

Chapter 10: Aquatic Invasive Species (AIS)



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Aquatic Invasive Species (AIS)

What are AIS?

Information on AIS was collected from:

Sea Grant and Penn State University Erie. *Aquatic Invasive Species of Pennsylvania*. Ed. Sara Grise. Sea Grant and Penn State University, June. Web. 19 June 2010. <<http://www.pserie.psu.edu/seagrant/ais/index.htm>>.

AIS are species, including its seeds, eggs, spores, or other biological material, capable of propagating in an area other than their origination. They are anticipated to be the leading cause of biodiversity loss in the Great Lakes in the 21st century and of extinctions in North American freshwater ecosystems. Once established in a body of water AIS are very difficult to eradicate and are easily spread to uninfested waterways through recreational boating, bait introductions, and aquaculture.

**** REMEMBER:** Some species are native only to their watershed and should not be introduced to an adjacent watershed even if they are a few miles apart.

Aquatic Invasive Species	
<ul style="list-style-type: none"> • Prey on native species 	<ul style="list-style-type: none"> • Compete with native species
<ul style="list-style-type: none"> • Alter ecosystems 	<ul style="list-style-type: none"> • Spread disease
<ul style="list-style-type: none"> • Cause economic damage 	<ul style="list-style-type: none"> • Degrade natural aesthetics

As interesting and exciting these “new” additions to your aquariums may be for your students, you must approach the idea with extreme caution. Placing these creatures and plants into your classroom aquarium may not have an immediate impact on your aquarium ecosystem; however, they could have a drastic impact within the watershed you release your trout into.

Concern

Over the past few years TIC teachers have asked about placing plants, mussels (bivalves) and/or snails into their aquariums. Our number 1 concern is the introduction or spread of Aquatic Invasive Species (AIS) to the waterways in which you release trout.

Many state agencies and organizations including, Pennsylvania Council of Trout Unlimited and Pennsylvania Fish and Boat Commission currently implement practices to decrease impacts of AIS; therefore, we are recommending that TIC participants take the same precautions.

TIC participants need to be aware and cautious of the impacts your aquarium could have on the local watersheds. We recommend that if you choose to have freshwater mussels or snails in your classroom that you do so in a SEPARATE aquarium and DO NOT release them back into waterways.

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Remember, as teachers and program partners we need to set an example for our students and help prevent the spread of invasive species. This is another great teaching opportunity on protection of our coldwater resources.

Reasons for concern

The plants, snails or mussels you choose to place in your aquarium, without any research, could be AIS. Even if you do not release them into your chosen waterway with your trout, you may still impact your release stream. Some AIS have unique ways of reproducing and/or dispersing seeds that you may not be aware of; therefore, you may be adding to their spread throughout the state.

EXAMPLE:

If you have mussels (bivalves) in your aquarium they may reproduce and potentially utilize your trout as “hosts” for their young; as a result, you may impact the waterway you are releasing your trout into.

HOW?

(Information collected from: Storer, T.I. 1951. *General Zoology*, 2nd edition. McGraw-Hill Book Company, Inc., New York)

Freshwater mussels (bivalves) are very unique because they reproduce by utilizing fish as a host for their young. The female mussel spews embryos called glochidia into the gills of the “host” fish. The glochidia have hookless forms that clamp to the gill filaments of the fish. After the mussel develops 10-70 days, the connection weakens, the young opens and closes its valves, extends its foot, and escapes to the bottom to become free-living.

1. Some plants reproduce through even the smallest amount of vegetation.

EXAMPLE:

The aquatic plant Hydrilla was imported to the United States as an aquarium plant. It can reproduce primarily vegetatively; even the smallest living plant fragment can float downstream and form a new plant.

**** The ONE aquatic plant that is NATIVE to Pennsylvania and safe to place into your aquariums is:**

1. Watercress

For more information on invasive plant facts go to <http://www.invasivespeciesinfo.gov/aquatics/main.shtml>

Before placing plants or other animals into your aquarium you should conduct research using the following websites and contact us (814)359-5127.

**For more on Pennsylvania Aquatic Invasive Species visit Sea Grant’s website:
<http://seagrant.psu.edu/publications/ais.htm>**

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