

Shorebirds at Risk: Threats and Actions

Learning Objectives

Students will use prior knowledge and their experience during a kinesthetic game to analyze how human behavior and environmental factors threaten shorebird habitats and then use these observations to make predictions about other potential threats facing shorebirds.

Students will utilize online resources and provide evidence from the WHSRN website to answer questions highlighting the importance and scope of WHSRN and its role in shorebird conservation.

Students will consider their own roles in shorebird conservation by examining the link between shorebird threats and human activity. Students will then advocate for a local shorebird species using artwork, poetry, press releases and other platforms to share their message with their peers.

Activity 1: Know-Wonder-Learn about Threats to Shorebirds

Time: 10 min

Provided: None

From your Classroom: Large paper, whiteboard, or chalkboard

Create a K-W-L chart on large paper or on the classroom whiteboard or chalkboard. Write 'Threats to Shorebirds' at the top.

Ask students "What do you **KNOW** about threats to shorebirds?" Encourage them to draw on their existing knowledge from learning about threats in the migration lesson. Be sure that they include habitat loss and degradation, disturbance (e.g., on beaches and mudflats at stopover sites), and predation. They may write their ideas down in the 'Know' section of the chart, or give each student a sticky note and have them add what they know to the chart themselves.

Ask students "What do you **WONDER** about threats to shorebirds?" Record their questions in the 'Wonder' section of the chart using sticky notes or by writing them there yourself, then set it aside. Resist the temptation to answer their questions now - they will discover the answers themselves during the lesson! Return to the chart at the end of the lesson.

* This K-W-L brainstorm could also be done in a discussion format with the teacher writing down student ideas in the chart. Adapt terminology as needed for the age of students.


Activity 2: Can't We Share?

Time: 30 min | **Student Level:** Grades 3-6

Materials:

Provided: Habitat Card sheets (Activity Sheet 4.1), Environmental Events sheets (Activity Sheet 4.2), Environmental Stewardship sheets (Activity Sheet 4.3), Threats and Actions slideshows (Slideshow 4.1), Shorebird Cards

From your Classroom: 1 chair per student, speakers to play music, tape

 **Engage:** Present the Threats and Actions slideshow (Slideshow 4.1) to provide students with background information on the threats that impact shorebirds and their habitat, as well as the actions to protect them. The habitats and shorebirds that will be represented in the next part of the activity will be reviewed. Teaching guidance is included in the notes of the slideshow.

 **Explore:**

Prepare for the activity:

1. Select the music and arrange the chairs in two rows back to back, as in musical chairs.
2. Photocopy and cut the Habitat Cards (Activity Sheet 4.1) included in this activity.
3. Attach a habitat name to each chair, alternating the cards for equal distribution.
4. Print enough Shorebird Cards so that all students have one.
5. Photocopy and cut two copies of the Environmental



Events Cards (Activity Sheet 4.2) and Environmental Stewardship Cards (Activity Sheet 4.3). Add your own local events to the blank cards provided. Place the Environmental Event Cards in a box for random selection.

Conduct the activity:

1. Explain that each chair represents a specific shorebird habitat, such as marsh, mudflat, grassland, or stream corridor. Remind students that each habitat supplies the shorebirds that live there with their basic life needs.
2. Hand out the Shorebird Cards. Have the students read the cards and make sure they note the habitats that they use.
3. Tell the students to stand in front of a chair that represents one of their habitats and face the same direction, as if they were going to play musical chairs.

Note: Students may question why some shorebird species are represented in more than one habitat type. Explain that most shorebirds breed in one habitat type (often Arctic tundra) but use another during migration and the nonbreeding season. For example, the Red Knot breeds in the Arctic tundra but uses coastal wetlands during migration and the nonbreeding season.

4. Start the music and tell the students to walk around the chairs slowly. When the music stops, each student should sit down in one of the chairs representing his or her habitat from the Shorebird Card. It's possible that even the first round students will not be able to find their habitat.
5. The teacher or a student chooses an "event" from the box, reads it aloud, and removes a chair that represents the affected habitat.
6. Continue the game, repeating steps 4 and 5 for each round. As students are eliminated from the game, they keep the environmental events that affected their habitats.
7. Play until there is one student left.
8. Spend a few minutes reflecting.
9. Now tell students that they are going to do the activity again, but in reverse. Explain that humans have an important responsibility to be good land stewards. Explain that land stewardship is taking care of the land so it is available for all species and future generations of people.

10. Using the Environmental Stewardship Cards, play the activity backwards by adding chairs in for each stewardship action. All students will start but with only one chair. With each card, a chair is added until all students have a seat again
11. Discuss how students can be good stewards of the land in their community--for example, putting trash in its proper receptacle, helping with conservation projects, etc.

Optional: For older students, instead of using the Environmental Stewardship Cards to bring the chairs back in, students can be challenged to suggest a different action that would result in a positive outcome. To help them remember the events from the first round, read one Environmental Event Card out in each round until all chairs are back.



Discuss: Discuss the following questions with the class:

- Ask students to share how events affected them in their habitats. What basic needs were shorebirds deprived of in these situations? What will they do now?
- When more than one person was trying to take the same chair, what happened? How is the same behavior reflected in nature?
- Which events were natural phenomena and which were the result of human behaviors?
- Which of these events can people do something about and which cannot be controlled?
- What can people do to correct natural disasters? What alternatives exist for the human "events" that hurt shorebirds and their habitat?

Activity 3: What is WHSRN?

Time: 20 min | **Student Level:** Grades 5-8

Materials:

From your Classroom: individual computers, internet



Engage: In small groups, provide students with a computer and a link to the Western Hemisphere Shorebird Reserve Network website: <https://whsrn.org/>




WHSRN Sites to Explore

Delta del Río Iscuandé	Delta del Estero Real	Delaware Bay
Bahía de Santa Maria	Laguna Madre	Grassland
Humedal Marino de Chamiza	Humboldt Bay Complex	Great Salt Lake
Río Gallegos Estuary	Bahía Blanca Estuary	Maryland -Virginia Barrier Islands
Desembocadura y Estuario del Río Maipo	Laguna de Rocha	Bay of Fundy
Barba Azul Nature Reserve	Laguna Mar Chiquita	Fraser Estuary
Ensenada de Pabellones	Piscina Artificiales de ECUASAL	Tofino Wah-nah-jus Hilt-hoo-is Mudflats

Give students 10 minutes to explore the website and answer the following questions:

- What is WHSRN?
- Why does WHSRN exist and what is its goal?
- Who is involved in WHSRN?
- What is a WHSRN site and what does it do?

Discuss briefly questions as a class after 10 minutes and help students elaborate with the background from the Learning Resources section of the Educator Guide.


 **Explore:** Working alone or in pairs, students will select a site from the chart above, read the site profile and other provided links, and prepare a presentation on that site. Presentations should include:

1. The important habitats and shorebirds, including information on species diversity, abundance, and timing of when shorebirds are at the site.
2. Threats to the site. Threats can include both natural and anthropogenic threats. Remind students that they should be specific - for example, using 'development' rather than simply 'habitat destruction' since habitat destruction occurs from many different types of threats.

3. The cause of the threats (e.g., increasing populations in coastal areas).
4. Current actions at the site to minimize or mitigate the threat.
5. One new action that could be implemented to minimize or mitigate the threat.

Optional

Students can also explore sites along the flyway that their site is linked to because of shared species. How could these sites collaborate to support conservation of their shared species.

 **Discuss:** Students will share their presentation with the class and then reflect on all the presentations.

- What are the differences between the sites, and their threats and actions?
- What are the similarities between the sites, and their threats and actions?
- Are there certain habitats or shorebirds that are frequently impacted? What does this mean for their survival?


Activity 4: Protect your Site with your Voice

Time: 45-60 min | **Student Level:** Grades 3-8

Materials:

Provided: Project ideas

From your Classroom: Art supplies, audio-visual equipment, computers, editing software, or other materials as needed

 **Engage:** Students should select a focal WHSRN site by completing the 'Explore' component of Activity 3 (What is WHSRN?). If they have not completed Activity 3, students will now need to select a site or all students will prepare something based on the local site. Tell students that they will tell the story of their selected WHSRN site (either a local site or the one researched in Activity 3) in an engaging and innovative way.

Explore:

1. Students can work individually or in small groups.
2. Students should think creatively about how they might have an impact on conservation and tell the story of their site with their words, art, or other creative expressions.
3. The creative projects should (1) tell the story of the site, (2) identify its most important threats, and (3) clearly explain an action that can be taken to address the threat. The action can be simple like leashing your dog on the beach or more complex like educating people about a new development proposed for shorebird habitat.
4. Allow time for students to brainstorm ideas, plan, and create their projects.

This activity has great flexibility to be adapted to the needs and abilities of your classroom. There is also potential for incorporating other learning objectives or enrichment classes like language, art, music, or library.


Younger students: Consider shared projects for younger students. For example, asking all students to write a poem or draw a picture. You may also want to outline the threat and action on the board in order to keep them focused.

Older students: Challenge older students to be creative and pursue their own unique ideas for sharing about shorebirds and their sites with the community. Older students can also give special consideration to a target audience and design

projects based on the best way to engage that audience. For example, if they target their friends, maybe a social media video would be best. If they are targeting elected officials, a press release or town council meeting presentation may be more effective..

Project ideas

- Shorebird art exhibit for the local library
- Article for the school newspaper
- Poetry, music, theatre, dance
- [Social media content](#)
- Poster display for school hallway
- [Youth artwork signs](#)
- [Puppet show skit](#)
- Calendar
- [Presentation and exchange with students at a different site](#)

 **Discuss:** Students should present their projects to the class, or potentially to broader audiences. After the activities have been presented or shared with class, school, or community, help students reflect on their experiences with this project - positive experiences, challenges, lessons learned, and outcomes.

Activity 5. Know-Wonder-Learn about Threats to Shorebirds, *Revisited*

Revisit the Know-Wonder-Learn chart created at the beginning of the lesson. Students should work in pairs to brainstorm things they have learned about threats to add to the chart in the 'Learn' section. Have them share by adding sticky notes, or by writing their responses onto the chart. Follow up on their 'wonder' items to see if we can now answer some of their questions.