

Be AIS Aware Unit

Lesson 5 Most Unwanted AIS Poster

Do you ever wonder which aquatic invasive species are a threat in your area?

Overview

Subject Areas: Life Science, Environmental Science, Ecology, and Human Impacts

Key Topics: Aquatic invasive species, native species, non-native species, adaptations

Students will create an informational poster about aquatic invasive species (AIS) that are a threat to their local environment and economy. The poster may be completed as either an electronic document or as a hard-copy poster. To educate the school community, the finished posters can be posted in the school and/or compiled into a document that can be shared electronically.

Objectives

Students will be able to:

- research an AIS that is a threat to the region.
- identify local habitats that the AIS could potentially invade.
- determine traits that make the non-native species invasive.
- describe ways AIS may disturb local lakes, streams, or rivers and impact the local economy.
- explain how an AIS invasion can be prevented and detected.

Grade Level

Middle School

Duration

Preparation Time: 20 minutes

Activity Time: 2 x 50 minutes

Skills

Researching; communicating

Materials

Warm Up/Activity

- Student worksheets #1-5 and teacher resource worksheet #1
- Laminated teacher resource worksheets #2-3
- Computer and projector for the instructor
- Computer (i.e. laptop) and printer access for each student
- Electronic poster: Individual access to presentation software (ex. PowerPoint, Keynote, Google Slides, Prezi, etc.)



- Hardcopy poster: 8 ½" x 11" assorted colored paper or construction paper, scissors, rulers, glue, and colored pencils

Advanced Preparation

- Copy the student worksheets #1-4 (double-sided).
- Copy the student worksheet #5 and teacher resource worksheet #1 (single-sided).
- Pull out the laminated teacher resource worksheets #2-3.
- Acquire student access to a computer (i.e. laptop) and printer.
- For the hard-copy poster: Gather the poster paper, scissors, rulers, glue, and colored pencils for the students to use in class.
- Prior to class, pre-load the Most Unwanted AIS Poster example from the thumb drive or request a digital version from FLBS.

Background

Northwest Montana is home to aquatic habitats rich in diverse aquatic plants, insects, crustaceans, amphibians, fish, mammals, and birds. The streams, rivers, wetlands, lakes, and ponds in the region support a tremendous variety of **native** wildlife, and create a sense of place unlike any other in the country. Imagine the Flathead Valley without the Flathead River, Flathead Lake, or the surrounding wetlands. The clear, clean water that we rely upon for our recreation, drinking water, tourism, agriculture, and ultimately our way of life is under siege from **non-native, aquatic invasive species (AIS)** that have the potential to alter this beautiful landscape permanently.

Eurasian watermilfoil, curly-leaf pondweed, and flowering rush are just some of the many aquatic invasive species that are already found within our watershed. Being able to identify the AIS threats and to understand the **adaptations** that make them invasive, along with the ways that we can prevent the spread of these species, is knowledge that everyone in the community should have.

The headwaters of the Columbia River Watershed flow through our valleys as they make their way towards the Pacific Ocean. As they pass through this region, they can pick up and transport invasive species downstream. The Columbia River Watershed was the last major watershed in the country without zebra and quagga mussels until 2023 when quagga mussels were found in the Snake River. These mussels spread easily through microscopic, planktonic veligers (larvae) that can drift with the water currents. Once these mussels enter a water body, it is very difficult to contain them and virtually impossible to effectively eradicate them. As a result, it takes a community-wide effort to prevent further spread of these harmful mussels throughout Montana, Idaho, Washington, and Oregon

Now more than ever, it is critical to be AIS aware, and to promote that awareness throughout our community. Creating public AIS awareness can begin in the classroom and stretch beyond the school walls by sharing the products of this lesson to the school and surrounding community.



Vocabulary

Adaptations: Physical, chemical, or behavioral characteristics of organisms, which allows them to live in particular environments.

Aquatic invasive species (AIS): Aquatic, non-native species that cause economic or environmental harm.

Native species: An indigenous species historically found in an ecosystem.

Non-native species: A species that has been moved outside of its natural geographic range.

Procedure

- **Warm Up (5 minutes)**
 - Pass out the student warm-up worksheets (#1-2).
 - Prompt: Examine the provided photographs, maps, and life cycle diagram. Identify and describe the problem and where it is occurring in the United States and Montana.
 - Ask 1-2 students to share what they think the problem is.
 - Ask 1-2 students to share where this problem is occurring.
 - Explain that this warm up activity is an introduction to one AIS threat to Montana and that they will be taking a more in-depth look at one specific species for this AIS poster project
- **The Activity (90 minutes)**
 - Pass out the AIS Mini-Poster worksheets (#3-4) and the AIS Poster Research Guide worksheets (#5-6).
 - Describe the poster project and requirements to the students.
 - Have each student select one aquatic invasive species from the provided list. Record the students' names on the AIS Poster Sign Up Sheet.
 - Ask the students to first complete the AIS Poster Research Guide as they conduct their research.
 - Next, have the students sketch out a rough draft of their poster layout on the back of their worksheet.
 - Lastly, have the students create either an electronic or hardcopy poster to share with the class.
- **Wrap Up (5 minutes)**
 - Prompt: What makes your aquatic invasive species harmful?
 - Students may share their response verbally, electronically, or on paper (ex. post-it note, index card, etc.).

Note: A poster gallery walk (see assessment option below) can be conducted after school for parents and community members to learn about local AIS threats. These posters can also be posted in the school common areas to promote AIS awareness. Alternatively, the posters can be scanned into a document that could be distributed to the school community electronically.

Teacher Resources

Assessment Options

Have students:

- create the project poster as described.
- complete a 3-minute poster presentation to educate their peers.



- conduct a poster gallery walk for students (and/or community members) to learn about local AIS threats.
 - Arrange the mini-posters around the classroom so that students can freely move and make observations.
 - Pass out the Poster Gallery worksheet (#7).
 - Direct the students to select 5 posters, to complete the provided table, and to answer the three summary questions at the bottom of the worksheet.

Modifications

- Either remove or add poster elements to adjust the difficulty level of the project.
- The worksheets can be enlarged for students in need of larger text.

Extensions

Students can:

- design a bumper sticker or create a movie trailer to promote AIS prevention and awareness.

Standards

Common Core:

WHST.6-8.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NGSS & Montana Science Standards

- LS2.C: Ecosystem Dynamics, Functioning, and Resilience
- LS4.C: Adaptation
- CROSSCUTTING CONCEPTS: Stability and Change; Cause and Effect
- *SCIENTIFIC & ENGINEERING PRACTICES*: Obtaining, Evaluating, and Communicating Information

Online Resources

- Montana Field Guide: <http://fieldguide.mt.gov/>
- Montana Fish, Wildlife and Parks Aquatic Invasive Species website: [CONSERVATION :: Protect Montana Water's From Aquatic Invasive Species | Montana FWP](#)
- Yellowstone Coordinating Committee Aquatic Invasive Species Pocket Guide: https://docs.wixstatic.com/ugd/a0f00b_398521b0c8fc42acbc1226ea9c7a3110.pdf

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