Lakes basin. The names of some have become familiar to us – the zebra mussel, sea lamprey and purple loosestrife. These invasive species are aggressive, extremely adaptable and have high reproductive rates.

Invasive aquatic species are introduced and further spread to Ontario lakes through several pathways. There are natural pathways of species introduction such as wind, water currents or migration and there are human-assisted intentional and unintentional pathways of species introduction.

As students and teachers work through ***Making Waves!***, we hope they will take these important messages home:

1. Habitats and communities are interconnected systems within which plants and animals depend on each other for health and survival.
2. Habitats and communities are impacted by human activity. At times this impact can be catastrophic and irreversible.
3. Humans can reduce habitat and species loss by recognizing sources of harm and taking action to prevent that harm.
4. Humans can aid habitats and communities further by sharing stewardship knowledge with friends, family and neighbours, ensuring everyone has the tools to care for our world.

Using integrated lessons, ***Making Waves! Protecting Ontario's Aquatic Habitats*** illustrates the main concepts of the Ontario Science Curriculum – Life Systems strand, highlights the importance of stewardship and demonstrates specific actions we can take to protect our threatened wetlands and waterways from aquatic invasive species.

Who are we?

This teaching aid has been created for the **Invading Species Awareness Program** – a joint partnership of the *Ontario Federation of Anglers and Hunters* and the *Ontario Ministry of Natural Resources*. Funding support for this curriculum kit was provided in part through the Ontario Ministry of Natural Resources, the Canada/Ontario Agreement Respecting the Great Lakes Basin Ecosystem and the Government of Canada's Invasive Alien Species Partnership Program.

Launched in 1992, the *Invading Species Awareness Program* is designed to address threats from aquatic invading species. This initiative aims to:

- Raise public awareness of invading species and encourage public participation in preventing their spread.
- Monitor and track the spread of invading species in Ontario waters through citizen reports to the Invading Species Hotline and the Invading Species Watch program.

- Conduct research on the impacts of invasive species and investigate methods of control.

The **Invading Species Awareness Program's** ability to effectively track, monitor and control invading species relies directly on public awareness and action. Without the concern, dedication and voluntary participation from the public, this conservation program would not be the success that it is. **Making Waves! Protecting Ontario's Aquatic Habitats** will help you understand the impacts of invasive species on habitats and ecosystems, and provide tools and strategies for you, your students and their families to help stop the spread of invasive species.

For more information:

visit www.invadingspecies.com,
email invasivespecies@ofah.org

or call the Invading Species Hotline at 1-800-563-7711.



You can stop invading species



Ontario



Canada 