AQUATIC INVASIVE SPECIES RESOURCE HANDBOOK FOR EDUCATORS

Grades 4-6

PEI invasive species council

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Foreword

Purpose of Booklet

This booklet provides early elementary educators (Grades 4-6) with engaging, easy-to-use activities focused on aquatic invasive species on Prince Edward Island. The lessons are designed to help students understand what invasive species are, how they spread, why they can be harmful to local ecosystems, and the actions we can take to help prevent their spread. We have developed the activities in this guide to be accessible, low cost, and easy to implement in a school setting with many requiring no extra materials. Please feel free to adjust activities based on what you have accessible to you!

Who We Are

The PEI Invasive Species Council (PEIISC) is a non-profit organization dedicated to preventing and managing the spread of invasive species on Prince Edward Island. Our work includes managing, monitoring, and mapping the spread of invasive species across the Island. We also serve Islanders as a reliable resource for information, spread awareness at community events, and support education through accessible resources that help people understand and take action on invasive species issues. The PEIISC is an operating chapter of Invasives Canada.

You can learn more about invasive species on our website: www.peiinvasives.org

Please feel free to reach out to the PEIISC with any comments or questions by email at peiinvasives@gmail.com. We are here to help!

What are Invasive Species?

Invasive species are plants, animals, or other organisms that have spread outside their natural range and can cause harm to native species, ecosystems, human health, or the economy. They can compete with native species for food and habitat, change the structure and function of ecosystems, and sometimes introduce new diseases. Because invasive species often have few natural predators in their new environment, their populations can grow quickly and become difficult to control. Once they become established, removing them is challenging and expensive, making awareness and prevention especially important.

An **aquatic invasive species (AIS)** is an invasive species that lives primarily in water. This can include fish, mussels, crayfish, and aquatic plants. AIS can be found in all types of aquatic environments on PEI, from freshwater lakes, rivers, and ponds to brackish waters, estuaries, and the ocean.

What are Native Species?

Native species are plants, animals, and other organisms that have naturally evolved and adapted to a specific geographic region over time. They play important roles in maintaining healthy ecosystems and supporting biodiversity. On Prince Edward Island, examples of native species include brook trout, Atlantic salmon, red fox, American beaver, blue jay, Northern leopard frog, and red oak.

When invasive species become established, they can threaten the survival of native species, sometimes leading to endangerment or, in severe cases, local extinction. Protecting native species is essential for maintaining the balance and health of PEI's ecosystems.

Pathways of Spread

Invasive species are most often introduced to new areas through human activities (intentionally and unintentionally). Aquatic invasive species (AIS) in particular are commonly spread in two ways:

The most frequent pathway is "hitchhiking" on watercraft. AIS can attach to the hull of a boat, hide on a trailer, or travel in water left in the live wells or bilges of a boat, for example. AIS can also be introduced through the release of aquarium plants and pets (such as goldfish) into the wild or through the dumping of live fishing bait.

Educational programs such as "Don't Let it Loose" and "Clean, Drain, Dry", described below, help raise awareness and encourage people to take steps to prevent the spread of invasive species through these pathways.

Clean, Drain, Dry

The "Clean, Drain, Dry" program is designed to help people understand how aquatic invasive species can spread through the movement of watercraft. The program encourages everyone to clean, drain, and dry their boats, kayaks, canoes, and trailers (or other aquatic vessels) before moving them to a new waterbody.

Even if a watercraft looks clean, it can carry microscopic larvae, seeds, or plant material that are capable of starting a new invasion. By following the simple steps of cleaning, draining, and drying, people can play an important role in preventing the spread of invasive species and protecting PEI's lakes, rivers, and coastal waters.

You can learn more about the Clean, Drain, Dry program on our website (click here).

Don’t Let It Loose

The “Don’t Let It Loose” program promotes responsible pet ownership and discourages releasing aquarium pets or plants into the wild. Once introduced, aquarium pets—like goldfish—and plants can become invasive and threaten native species and ecosystems.

The program also highlights the risks of releasing live bait used for fishing. Bait released into a waterbody can become invasive and harm local ecosystems. Anglers are encouraged to dispose of unused bait on land or in the trash, rather than releasing it into the water.

You can learn more about the Don’t Let It Loose program on our website (click here).

Reporting Invasive Species

Reporting invasive species is critical to stopping their spread. Reports from the public can help identify new invasive species, define the leading edge of an invasion, or improve our understanding of their distribution on PEI. If you see a plant or animal that looks ‘out of place’, an area dominated by a single species, or an insect you don’t recognize and have concerns about, we encourage you to report it.

To report an invasive species:

- Take photos (the more the better, aiming to capture the defining features of the organism)
- Mark the location (street address, coordinates, map pin)
- Contact the PEI Invasive Species Council by email (peiinvasives@gmail.com) or on social media (@peiinvasives)
- Or submit your observation at www.iNaturalist.ca or using the iNaturalist smartphone app.

Acknowledgements

The development of this guide was made possible by the financial support of the PEI Wildlife Conservation Fund and the Forests, Fish and Wildlife division of the P.E.I. Department of Land and Environment. Thank you!

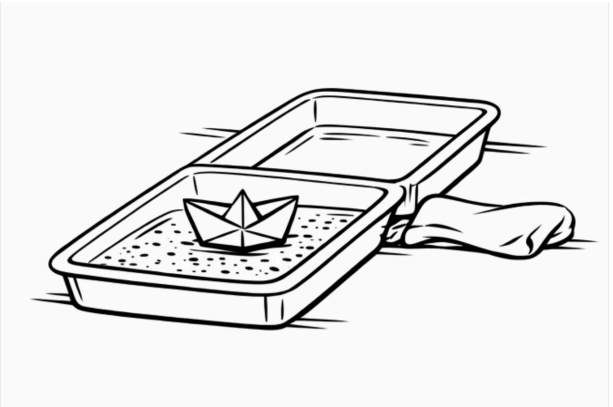
Boat Race!

Description:

In this activity, students will build and race simple paper boats through “invasive plant” infested waters and practice effective and responsible boat cleaning. This hands-on activity demonstrates how invasive species can be easily spread from one waterbody to another.

Materials:

- 4 plastic containers filled with water (ideally long and shallow)
- Standard 8.5x11 sheets of paper (to fold into boats, one for each student)
- Straws
- Dried parsley, dried oregano, or dried basil (or similar)
- Drying cloths/chamois
- Water



Set-up:

- Arrange the containers into two lanes. Each lane will have two containers lined up end to end. These will represent the two waterbodies that the students will race through.
- Fill all containers with water.
- Add dried herbs generously to the first container in both lanes. These will act as the “infested waterbodies”, with the herbs representing invasive plants in the water. This is where the students will begin their race.
- Leave the other two containers with only clean water. This is where students will finish the race.
- In each row, between the infested and clean containers, place a cleaning cloth. This is where students will remove their boats and try to clean off the “invasive plants”

Activity:

- Instruct students to fold their paper boats into shape from a standard sheet of printer paper. Simple instructions are included below which can be put on screen. At your discretion, students could decorate boats for added fun!

- Video instructions for boat folding click here: How to Make a Paper Boat.
- Split students into 2 teams. Each team will line up in front of one of the two rows of waterbodies. Give each student a straw.
- Let the race begin!
- One student from each team will place their boat in the water and use the straw to blow it from one end to the other of the first waterbody. They are likely to pick up some "invasive plant material" on their boat along the way.
- When they reach the cleaning station, they will clean off as much of the "invasive plant material" as they can in 10 seconds.
- After cleaning, the students will place their paper boats in the clean waterbody, and race to the finish line. Once a team member is finished, the next student in line can begin.
- Once everyone is finished students will see that despite their best efforts invasive plants have contaminated the clean waterbody.
- A winning team is declared! The students may think that the fastest team was the winner, however, the team with the least contaminated waterbody should truly be victorious.

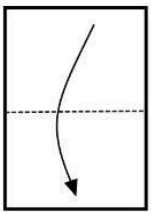
Discussion:

- Ask the students what they think the formerly "clean" waterbody might look like in a year's time, now that some of the invasive plants have made their way into it (even after they tried to clean their boats).
- Lead a discussion with the kids about how easily the "invasive species" spread from one waterbody to another.
- Discuss how aquatic invasive species can negatively impact the environment. Refer to the following questions as prompts:
    - What makes a species invasive? Name some traits of invasive species.
    - How can we prevent the spread of aquatic invasive species in Prince Edward Island?
    - Why is the "Clean, Drain, Dry" program important?
    - What should you do if you discover an invasive species?

Concepts:

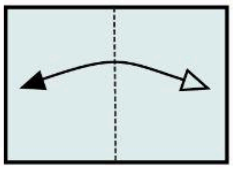
- Fortifies concepts of invasive species spread and prevention by teaching students how aquatic invasive species can be easily transported from one waterbody to another by hitchhiking on boats and similar watercrafts.

1



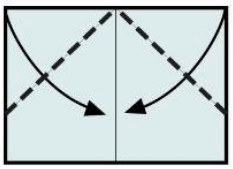
Start from a rectangle (ex. A4) Fold in half.

2



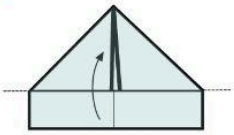
Fold in half and unfold.

3



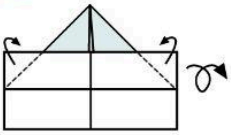
Fold to the center.

4



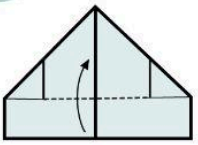
Fold the overlapping strip upwards.

5



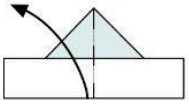
Fold corners backwards. Turn over.

6



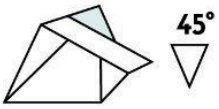
Fold strip upwards.

7



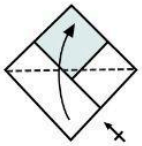
Open.

8



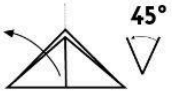
Opening in progress.

9



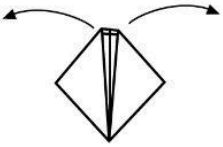
Fold triangle upwards. Repeat behind.

10



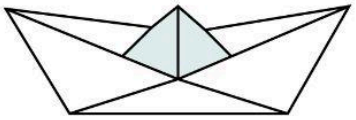
Open (like in the steps 7 and 8).

11



Take upper corners and stretch out.

12



you did it!

Instructions designed by Sofia Antzel, https://www.behance.net/antzelsofia

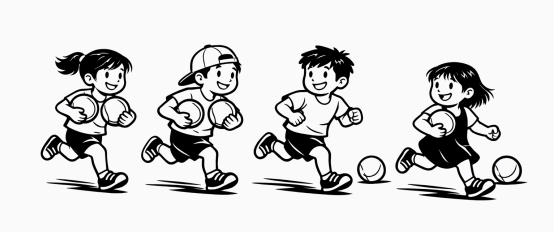
Goldfish Invasion Game

Description:

In this game, students will act as invasive goldfish and native brook trout competing for food in a pond. The students will race to collect food, but there is not enough food for everyone and the invasive goldfish have an advantage. Each round more students will become goldfish until the brook trout have been eliminated and goldfish have overrun the pond. This highlights how quickly aquatic invaders can outcomplete native species and take over an ecosystem.

Materials:

- Objects to symbolize fish food (tennis or foam balls work well)
- Optional: name tags, stickers, or similar to identify species roles



Set-up:

- In an open area (sports field, gymnasium) assign most students the role of native brook trout, one or two students should be assigned the role of the invasive goldfish.
- Set out tokens/objects representing the food around the area. There should be an even ratio of food to students.

Activity:

- Inform the students their goal for each round is to get a piece of food. Native brook tout can carry only one piece of food, invasive goldfish can carry two.
- Anybody who does not have a piece of food at the end of the round becomes (or remains) a goldfish. Once a student becomes a goldfish, they are in that role for the remainder of the game.
- On your signal, the students will run to collect their food. Once all food is collected the round is over. Students without food become goldfish.
- Rounds will continue until there are no native brook trout left.

Discussion:

- How easily the invasive goldfish were able to take over?
- Why were the goldfish able to so easily outcompete the native brook trout?
- Discuss the “Don’t Let It Loose” program, and how goldfish can negatively impact the environment when they are released into the wild.

- How can we prevent the spread of aquatic invasive species (like goldfish) in Prince Edward Island?
- Why is the “Don’t Let It Loose” program important?

Concepts:

- Teaches students how quickly an invasive species can outcompete native species and become established.
- Teaches students how invasive species can threaten native species by altering food webs.

Invasive Musical Chairs

Description:

This interactive game uses the familiar format of musical chairs to help children understand how invasive species disrupt native ecosystems. Chairs represent habitat, native fish represent local species, and zebra mussels represent invasive species.

Materials:

- 6 chairs
- 6 native species cards (optional, included in booklet)
- 10+ zebra mussel cards (optional, included in booklet)

Set-up:

- Set up 6 chairs in a circle like regular musical chairs.*
- Assign 6 students the role of a native fish (see native fish cards below).*
- Explain the importance of these fish in our native ecosystems. Explain that the chairs symbolize their homes (habitat).
- Assign the rest of the students the role of invasive zebra mussels.
- Optional - students' species roles can be identified by holding/wearing a printed species (included below).

* Numbers can be adjusted based on the amount of students participating.

Activity:

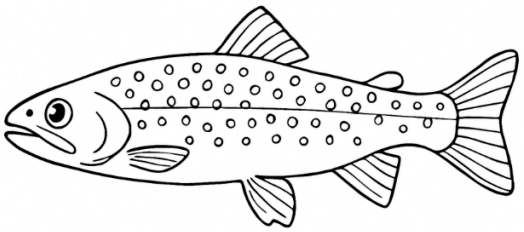
- Round 1: Three students (native fish) play a round with 6 chairs. All find seats, meaning they meet their survival needs.
- Round 2: Add the rest of the ‘native fish’ students, simulating population growth due to successful survival. All play again.
- Round 3: Add a couple of the students in the role of zebra mussels to the game. Now there are more students than chairs. Some won’t find seats, symbolizing limited resources. Zebra mussels who do not get a seat can stay in the game by touching the back of a chair, which symbolizes their abilities to attach on to surfaces.
- Native fish species who lose their habitat to a zebra mussel must leave the game. Continue until there are no native fish left.

Discussion:

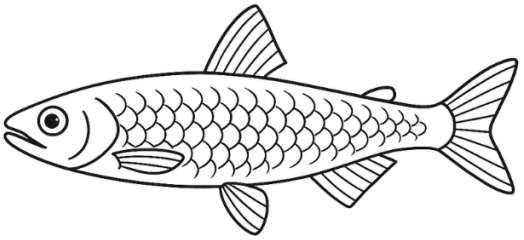
- How easily were the invasive zebra mussels able to take over? Why?
- How did the zebra mussels impact the native fish species?
- What makes a species invasive? Name some traits of invasive species.
- How can we prevent the spread of aquatic invasive species in Prince Edward Island?

Concepts:

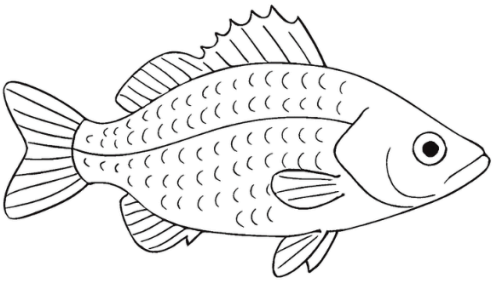
- Teaches children how the introduction of an invasive species can alter an ecosystem and threaten native species through competition for habitat.



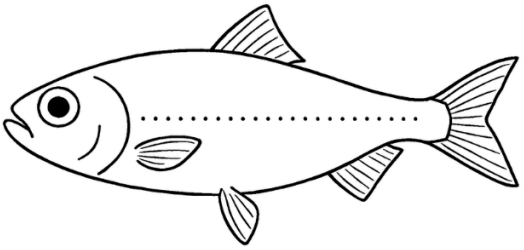
Brook trout (native species)



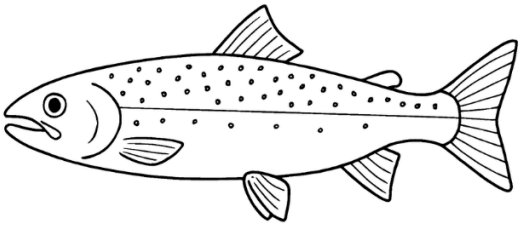
American smelt (native species)



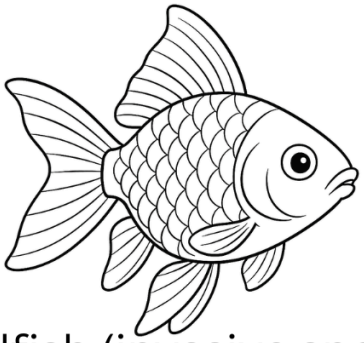
White perch (native species)



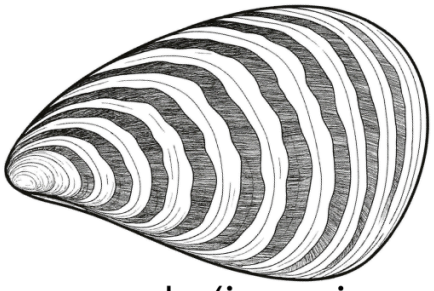
Gaspereau (native species)



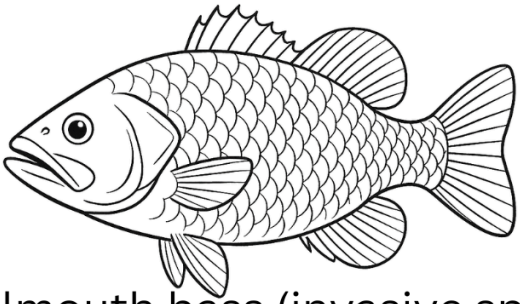
Atlantic salmon (native species)



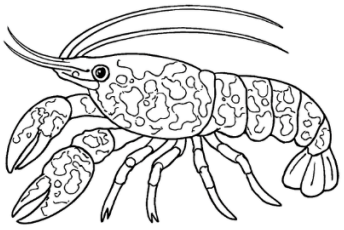
Goldfish (invasive species)



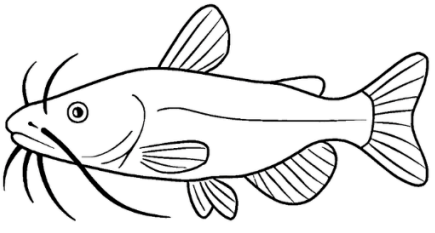
Zebra mussels (invasive species)



Smallmouth bass (invasive species)



Marbled crayfish (invasive species)



Brown bullhead (invasive species)

From Here or Away Game

Description:

This game helps students explore the difference between native, non-native, and invasive species in Prince Edward Island. By stepping to the side of the room marked “Here” or “Away,” students actively test their knowledge and learn how species introductions can impact local ecosystems. Can also be played as an in-class vote and discussion game.

Materials:

- From Here or Away Game slideshow (click here to download as PowerPoint)
- Open space (classroom, gymnasium)

Set-up:

- Organize students into a single file line.
- Set up a sign that indicates that “Here” is on the left side and “Away” is on the right side.

Activity:

- Show students photos of native, non-native, and invasive species from the sideshow (included as link above).
- Tell them to take a step to the left if they think the species is from here or to take a step to the right if they think the species is from away.
- Ask students why they have made their decision.
- Reveal the correct answer and continue to the next slide.

Discussion:

- What is a native species? What is an invasive species?
- What makes a species invasive? Name some traits of invasive species.
- Do any of these species share similar traits?
- How can we prevent the spread of invasive species in Prince Edward Island?
- Ask students to give examples of native species or invasive species that were not included in the game.
- What are some common traits of native species?

Concepts:

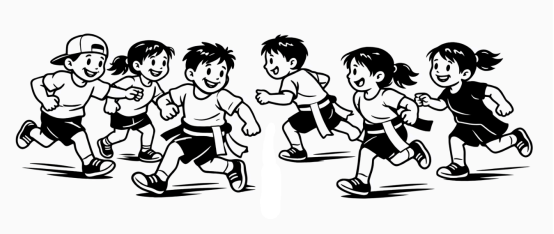
- Introduces the concepts of native, non-native, and invasive species.

Invasives Flag Tag

Description

Students explore the spread of invasive species through an energetic flag tag game. One student plays the invasive species while the others represent native species with flags. The invasive species tags players by removing their flags, turning them into invaders who then tag others. The game continues until all native species are converted, demonstrating how quickly invasive species can dominate an ecosystem.

Materials:



- Flag football flags
- Open space

Set-up:

- Give every child except for one a flag.
- The student without a flag is the tagger, also known as the invasive species.
- Explain to the other students that they are native species, such as brook trout or Atlantic salmon.

Activity:

- On your signal, the game begins and the invasive species will be released with the native species. The goal of the tagger is tag as many students as possible by ripping out their flags.
- Once a student has had their flag ripped out, they too become an invasive species and begin tagging others.
- The game will continue until the last native species has been tagged and only invasive species remain in the ecosystem.

Discussion:

- How do invasive species affect habitats?
- What did you notice about the ecosystem when the invasive species was introduced?
- Was it difficult or easy for native species to survive among invasive species?

Concepts:

- Demonstrates how quickly aquatic invaders can multiply and take over an ecosystem.

Going Fishin’

Description

Students learn to identify aquatic invasive species through a hands-on fishing game. Using a magnetic pole, they “catch” paper fish cards labeled with descriptions of native and invasive species. After reading the card, students decide whether to return the fish to the “pond” bucket or place it in the “invasive” bucket. The activity reinforces recognition of invasive traits, highlights their impacts on native ecosystems, and emphasizes the importance of not releasing invasive species back into the water.

Materials:

- Fake fishing pole (can be as simple as a stick with a string)
- Magnet
- Paper clips
- Images of aquatic invasive species (included in booklet)
- Images of native aquatic species (included in booklet)
- Two buckets
- Blue tissue paper (optional)

Set-up:

- Print and cut out the species cards included below.
- Fold cards in half and attach a paper clip.
- Attach a magnet to the end of the “fishing pole”.
- Label one bucket “invasive” and the other “pond”.
- Optional: add blue tissue paper to the buckets to give the appearance of water.

Activity:

- Students will cast the magnet into the bucket and fish until the pole has picked up a fish. They will reel the fish in and see what they have caught.
- The back of the image will describe the fish, hint at whether it is native or invasive, and discuss its impacts on the environment.
- Students will be told to put the fish back if they think it's native, or to put it in a separate “invasive” bucket if they think it's invasive.

- Ask the students why they chose their answer.
- **Answer key:** zebra mussels (invasive), brook trout (native), smallmouth bass (invasive), sickleback (native), brown bullhead (invasive), American eel (native), goldfish (invasive), Atlantic salmon (native), green crab (invasive).

Discussion:

- What traits do the invasive species share?
- What traits do the native species share?
- Why would we want to put the invasive species in a separate bucket instead of returning them to the water?

Concepts:

- Introduces specific native and invasive aquatic species.
- Teaches children about the impacts aquatic invasive species can have.
- Teaches children to not return invasive species to the water if caught.

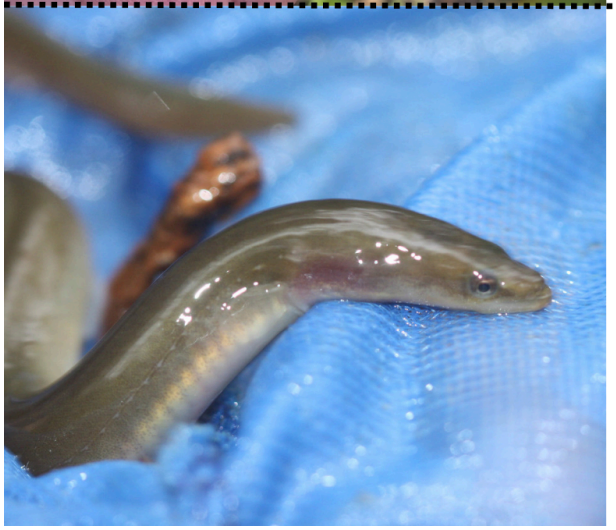
We are **zebra mussels**. Although we're small, we're mighty! We're able to attach ourselves to hard surfaces, and we like to take over the beds of streams and rivers- sometimes this causes problems for the local fish. Be careful! My shell is very sharp and can cut your feet!

I am a **brook trout**! I inhabit freshwater streams and rivers in PEI. I play an important role in freshwater food webs. People come from all over the world to fish me in PEI!

I am a **smallmouth bass**. I am a very aggressive fish from the Great Lakes that has no natural predators on Prince Edward Island. I have a big appetite and like to eat small fish, bugs and small frogs.

I'm a **stickleback**- a small, freshwater fish. On PEI, we have three different types of sticklebacks: threespine, fourspine, and ninespine. I play an important role in food webs by consuming small aquatic bugs. I can live in freshwater, saltwater, and brackish water.

I'm a **brown bullhead**- a type of catfish! I snuck onto the island in live bait. I've now taken over three ponds in PEI. Be careful when handling me, I have sharp spikes that can cause painful pokes and cuts.



I'm an **American eel**, a snake-like fish that lives in freshwater. I evolved naturally on the island, but unfortunately, my species is being threatened by overfishing and habitat loss.

I am a **goldfish**! I am commonly kept as a pet in aquariums and water gardens. I can lay hundreds of eggs and can spread very quickly!

I am an **Atlantic salmon**! I play an important role in freshwater environments, and live in some PEI rivers. I like streams and rivers with cobbly bottoms. I used to be more common on PEI, but silt and pesticides from farms, along with other factors, make it hard for me to thrive on the island.

I am a **green crab**! I can destroy eel grass beds in the ocean by cutting through them like a lawnmower. I also love to eat lobsters right inside their traps. In 2025 over 70,000 green crabs were removed from the waters around Basin Head.

I am a **rainbow trout!** I may spend part of my life in the ocean but will return to my freshwater birthplace to lay eggs.

I compete with Atlantic salmon and brook trout for habitat. I have an advantage because I can withstand higher water temperatures than they can.

No fish here! Your line got snagged and pulled up a clump of **Canada waterweed**.

Canada waterweed creates dense mats of plants that can clog up a waterway and block the movement of fish and even boats!

I am a **rainbow smelt**! I'm an important food source for larger predatory species like Atlantic salmon and Atlantic cod. I'm also popular with humans who catch me using 'dip nets'.

Invasive Species Wanted Poster

Description:

Students creatively explore the concept of invasive species by designing a “Wanted” poster for an invasive species on their own creation. Each student receives a blank poster template to invent an imaginary invader, highlighting traits that make it harmful to native ecosystems. Once completed, students present their posters to the class, sparking discussion on what defines an invasive species, how they spread, and strategies for prevention in Prince Edward Island. The activity reinforces understanding of invasive vs. non-native species while encouraging creativity and critical thinking.

Materials:

- “Wanted Poster” activity sheet (included below)
- Pencils, erasers, colouring pencils, markers, etc.

Set-up:

- Give examples of invasive species and why they are “wanted” (their consequences on the ecosystem).
- Hand each student a copy of a blank “Wanted” poster.

Activity:

- Based on what students have learned on invasive species, they will create their own imaginary invasive species on the provided “wanted” sheet.
- Students will choose the species type, habitat, and impacts from the lists.
- Once the students have completed their posters, the students can individually present their posters to the class.

Discussion:

- Did any of these invasive species share similar traits?
- Has anyone seen any similar species in the wild?
- What should you do if you discover an invasive species?

Concepts

- Introduces concepts of invasive species and how they negatively affect the environment.

WANTED

SPECIES NAME:_____

PLEASE REPORT TO THE PEI INVASIVE SPECIES COUNCIL

SPECIES TYPE: Fish Plant Shellfish

HABITAT: Ocean Pond River Beach Wetland

IMPACTS:

Harms the environment

Harms people

Takes food away from native species

Takes habitat away from native species

Chases away native species

Eats native plants and animals

Makes water murky

Clogs waterways

Spreads very quickly

Hurts the fishing industry

Poisons predators

QUESTION: How would you prevent this invasive species from spreading to new areas?

Ecosystem Stewards Board Game

Description:

Students learn about invasive species through an interactive board game. Each group receives a deck of cards, game pieces, a board sheet, and a legend. Players take turns drawing cards, following the legend's instructions, and moving their pieces accordingly. The first to reach the end wins. The game reinforces key concepts of invasive species impacts and prevention.

Materials:

- Standard deck of cards
- Printed board game sheet (included below)
- Printed card legend (included below)
- Game pieces (can use anything you like)

Set-up:

- Divide up students into small groups.
- Give each group of students a deck of cards, game pieces, a printed copy of the board game sheet, and a printed copy of the game legend.

Activity:

- Students will place their game pieces at "Start" space on the gameboard.
- One at a time, students will choose a card from the shuffled deck and find the card on the legend.
- Students will read what their card says, and move their piece accordingly.
- The first student to reach the end of the game wins.

Discussion:

- How can we prevent the spread of invasive species in Prince Edward Island?
- How do invasive species affect the environment?

Concepts:

- Introduces concepts of the impacts of invasive species on the environment and the ways they spread.

Ecosystem Stewards Card Legend

Ace of Hearts A♥	After fishing, you disposed of your bait on land in the garbage instead of dumping it into a waterbody. Great job! Advance two spots.
Ace of Clubs A♣	You no longer want your pet goldfish so you dump it in a local pond, where it becomes invasive and threatens local flora and fauna. Skip your next turn.
Ace of Diamonds A♦	You taught your family about invasive species! Great job! Advance two spots.
Ace of Spades A♠	You forgot to clean off your fishing gear after use and spread invasive species to a new waterbody! Move back one spot.
Two of Hearts 2♥	You spotted an invasive species in the wild and recorded it on iNaturalist. Thank you! Advance three spots.
Two of Clubs 2♣	You failed to clean, drain and dry your kayak after you and your family used it- this caused the spread of invasive species! Move back two spots.
Two of Diamonds 2♦	You taught a friend about the “Don’t Let It Loose” program. Great work! Advance two spots.
Two of Spades 2♠	You chose to plant native flowers in your garden, instead of non-native/invasive flowers. Bravo! Advance two spots.
Three of Hearts 3♥	You spotted an invasive species and did not report it. Skip your next turn.
Three of Clubs 3♣	While fishing, you caught a brown bullhead. You reported it to the PEI Invasive Species Council and did not return it to the water. Great work! Advance three spots.
Three of Diamonds 3♦	You felt too tired to properly dispose of live bait, so you dumped it into a waterbody. Move back one space.
Three of Spades 3♠	Instead of letting your goldfish loose when you no longer wanted it, you made an appointment and surrendered it to the PEI Humane Society. Advance three spots
Four of Hearts 4♥	You discovered zebra mussels in a PEI river and didn’t report them to the PEI Invasive Species Council! Move your game piece back two spots.

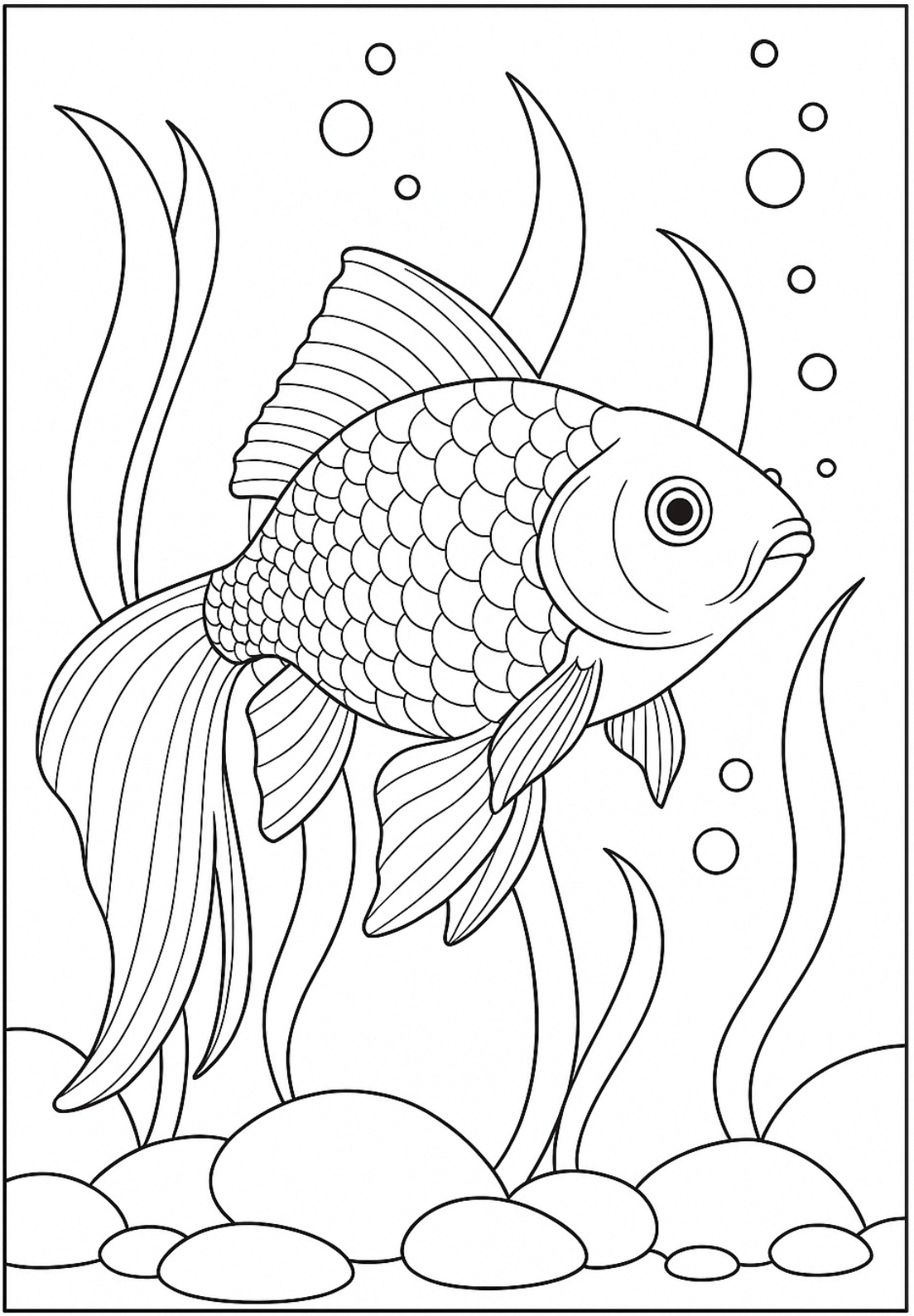
Four of Clubs 4♣	You taught someone about the importance of the “Clean, Drain, Dry” program. Advance three spots.
Four of Diamonds 4♦	When fishing with your family, you caught an invasive brown bullhead. You returned it to the water, where it continued to harm the ecosystem. Remain on your tile and lose your next turn.
Four of Spades 4♠	You notice an invasive plant on your friend’s property and let them know. Advance two spots.
Five of Hearts 5♥	You brought firewood to PEI from another province and caused an Emerald ash borer infestation! Move back two spots.
Five of Clubs 5♣	You brought firewood to PEI from another province. You realized it could spread invasive species so you used our firewood disposal bins. Great work! Move forward one space.
Five of Diamonds 5♦	You hiked a trail with your family and used a boot brush to clean off your shoes before leaving. You prevented the spread of invasive species! Move forward three spots.
Five of Spdes 5♠	Oh no!!! You planted Giant hogweed- a plant that takes over quickly and can cause harmful burns to humans and animals. Move back one spot and skip your next turn.
Six of Hearts 6♥	You planted native trees on your property! Great job! Advance two spots.
Six of Clubs 6♣	You did not clean off your shoes after pulling invasive plants and spread them to a new area. Move back one spot.
Six of Diamonds 6♦	You removed an invasive species in a natural area! Keep up the great work! Move forward three spots.
Six of Spades 6♠	You saw an invasive species growing in a ditch and thought it looked nice. You took some and planted it in your yard. Move back one space.
Seven of Hearts 7♥	You and your family removed a Norway maple at your house and planted a sugar maple in its place. Advance two spots.
Seven of Clubs 7♣	You dumped aquarium plants into a stream, and they became invasive! Move back one spot.
Seven of Diamonds 7♦	You disposed of invasive species properly by putting them in a plastic bag, labelling it “INVASIVE” and putting them in the black bin. Advance three spots.

Seven of Spades	7♠	You planted invasive Wild parsnip in your vegetable garden. This species spreads quickly and can cause severe burns. Skip your turn.
Eight of Hearts	8♥	You helped remove goldfish from a local pond! Advance one spot.
Eight of Clubs	8♣	The invasive glossy buckthorn took over the woods behind your house. Move back one spot
Eight of Diamonds	8♦	You visited the PEI Invasive Species Council website and learned about invasive species through our resources! Advance three spots.
Eight of Spades	8♠	Oh no! Your favourite beach has been infested by European green crabs! They have begun to destroy the ecosystem. Skip your turn.
Nine of Hearts	9♥	You went duck hunting and cleaned your decoys before moving to another waterbody. Great job! Move forward one space.
Nine of Clubs	9♣	You purchased a shrub without checking to see if it is native. Move back two spaces.
Nine of Diamonds	9♦	You and your classmate did a project on invasive species to learn more about them.Great effort! Move forward two spaces.
Nine of Spades	9♠	You disposed of invasive plant material in the compost instead of the waste bin. Please move back one space.
Ten of Hearts	10♥	You consulted our “Grow Me Instead” guide before planting season! Great job! Advance three spots.
Ten of Clubs	10♣	You planted English ivy in your flower bed and it spread into the wild! Move back two spots.
Ten of Diamonds	10♦	You discovered a crayfish while fishing and reported it to the invasive species council. You did not return it to the water.Thank you! Move forward three spaces.
Ten of Spades	10♠	You watched as a friend released a pet turtle into the wild and did not stop them. Skip your turn.

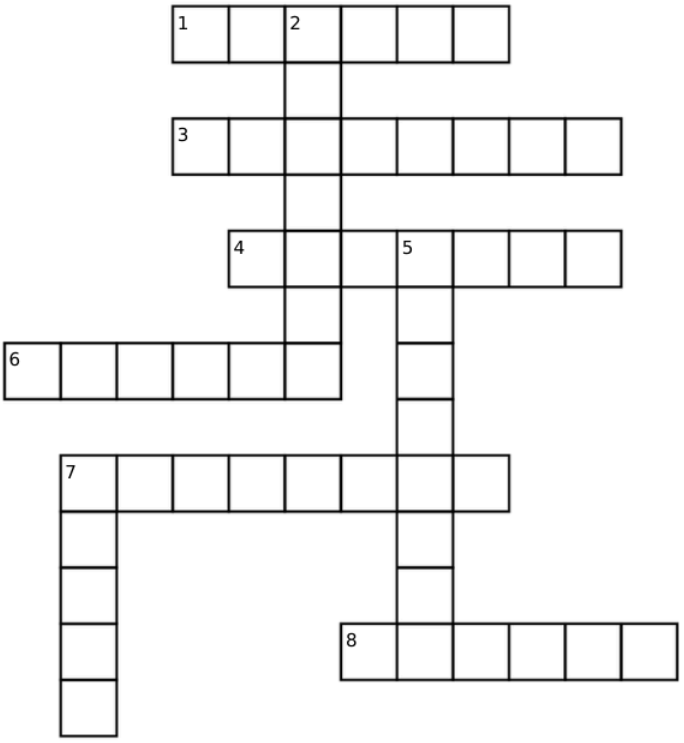
Jack of Hearts J♥	You bought wildflower seeds and planted them in your flowerbed. These flowers were not native and took over the flower bed. Move your game piece back two spots.
Jack of Clubs J♣	You stopped someone from releasing their red-eared slider into the wild. Great work! Advance three spots.
Jack of Diamonds J♦	Oh no! Zebra mussels invaded the creek behind your house. Move back one space.
Jack of Spades J♠	You planted blue flag iris instead of the invasive yellow flag iris! Advance three spaces.
Queen of Hearts Q♥	Oh no! Invasive Lesser periwinkle has escaped from your garden and has taken over your property. Move back one space.
Queen of Clubs Q♣	You helped your neighbour remove garlic mustard from their yard. Great team work! Move forward three spaces.
Queen of Diamonds Q♦	Oh no! You mistook a native species for an invasive species and removed it from its natural environment! Move back one space.
Queen of Spades Q♠	You learned about the invasive species affecting your community! Good job! Advance 3 spots.
King of Hearts K♥	Uh oh! You released a pond loach into the wild instead of surrendering it when you could no longer care for it. The loach became invasive and displaced native fish. Move back three spaces.
King of Clubs K♣	Woohoo! You educated your neighbour on the dangers of their english ivy patch. They began management! Move forward three spaces.
King of Diamonds K♦	You said that invasive species only become a problem if they start affecting you. Move back two spaces.
King of Spades K♠	You encouraged your friends to learn about invasive species and how they are affecting PEI wildlife.


START!
FINISH!

Printable Activity Sheets



Crossword Puzzle



Down:

2. A common way invasive species can be spread.

5. Non-native species that spreads rapidly causes ecological harm.

7. Doing this after enjoying nature can help to prevent the spread of invasive species.

Across:

1. The habitat of plants and animals that live in the sea.

3. A common aquarium fish that can become invasive when released!

4. The natural homes and environments of animals and plants.

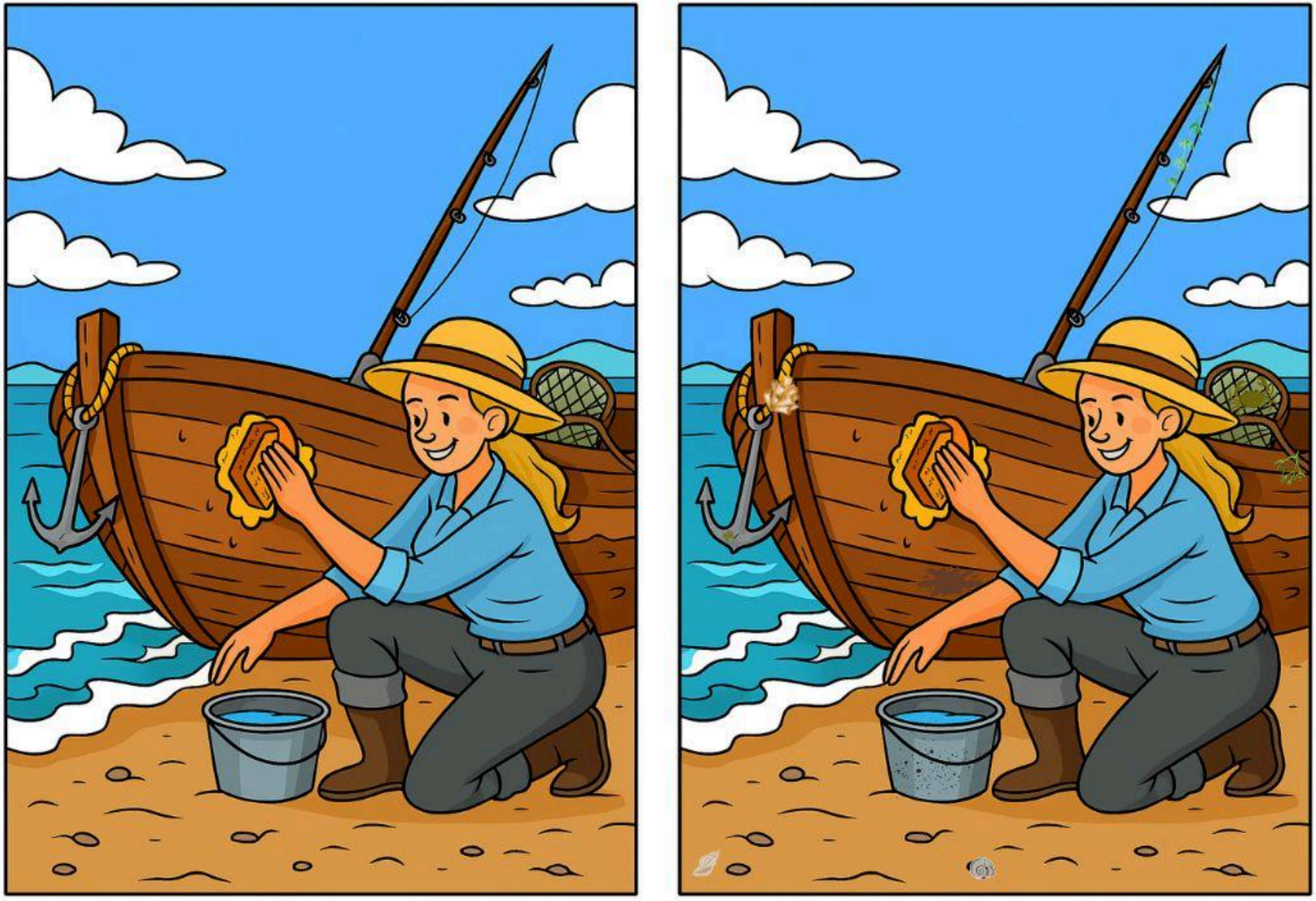
6. A plant of animal that occurs naturally on PEI.

7. Invasive shellfish similar in appearance to a lobster

8. What you should do if you encounter an invasive species.

Answer bank: Marine, Release, Goldfish, Habitat, Crayfish, Invasive, Native, Clean, Report

Help prevent the spread of invasive species by spotting the 10 differences between these images!



Draw lines connecting the words with the correct definitions

Invasive species	A common action that leads to invasive species spreading into a new area
Ecosystem	A method used to prevent the spread of invasive species
Native species	A community of living and non-living things in an area
Release	A plant or animal that has evolved naturally on PEI
Decontamination	A plant or animal that moves to a new area and causes to wildlife, nature, and/or people

Word Search

D	F	Q	A	B	N	I	B	A	H
R	F	W	J	E	G	N	T	Q	A
A	G	D	T	C	R	V	C	U	B
I	O	R	U	O	E	A	R	A	I
N	L	Y	N	S	E	S	A	T	T
B	D	C	I	Y	N	I	Y	I	A
O	F	L	C	S	C	V	F	C	T
A	I	E	A	T	R	E	I	O	L
T	S	A	T	E	A	Q	S	J	D
I	H	N	E	M	B	H	H	E	E

green crab
crayfish
aquatic
drain

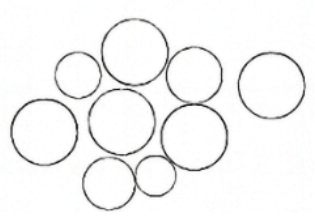
invasive
tunicate
clean

ecosystem
habitat
goldfish

boat
dry

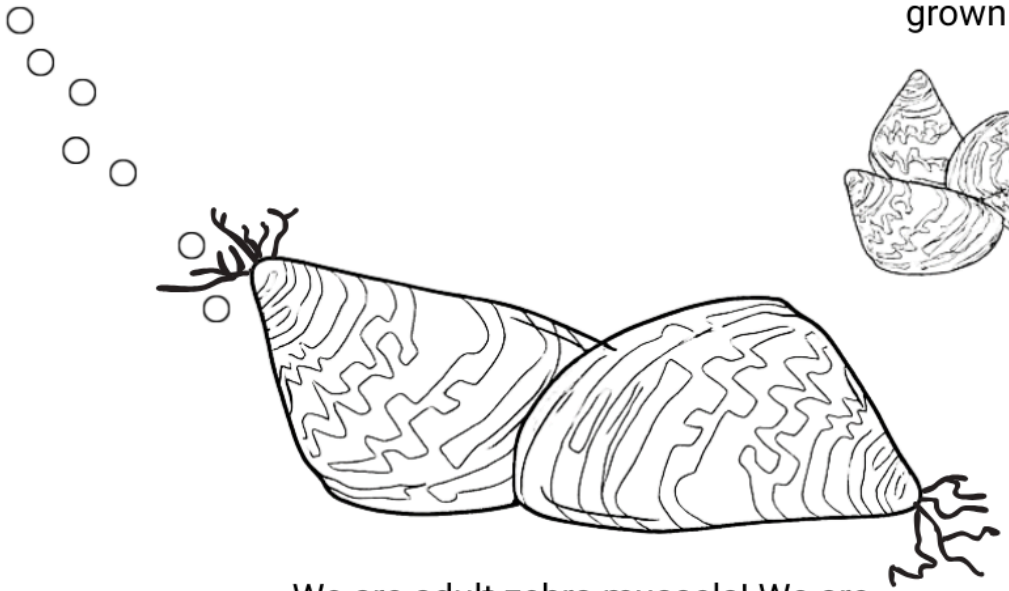
The Life Cycle of Zebra Mussels

We are young zebra mussel larva, known as “veligers”. We are very small and not visible to the naked eye! At this time, we float freely with the help of water currents.



We are zebra mussels eggs that have just been released into the water!

We are juvenile zebra mussels that have settled on the bottom of lakes, rivers and ponds. We only become fully grown after 1 year!



We are adult zebra mussels! We are between 2 cm and 4 cm in size and have an average lifespan of 5 years. We like to attach ourselves to things using our thin, hair-like byssal threads.

Glossary

Bilge water	A mixture of potential contaminants and water from outside of the vessel that collects inside of the bilge (the lowest inner part of a ship's hull). The expulsion of bilge water is a common pathway for the spread of aquatic invasive species.
Brackish water	An area where the water is a mixture of freshwater and saltwater. E.g: estuaries.
Culturally significant species	In this context, a species that holds cultural, historical, and spiritual value to indigenous people.
Displacement	The forced movement of plants and animals from their natural habitat.
Ecosystem	A community of living organisms.
Established	The formation of stable/lasting populations.
Invasive species	An organism outside of its native range that causes harm to native species, humans, and/or the economy.
Native species	An organism that has evolved naturally in a particular geographical location.
Non-native species	A species that is introduced to a location outside of geographical range.
Outcompete	Displacing a species by surpassing them in competition for food, habitat, resources, etc.
Pathways	How invasive species spread from one geographical area to another .
Resources	In this context, it refers to food sources and habitat.
Riparian	Natural transitional area between land and a waterbody such as a stream.

Invasive Species List

- **Brown bullhead:** Native to much of Eastern Canada, including Nova Scotia and New Brunswick but considered invasive on PEI. Present on PEI. It is thought that Brown bullheads were introduced to PEI through bins of gaspereau brought over from the mainland for lobster bait.
- **Canada waterweed:** Native to much of Eastern Canada but considered invasive on PEI. Present on PEI. Likely introduced through the dumping of aquarium contents into the wild.
- **Crayfish:** No crayfish are native to PEI. None currently present on PEI. Many invasive crayfish have been introduced to new areas from the dumping of aquarium contents into the wild.
- **European water chestnut:** Native to Europe. Not present on PEI. Most likely introduced through contaminated watercrafts or illegal release of water garden contents.
- **European water lily:** Native to Europe. Present on Prince Edward Island. Likely introduced through the dumping of tank/water garden contents into the wild.
- **Flowering rush:** Native to Eurasia and Africa. Has been recorded in one small area in western PEI. Likely introduced to the island as an ornamental water garden plant, but could also have been introduced through the ballast waters of boats.
- **Goldfish:** Native to Asia. Present on Prince Edward Island. Commonly introduced due to the dumping of aquarium/water garden contents into the wild.
- **Green crab:** Native to Europe. Present on Prince Edward Island. Introduced through the ballast waters of ships.
- **Pond loach:** Native to East Asia. Not present on PEI but present in Nova Scotia. Commonly introduced through the aquarium trade.
- **Red-eared slider turtle:** Native to the southern United States. Not present on PEI. Commonly introduced through the pet trade.
- **Smallmouth bass:** Native to Eastern and Central North America. Not present in Prince Edward Island but present in New Brunswick and Nova Scotia.
- **Tunicates:** Many are native to Europe. Present on Prince Edward Island.
- **Yellow flag iris:** Native to parts of Europe and northern Africa. Present on Prince Edward Island. Introduced as an ornamental garden flower.
- **Zebra mussels:** Native to the Black and Caspian Seas (Russia, Ukraine). Not present on PEI. Introduced to North America through the ballast waters of international ships.

Native Species List

- **American eel:** Snake-like fish that lives in freshwater and spawns in saltwater.
- **American smelt:** Fish species that can travel between freshwater and marine environments; spawns in freshwater.
- **Atlantic salmon:** Culturally significant native fish that migrates between freshwater and marine environments.
- **Blue flag iris:** Native flowering plant common in riparian areas.
- **Brook trout:** Freshwater sportfish found in island streams.
- **Gaspereau:** Freshwater fish native to Prince Edward Island. Commonly used for lobster bait.
- **Rainbow smelt:** Marine fish that migrates to freshwater to spawn. Populations have significantly declined due to overfishing and loss of habitat.
- **Stickleback:** Native fish that migrates between freshwater, marine, and brackish environments.
- **White perch:** Freshwater fish related to striped bass. Popular fish among recreational anglers.