

Dedicated to the Memory of Commissioner Enoch S. "Inky" Moore Jr.

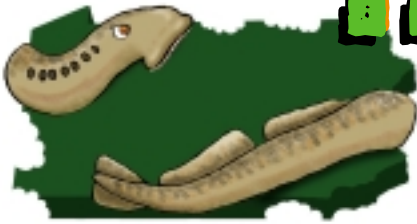
PLAY



Pennsylvania • League • of • Angling • Youth

FALL 2001

PA'S Least Wanted



Aliens. Invaders. Nuisances. Pests. Threats to biodiversity.

No, we aren't describing the latest Hollywood movie. We are describing aquatic nuisance species. This issue of PLAY focuses on aquatic nuisance species. Either accidentally or on purpose, humans have introduced species that aren't native to Pennsylvania. These organisms find that Pennsylvania's aquatic habitats are able to meet their needs. In turn, these organisms have a negative effect on the critters (including humans!) and plants that are native to Pennsylvania.

Several words used throughout this issue might be new to you. Those words and their definitions are in the box at right.

Aquatic nuisance species (ANS) are aquatic animals and plants that have been introduced into new ecosystems. They harm the natural resources in these ecosystems and the human use of these resources.

Biodiversity. The variety of species, their genetic makeup, and the natural communities in which they occur.

Introduced species. A species living outside of its natural geographic range. Can be deliberately or accidentally introduced or brought into the new ecosystem. Also called *exotic, alien, non-native, nuisance or invasive species.*

Invasive. Spreading or taking over. Invasive species often take over or dominate a habitat.

Native. An animal or plant originating in a region or geographic range. For example, brook trout are native to Pennsylvania.



Purple loosestrife along the Susquehanna River.



title illustration: Ron Kuhn, photo: Ted Walke

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From There to Here

People are often the cause of ANS moving from one place to another. There are several ways new species are introduced to PA and neighboring waters.

Ballast water is a major pathway for new aquatic organisms. Ships transporting goods carry water on board in tanks. Water is pumped into these tanks to help keep the ship level. This water is called "ballast." Ships take on ballast in one country, maybe from another corner of the world, and release it into ports when delivering goods. This ballast water often contains ANS as stowaways. Round gobies and zebra mussels have been introduced to the Great Lakes from other parts of the world through ballast water.



According to an article in the April 2001 issue of *Aquatic Nuisance Species Digest*, "It is estimated that every minute, 40,000 gallons of foreign ballast water are dumped into U.S. waters. It is also estimated that on any day, as many as 3,000 aquatic species, ranging in size from bacteria to fish, are moving around the earth in ballast-water tanks."

People fishing or boating in water already infested with ANS often aid in the spread of ANS to other waters. This spreading is often accidental and preventable. ANS may stow away in livewells or bilge water. Plants and zebra mussels may also cling to trailers and outboards. Launching that boat into an uninfested waterway may be all it takes to introduce ANS into that water.

Releasing pets or unused fishing bait is another often accidental way ANS are introduced. Red-eared slider turtles are the best example of this kind of release. These turtles aren't native to Pennsylvania, but through releases of pets, they are now abundant.



When an ANS invades a new ecosystem, it affects the system in one of several ways. First, the population grows, often unchecked because of the lack of predators. Biologists use the term "invasive" to describe this happening. ANS may be new predators in an ecosystem. ANS are also competitors. They compete with native species for food, shelter and living space. Often, as in the case of zebra mussels, native clams and mussels are crowded out. Zebra mussels are also efficient filter feeders. They compete with native fish and other invertebrates.

All these events affect biodiversity. In one lake in Africa, the introduction of a non-native fish in the late 1980s resulted in the extinction of more than 200 fish species found only in that Lake.

Today, with our global economy and ease of travel, people are moving ANS around the world. Laws and regulations set by Pennsylvania have little effect. They most often only reduce the spread. ANS is a global issue, one that puts the biodiversity of our state at risk.

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Pennsylvania's 10 LEAST-WANTED

Aquatic Nuisance Species



Zebra mussel (*Dreissena polymorpha*)
Origin: Introduced from Europe into the Great Lakes in the 1980s from the ballast water of an ocean-going ship.
Description: Small fingernail-sized freshwater mollusk.
Concerns: Zebra mussels colonize on surfaces, such as docks, water intake pipes and native mollusks. Their only known predators, some diving ducks, freshwater drum, carp and sturgeon, are not plentiful enough to have a significant effect on their numbers. Zebra mussels have greatly affected the Great Lakes ecosystem and economy.



European ruffe (*Gymnocephalus cernuus*)
Origin: Introduced from Europe into the Great Lakes in 1985 from the ballast water of an ocean-going ship.
Description: Small fish, close relative of the yellow perch.
Concerns: Because of its aggressive nature, the ruffe has the potential to devastate both perch and walleye fisheries by competing for food and habitat.



Hydrilla (*Hydrilla verticillata*)
Origin: Introduced from Southeast Asia in the 1960s, probably through the aquarium trade. This plant was first reported in Pennsylvania in the mid-1990s in Adams and Bradford counties.
Description: Submerged aquatic plant with finely toothed leaves. Resembles common elodea.
Concerns: Hydrilla spreads quickly and creates mats of vegetation that are extremely dense. These mats may crowd out native vegetation.

Round goby (*Neogobius melanostomus*)
Origin: Introduced from Europe into the Great Lakes in 1990 from the ballast water of an ocean-going ship.
Description: Small bottom-dwelling fish.
Concerns: Round gobies are aggressive feeders and can find food in total darkness. The round goby takes over prime spawning sites traditionally used by native species, competing with native fish for habitat.



Sea lamprey (*Petromyzon marinus*)
Origin: Native to the North Atlantic region and introduced into the Great Lakes early in the 20th century.
Description: Primitive eel-like parasitic fish.
Concerns: Even though this species is native to the Susquehanna and Delaware River basins, the sea lamprey has had a devastating effect on Great Lakes fisheries, where it is non-native. It is a direct parasite on large game fish.



Spiny water flea (*Bythotrephes cederstroemi*)
Origin: Introduced from Europe into the Great Lakes in 1984 from the ballast water of an ocean-going ship.
Description: Small plankton-eating crustacean, slightly larger than one centimeter (0.4 inches) long. More than two-thirds of this length is a long, barbed tail spine.
Concerns: The rapid reproduction of this species, lack of predators, and competition with young fish for food may greatly change the food webs of the Great Lakes.



Eurasian watermilfoil (*Myriophyllum spicatum*)
Origin: Introduced from Europe in the 1800s.
Description: Submerged aquatic plant. Featherlike leaves have reddish-brown tips.
Concerns: This plant grows so densely that it becomes poor fish habitat, clogs propellers, and restricts swimming. Eurasian watermilfoil is common throughout the state, but less common in the Northeast where native watermilfoils still thrive.

Aquatic Nuisance Species (ANS): Aquatic animals and plants that have been introduced into new ecosystems. ANS have harmful effects on the natural resources in these ecosystems and the human use of these resources.

These are the most aggressive nuisance species that have invaded Pennsylvania's aquatic habitats. All have negative effects on Pennsylvania's native plants and wildlife. Every effort should be made to halt their spread.

Purple loosestrife (*Lythrum salicaria*)
Origin: Introduced from Europe in the early 1800s as an ornamental garden plant.
Description: Tall-stemmed plant with lance-shaped leaves. A spike with pinkish-purple flowers tops each stem.
Concerns: Purple loosestrife has been found in all major river drainages in the state. It can invade a wetland and quickly crowd out native vegetation. It has little or no value for wildlife.



Asian clam (*Corbicula fluminea*)
Origin: First introduced from Asia to the West Coast of North America around 1924. By the 1970s, the clam occupied most of the Mississippi Basin, the Gulf Coast and eastern United States.
Description: Small freshwater mollusk.
Concerns: The Asian clam causes serious water supply problems, affecting power and water suppliers and other industries. Asian clams are drawn into intake pipes and block water flow.



Red-eared slider (*Trachemys scripta elegans*)
Origin: Native to the southeast United States. Established populations are the result of the release of unwanted pets.
Description: Medium-sized freshwater turtle with a bright-red stripe immediately behind the eye on each side of its head.
Concerns: The red-eared slider competes for food and habitat with Pennsylvania's native turtles. This competition could affect sensitive populations of native turtle species.



Photo credits: Round goby, Dave Jude; Asian clams, U.S. Geological Survey; zebra mussels, J. Ellen Marsden; Eurasian watermilfoil, spiny waterflea, Minnesota Department of Natural Resources; purple loosestrife (left), Ted Walke; purple loosestrife, M. Walter, Michigan Sea Grant; European ruffe, Gary Cholwek; red-eared slider, photo courtesy of U.S. Geological Survey; hydrilla, California Department of Food and Agriculture; sea lamprey, Great Lakes Sea Grant.

NUISANCE SPECIES

Game

START HERE



You decide to keep a few nice bass that you just caught. As you put them into the live-well, you notice stagnant water from your last fishing trip. You dump the live-well overboard and refill. **MOVE BACK 5 SPACES**

Pretty purple flowers line the bank of your favorite fishing hole. You decide to dig some up to plant in your water garden. **MOVE BACK 2 SPACES.**

You pull into a cove to try your luck with the panfish. Your propeller gets stuck - but why? **MOVE BACK 3 SPACES**

While fishing you catch a trout with an eel attached to it. You think it's so neat you take it home to release it in the stream behind your house. **MOVE BACK 4 SPACES.**

You lift anchor and find a thick glob of aquatic plants - roots and all. It would make a nice addition to your neighbor's new pond. **MOVE BACK 4 SPACES.**

As the fishing slows in the heat of the day, you decide to go to shore for a break. You are carefully wading near shore and notice crunching below your feet. Reaching down, you grab a handful of interesting little clams. You like them so much, you take some home to put in your aquarium and the town's water supply reservoir. **MOVE BACK 6 SPACES.**

As you retrieve your boat, you take a few minutes to scrub the hull. **MOVE AHEAD 8 SPACES.**

You accidentally kick over your bait bucket and everything inside dumps into the water. There goes all your bait! **MOVE BACK 1 SPACE.**

Those brightly colored, spiked flowers seem to be everywhere you look. You tell your friends that they may look nice, but they're nasty. **MOVE AHEAD 6 SPACES**

You brought along your favorite pet turtle, which you bought from the local pet store. Thinking the turtle would be much happier in the wild, you release it into the water and wave as it swims away. **MOVE BACK 5 SPACES.**

DIRECTIONS: Help reduce the spread of aquatic nuisance species. Read all about them in the rest of the PLAY Newsletter. You'll need a playing pawn or marker (coin, kernel of corn, small stone, etc.) for each person playing the game, and a die. Roll the die and move forward the correct number of spaces. Read the space where you land and do as it says. Then read the results below. If you land on a blank space, pass the die and wait patiently until it's your turn again. The winner is the first person to reach "Finish."

- 1** Purple Loosestrife Penalty: Yikes! One month later your water garden is overcrowded by this invasive weed.
- 2** Eurasian Watermilfoil Mystery: Aha! This feathery, dense-growing underwater plant clogs propellers and makes poor fish habitat.
- 3** Hydrilla Hubub: Oh no! This submerged plant spreads quickly and will likely overgrow the pond and crowd out native plants.
- 4** Sea Lamprey Lesson: Oops! That's no eel! It's a sea lamprey. You just helped spread them where they don't belong.
- 5** Zebra Mussel Mayhem: Oh my! You just helped spread zebra mussel larvae from one waterway to another.
- 6** Asian Clam Catastrophe: Those interesting little clams cause serious water supply problems by blocking intake pipes and water flow.
- 7** Congratulations! You helped reduce the spread of nasty nuisance species like the zebra mussel.
- 8** Way to Go! By encouraging your family and friends to leave them alone and not transplant them, you can do your part to keep purple loosestrife from spreading and becoming a problem.
- 9** Awful Accident: Not only did you introduce those baitfish to a new waterway, but you may also have dumped very small young animals, eggs and larvae that you could not see. It's never a good idea to empty your bait bucket into the water.
- 10** Turtle Timeout: Your pet turtle was probably a red-eared slider - a turtle native to the southern states. They are more aggressive than our local turtles and may bully them off of important basking rocks and logs. It's very important to keep your pets as pets. Don't release them into the wild when you get tired of taking care of them. And don't assume they'll be happier in the wild.

FINISH

Protecting Pennsylvania

As you know from reading this issue of PLAY, there are many plants and animals that can be quite a nuisance to people and other aquatic plants and animals. The Pennsylvania Fish & Boat Commission, in cooperation with other state agencies, works to help reduce the spread of aquatic nuisance species by developing and enforcing laws and regulations. For example, permits are required for people who raise and sell baitfish. The species they raise are limited to fish that are approved by the Commission and that already live in Pennsylvania. Some anglers don't consider the undesirable effects of emptying their bait buckets, so this is the Commission's way of stepping in to help protect Pennsylvania's waters from nuisance species. There is also a law that prohibits transporting fish into Pennsylvania from another state, province or country and then releasing them in our waters. Also, fish already in Pennsylvania cannot be transferred from one waterway to another.



The Commission also helps to protect Pennsylvania's waters from nuisance species by working as a partner in a multi-state commission. Pennsylvania, New York, Delaware, Maryland, Virginia, West Virginia and the District of Columbia each have waters that flow into the Chesapeake Bay. These states work with one another to prevent and monitor introduction of non-native species into the Chesapeake Bay Watershed. Species are sometimes

introduced for research or recreational purposes. Whenever someone proposes to introduce a non-native species, this commission reviews the introduction to

determine if harmful effects may occur. The commission then recommends to the individual state whether the introduction should be permitted. Not only does this commission help to protect each state's waters, but it also helps to protect the Chesapeake Bay from nuisance species.

Education is another important way to help prevent the spread of aquatic nuisance species in Pennsylvania. The Fish & Boat Commission encourages boaters to scrub the hulls of their boats, and to be careful about where they drain their bilge water and livewells to prevent the unwanted transfer of aquatic species. Anglers are encouraged to buy bait from responsible and permitted bait dealers, and not to dump their bait buckets into our waters. One way that you can help is to share what you've learned in this issue of PLAY with your family and friends. Help the Commission "stop the invasion" of aquatic nuisance species into Pennsylvania.



- When retrieving your boat for the day, check your boat, motor and trailer for weeds and other things "tagging along."
- Wash your boat's hull with hot water or with a high-pressure spray.
- Drain livewells, bilges and other compartments.
- Drain all standing water from your boat.
- Don't dump leftover bait into the water you're fishing, unless you collected the bait there.

Illustration: Ron Kuhn