HITCHING A RIDE

This lesson plan developed by:

Overview:
Our lakes, bays and rivers are being invaded by exotic plants and animals. An invasive species is a plant and animal that is not native to an ecosystem that causes harm or negatively alters its new environment. In this activity, children will learn how easy it is for invasive species to spread to a new area if we don't take the proper precautions while boating.

Materials:
- Washable paint
- Foam paint brush
- 3 ropes (~15ft long)

Duration:
30-60 minutes

Physical Activity:
Moderate

Background:
Invasive species (also called exotic or non-native) are animals and plants that invade an ecosystem where they don't belong. If the invasive species doesn't have natural predators in its new environment, it causes damage by consuming native species, competing for food and space, or introducing disease. Some can even damage our boats. Once they are established, an invasive species is almost impossible to eradicate.

Larger ships can transport invasive species in their ballast water, while fouling organisms such

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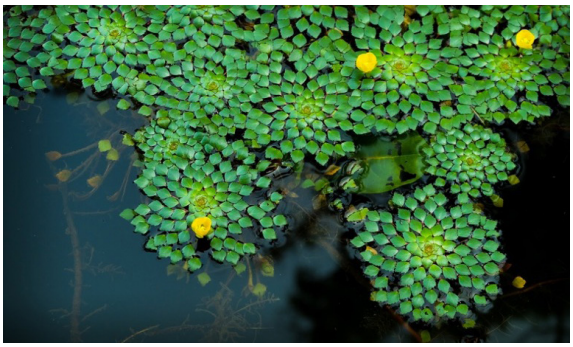
as barnacles, seaweeds and mussels can move from one location to another by hitching a ride on your boat, on items you use in the water and even your clothes. There are over 4,500 species of invasive plants and animals that have established populations in the US, and this number increases yearly. Two examples of invasive species found in United States waters include:

Zebra Mussels – Native to the Black and Caspian Sea, zebra mussels were first introduced into North America in the ballast water of ocean-going vessels, and have continued to spread to numerous lakes by overland transport, on hulls, anchors and trailers. They are also transported by diver's wetsuits and fishing gear. This freshwater mussel has spread quickly and is a harm to freshwater ecosystems by outcompeting native species for food and space. They also clog water intakes and other pipes, and attach themselves to boat motors, hulls and docks.



European Water Chestnut – This invasive aquatic plant was released inadvertently into the waters of the Northeast in the late 1800s. The water chestnut forms nearly impenetrable floating mats of vegetation, which can be a hazard for boaters. The plant also blocks light penetration into the water and outcompetes native aquatic vegetation.

Activity:

Part 1: Introduction to Invasive Species

Ask students the following questions to start a discussion about invasive species:

- What is a native species? What is an invasive species?
- Do you know of any invasive species in the area? What is their impact on the ecosystem? The National Invasive Species Information Center provides locations of known aquatic invasive species that can help provide examples in your area.
- How do invasive species "move"?

Part 2: Mimic the Spread of Invasive Species

1. Create three circles spaced out on the ground with the ropes. This activity can be performed indoors or outdoors.
2. Designate three students to represent lakes. They will each stand in one of the circles and not move throughout the activity. One student will represent a lake that contains an invasive species. Place or paint a thick layer of the washable paint on that student's hand. The paint represents the invasive species. Don't tell the other students which lake contains the invasive species.

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3. The remaining students will be boats. Every time a boat enters or leaves a lake they must shake hands with the lake they are entering or leaving.
4. Have the students split up and enter one of the three lakes. Make sure they shake hands with the lake they are entering.
5. Now have the students go to a different lake. Repeat 3 times.
6. At the end, check everyone's hands. How many boats have invasive species on them? How many lakes?

Discussion:

As a group, discuss what happened during the activity and have students answer the following questions.

- Did the invasive species spread easily during the activity?
- What would happen if every student washed their hands every time they left a lake?
- What if only half the students washed their hands every time they left a lake?
- How would you prevent the spread of invasive organisms in your area while boating?

The only way to stop an invasive species from causing harm is to prevent them from entering the environment in the first place. Any person enjoying a recreational activity in or on the water can play a key role in preventing the spread of invasive species. Share the following tips with the students on how they can stop the spread of invasive species.

- Remove all visible vegetation from your boat, propeller, anchor, trailer and any other equipment that was in the water.
- Drain and flush the motor, livewell, bilge and transom wells with freshwater. If possible use hot water.
- Spray your boat and trailer with high-pressure water and then rinse with hot water, if possible.
- Dry your boat and equipment for at least 5 days before entering a different body of water. Check local and state laws to confirm if longer drying times are necessary.

Ocean Literacy Principles:

Ocean literacy is an understanding of the ocean's influence on us, and our impact on the ocean. There are seven Ocean Literacy Essential Principles that all people of our blue planet should have an opportunity to learn and understand. This activity touches upon the following Essential Principles:

5. The ocean supports a great diversity of life and ecosystems
6. The ocean and humans are inextricably interconnected

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As sailors and water-lovers, you are among the first to notice changes to our seas such as fewer marine animals, more pollution and damaged marine habitat. Through our Green Boating initiative, Sailors for the Sea Powered by Oceana provides opportunities for you and your community to address pressing ocean health issues. As a Green Boater, you will be provided

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with the information, resources and access to combat marine plastic pollution, prevent habitat destruction, source responsible seafood and protect marine animals. From demanding plastic-free alternatives to choosing sustainable seafood, your voice and actions are an important part of restoring the abundance of our oceans and protecting marine habitats. Join our growing Green Boating Community today.