

# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes

## National Lakeshore: Post-Visit Lesson Plan for Teachers



**Grade Levels:** 3-5

**Setting:** Classroom

**Standards:**

2-LS4-3, 3-LS4-3, 3-LS4.D, 3-LS3-2,  
4-LS1-1, 4 ESS2.E, 5-LS1-1, 5-LS2.A

**Duration:**

1 hour

**Materials Needed:**

- Paper, pencils, crayons, colored pencils, or markers
- Other art supplies such as glue, construction paper, and scissors.
- Optional: video recording equipment

**Attachments:**

- Video Rubric
- Poster Rubric

**Overview:** Welcome to the Sleeping Bear Dunes National Lakeshore's "Water Those? Aquatic Invasive Species" Post-Visit lesson plan. In this lesson, students will take what they have learned from their pre-visit lesson and distance learning program with a ranger to develop a project that will allow them to continue to share their knowledge with other students and the general public. Teachers and students have the flexibility to design a project that best fits their needs.

**Essential Question:** Why is it important to prevent the spread of aquatic invasive species?

**Enduring Understanding:** What is an invasive species and what impacts do aquatic invasive species have on natural communities? What can people do to help stop their spread or to help Sleeping Bear Dunes educate people about them?

**Objectives:**

After completing this lesson, students will be able to:

- Persuade people to take action on preventing the spread of aquatic invasive species or to learn more about how they impact natural communities
- Provide specific examples of how aquatic invasive species impact natural communities at Sleeping Bear Dunes
- List ways people can take action
- Identify why taking action is critical to the protection of Sleeping Bear's natural communities and visitor enjoyment of the area

**Introduction (5 minutes)**

- Ask students to recall important information about aquatic invasive species from the past two lessons, specifically on their impact to the natural community/web of life
- Ask students if they think scientific research is important in how best to help keep our environment healthy.

# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



- Brainstorm some ways that people can help prevent the spread of these aquatic invasive species and how to increase awareness about the problems that they cause

## **Main Activity:** (3 project options)

### **Option 1:** Create a Short Video

1. Place students into groups.
2. Have each group create a video plan with the goal of creating a video that can be placed on the Sleeping Bear Dunes National Lakeshore's YouTube page. The video should focus on the impact of an aquatic invasive species discussed in the previous two lessons on the National Park and the Great Lakes along with ways people can get involved in helping to solve the problems created by invasive species.

*Teacher note: A rubric has been created for assessing students' videos. The rubric can also be used as a guideline for students creating the video.*

3. Share the video with Sleeping Bear Dunes National Lakeshore by emailing the video to [slbe\\_education@nps.gov](mailto:slbe_education@nps.gov).

### **Option 2:** Create a Poster/Sign Campaign

1. Tell students, today they are going to create a poster or a sign that can be used to help educate other students and visitors about the impacts of aquatic invasive species, like the Quagga mussel.
4. Show students examples of signs already used. Discuss with students what makes a sign effective? Create a list of items needed to create an effective sign. After drafting your class list, you may choose to show students the rubric for evaluating their posters.
5. Tell students they need to pick a focus for their signs- For example: Rinse Your Boat, Botulism at Sleeping Bear, Quagga Mussels, and We Need You to Volunteer.
6. Each student will create a poster that can be hung to help educate people about making choices that will help stop the spread of invasive species or that will support the continued effort of park rangers, citizen scientists, researchers, and volunteers to understand the impacts of invasive species on natural communities, the economy, and human health/recreation.

*a. Teacher note: The main activity may be scaled up for down depending on your grade level and technology access. Please read through the optional extension suggestions below and choose the activity that*

# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



*best meets your needs. The activity may also be completed in partners or groups.*

7. Photograph or scan your posters and email them to [slbe\\_education@nps.gov](mailto:slbe_education@nps.gov) and we will feature your work in a photo gallery on our website!

## **Option 3: Design Your Own Project**

1. Do you have something in mind that better fits the needs of your students? Please, feel free to be creative and design a project that works for your classroom.
2. Share what you create! We would love to know what form your project took. And, we would be happy to share your work. Just email us at [slbe\\_education@nps.gov](mailto:slbe_education@nps.gov).

## **Optional Extensions:**

1. Use the information learned from the series of aquatic invasive species lessons to educate younger students by putting on a play about preventing the spread about aquatic invasive species and/or by studying the environment and volunteering to make a difference.
2. Write and perform a song about invasive species! Check out this video for inspiration: <https://vimeo.com/121181853>
3. Create a brochure to educate the public about aquatic invasive species at Sleeping Bear Dunes, what they are, their impacts, what the park does, and what they can do to help.

## **Additional Tasks to Explore/Research Resources:**

<https://scistarter.com/finder-> Use this link to find a local citizen science project for students to engage in.

<https://www.fws.gov/invasives/what-you-can-do.html> The US Fish and Wildlife Service's page about what they do to manage aquatic invasive species.

<https://www.nature.nps.gov/water/marineinvasives/index.cfm> National Park Service guide to Marine and Great Lakes Invasive species.

<https://www.nature.nps.gov/water/marineinvasives/GLISdatabase.cfm> National Park Service aquatic invasive species database for the Great Lakes.

<http://stopaquaticchitchikers.org/prevention/> Tips for how you can help stop the spread of aquatic invasive species.

# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



## Sign/Brochure Examples



# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



**Lake Mead**  
National Recreation Area

National Park Service  
U.S. Department of the Interior



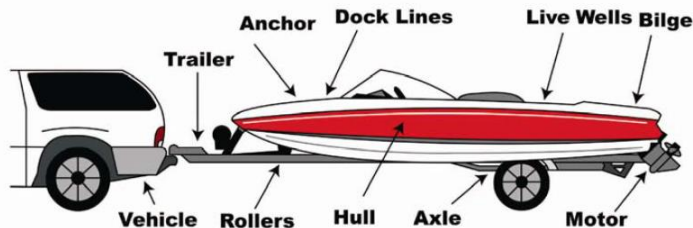
## Don't Move a Mussel!

Invasive mussels are here! Quagga mussels, closely related to zebra mussels, have been found in Lakes Mead and Mohave. Plants and animals that may be lurking on your watercraft, trailer, vehicle, or other equipment will cause the spread of invasive mussels. Invasive mussels cause millions of dollars of damage to boat and water systems by clogging pipes and engines. They also disrupt the native ecosystem.

## CLEAN YOUR BOAT and ALL OF YOUR EQUIPMENT!

### **EVERY** time you take them out of the water:

Clean, drain, and dry ALL of your equipment.



*Prevent the spread, don't move a Mussel!*



**Stop Aquatic  
Hitchhikers!**

[www.100thmeridian.org](http://www.100thmeridian.org)

# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



What is the greatest **threat** to **Lake Powell** today?

Zebra Mussels in Lake Powell could:  
Disrupt the food chain and fishing  
Foul facilities like docks and ramps  
Encrust boats and clog engines  
Litter beaches with sharp smelly shells

This invasive species from Eastern Europe is spreading at an alarming rate across the US.

They are transported to new areas attached to boats or harbored in tiny amounts of water.

Dead zebra mussels have been found on a boat in Lake Powell.



**Zebra mussels have recently been found in Lakes Mead, Mohave, and Havasu**



What can you do to help?

1. Don't be the Problem:  
Before Launching...Before Leaving  
-Remove ALL plant and animal material from boat, trailer, and other equipment.  
-Away from water bodies, drain ALL water from boat and motor!
2. Help raise awareness:  
-Find out how many of your friends know about zebra mussels.  
-Read this page, then give it away.  
-Learn more at:  
[www.100thMeridian.org](http://www.100thMeridian.org)



The National Park Service cares for special places saved by the American people so that all may experience our heritage.



# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



# Water Those? Aquatic Invasive Species at Sleeping Bear Dunes National Lakeshore: Post-Visit Lesson Plan for Teachers



## Coloring Sheet

Northern Lake Michigan After Quagga Mussels



Northern Lake Michigan Before Quagga Mussels

