

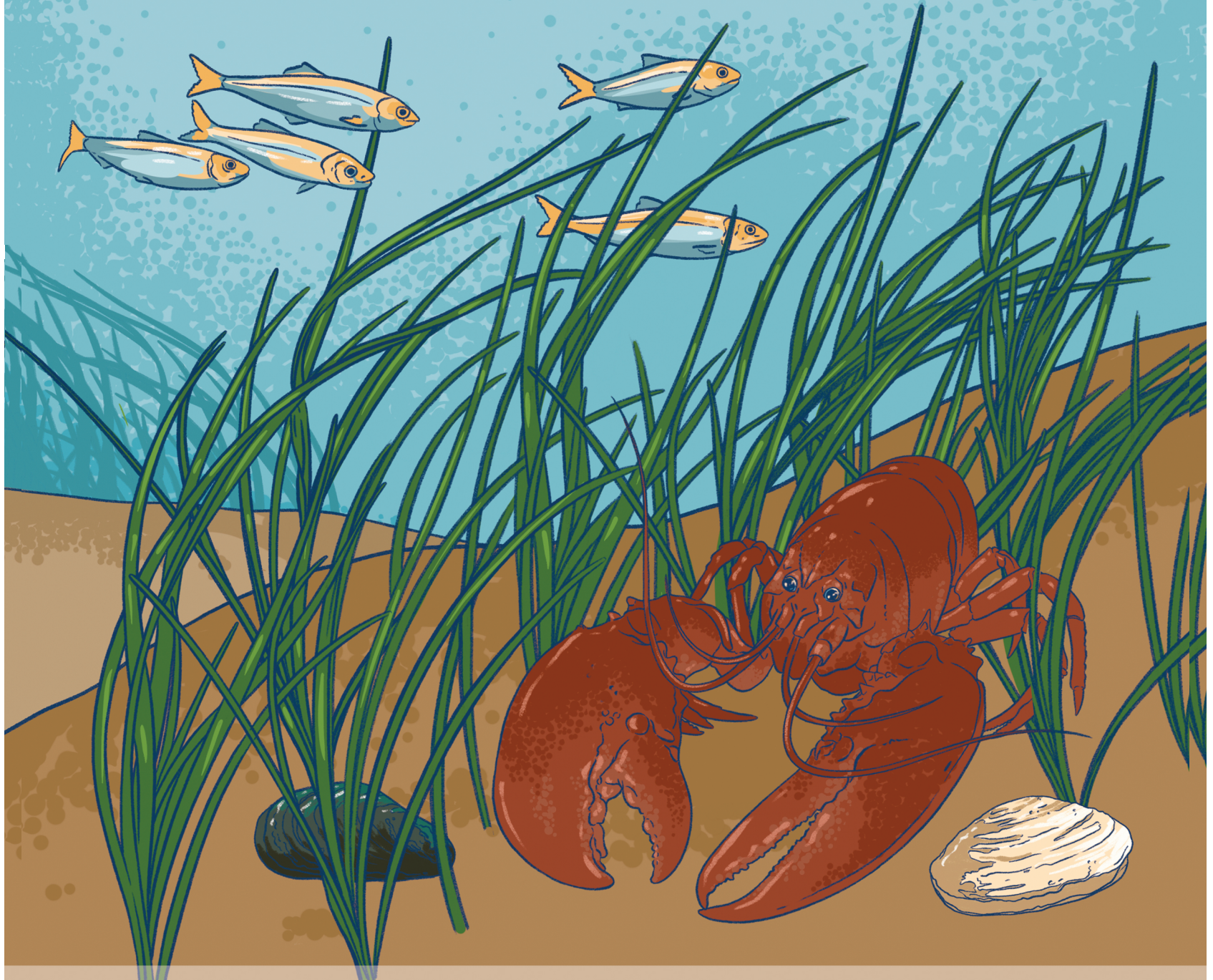


Fisheries and Oceans
Canada

Pêches et Océans
Canada

THE MARINE REFUGE OF THE MAGDALEN ISLANDS LAGOONS

Dive in with us to discover the extraordinary species that inhabit the St. Lawrence!



Canada 

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Maxime: "Welcome to Fisheries and Oceans Canada's team. My name is Maxime, I'm a biologist and a scuba diver!"

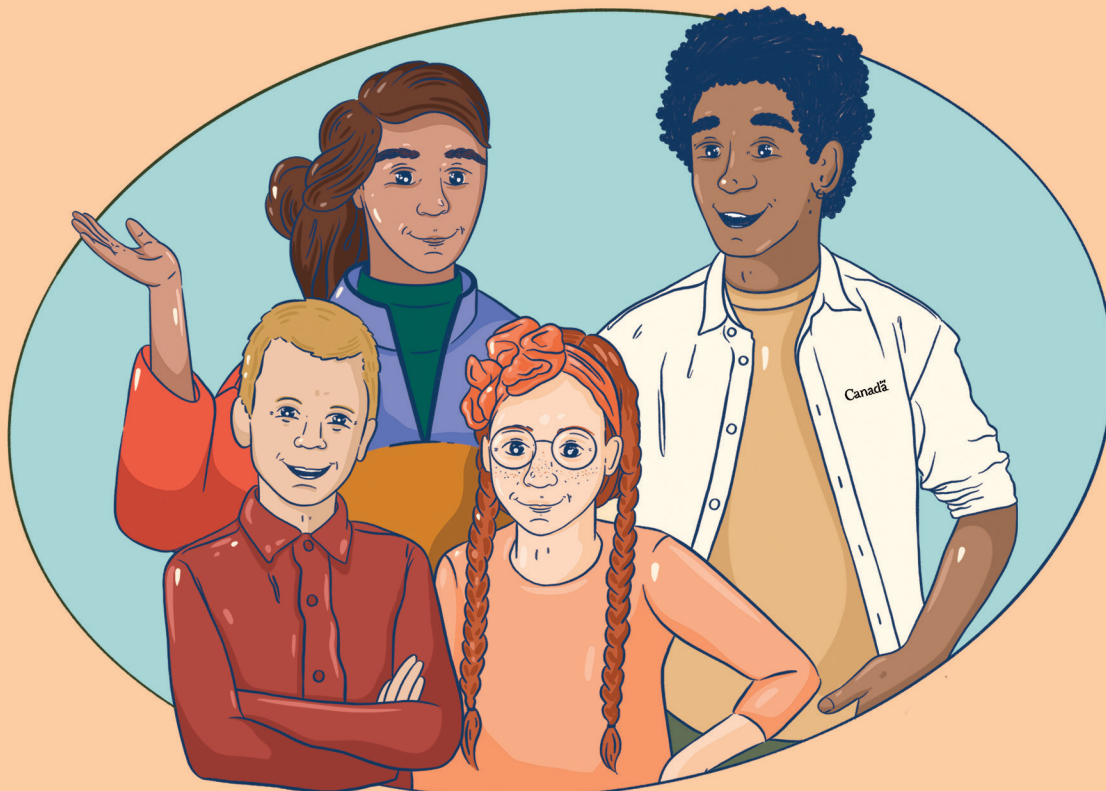
Elie: "I'm Elie and I'm also a biologist. I love going out to sea to observe and collect species and study them in the lab."

Maxime: "Our team's mission is to protect Canada's oceans! We collaborate with First Nations, several federal departments, provincial governments and local community members to establish and manage marine conservation areas. These areas are important for ecosystems and are subject to special protection measures."

Elie: "For example, we create marine refuges to protect certain species that may be endangered by certain types of fishing. By limiting the use of fishing gear such as nets or traps, we establish areas where marine organisms can live peacefully. Each refuge has its specific regulations, adapted to the reality of the protected species. This means we can protect the marine environment while continuing to experience nature responsibly."

Maxime: "That's right, these conservation area measures are a bit like the rules at the swimming pool: you're not allowed to run to avoid slipping and hurting yourself, but you can still enjoy a bunch of activities like jumping off the diving board, swimming or playing Marco Polo!"

Elie: "Let's go on a mission!"



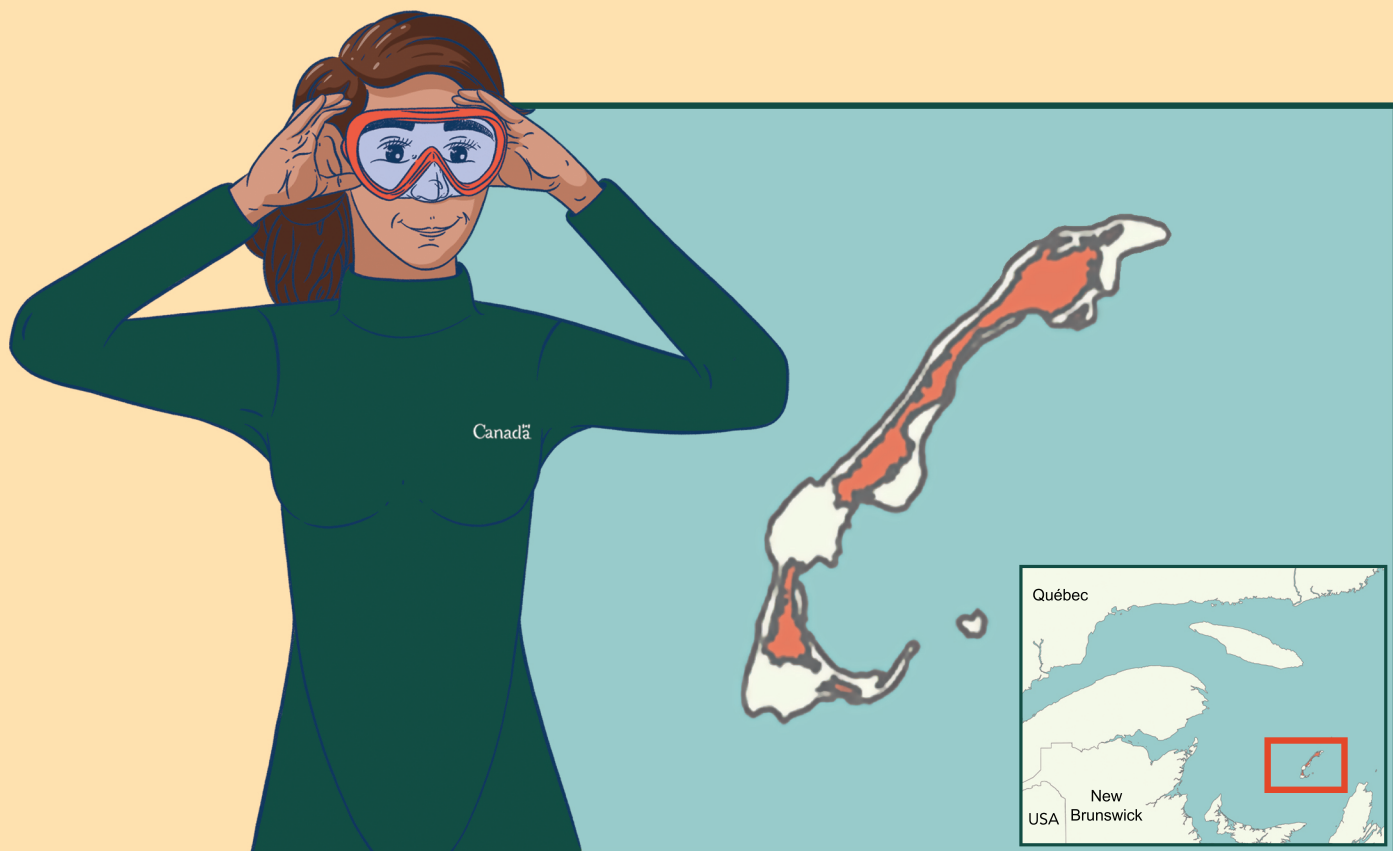
OUR MISSION

While Elie explores the coral and sponge marine refuges, we'll be diving into the marine refuge of the Magdalen Islands lagoons. This refuge protects lobsters and the spawning areas of herring, a small silvery fish. It encompasses five lagoons.

Check out the map to understand what a lagoon is: a body of water surrounded by islands and sandbanks. This living environment is home to many species, from tiny fish and crustaceans to large mammals such as seals!

Eelgrass is a plant that creates underwater meadows or beds which grow on the bottom of the lagoons. This tall grass protects small animals from predators, while other species prefer to eat it or breed in it. Around eelgrass beds, you'll also find areas of sand and rocks that provide plenty of hiding places, perfect for baby lobsters!

To protect the animals and their habitat, the use of certain fishing gear is prohibited in this marine refuge. Come and learn more about the importance of lagoons and how you can help protect them!



Now it's your turn! Come with me to meet the lobsters and herring, and crawl into the eelgrass bed. At the end of the activity book, you can learn more about other marine conservation areas in the St. Lawrence and get your mission certificate. You'll discover how we can all help protect the lagoons and the species that live in them. You can check your answers on pages 18 and 19.

Hope you like getting wet, we're about to dive in!

FIRST NAME

AGE

HEIGHT

FOR YOUR WETSUIT

SHOE SIZE

FOR YOUR FINS

CAN YOU SWIM?

☐

YES

☐

NO

**HAVE YOU EVER BEEN
SNORKELLING?**

☐

YES

☐

NO

**HAVE YOU EVER EATEN
LOBSTERS OR CRABS?**

☐

YES

☐

NO

**SKETCH YOUR
FAVOURITE MARINE
ANIMAL.**

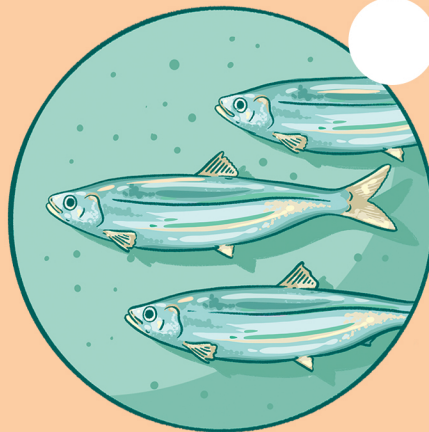
THE FOOD CHAIN

Before we go, let's talk a bit about biology. The creation of the Magdalen Islands Lagoons Marine Refuge contributes to the protection of an entire food chain, by targeting one of its components: the herring. A food chain is a series of species that eat one another. Usually, the predator is bigger than the prey. The food chain often begins with a plant that is eaten by a herbivorous animal. Next comes a carnivore or omnivore. You see, when we protect one species, we protect all the species that feed on it!



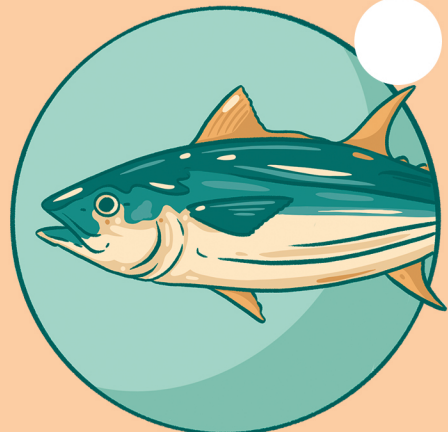
ZOOPLANKTON

Microscopic animals that live suspended in water.



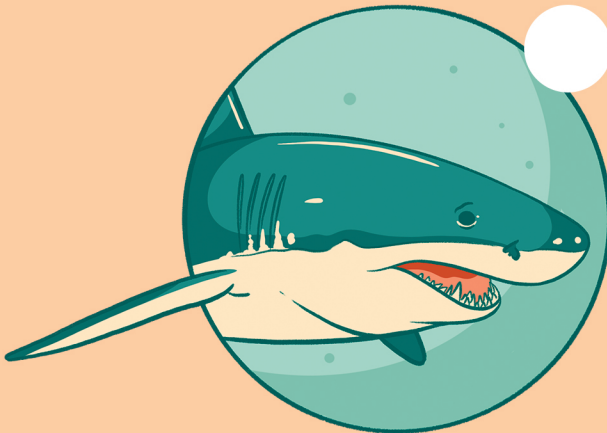
HERBIVORE & SMALL PREDATOR

Small animal that feed on tiny plants or animals.



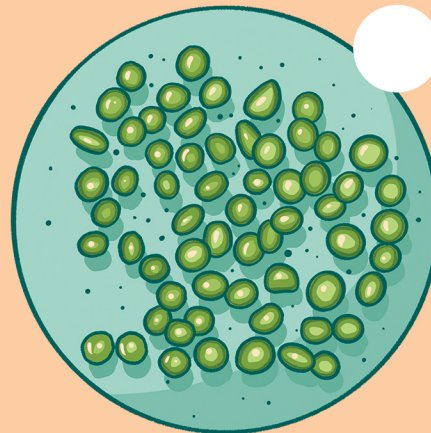
PREDATOR

An animal that eats other animals.



LARGE PREDATOR

Large animal that feeds on other animals.

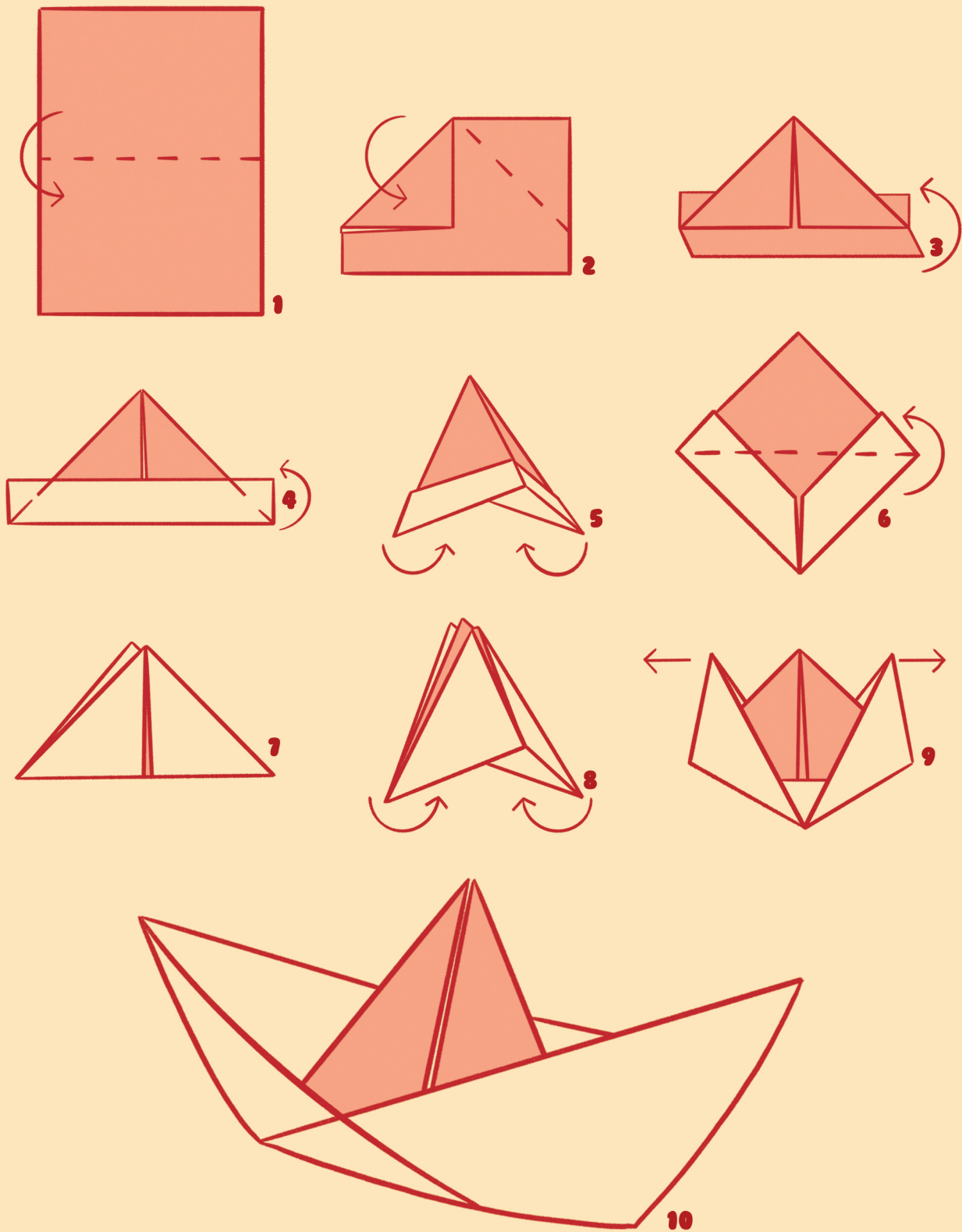


PHYTOPLANKTON

Microscopic plants that produce food from sunlight.

INSTRUCTIONS

Write a number from 1 to 5 in the little blank bubbles to put the food chain in the right order, 1 being the smallest and 5 the largest.



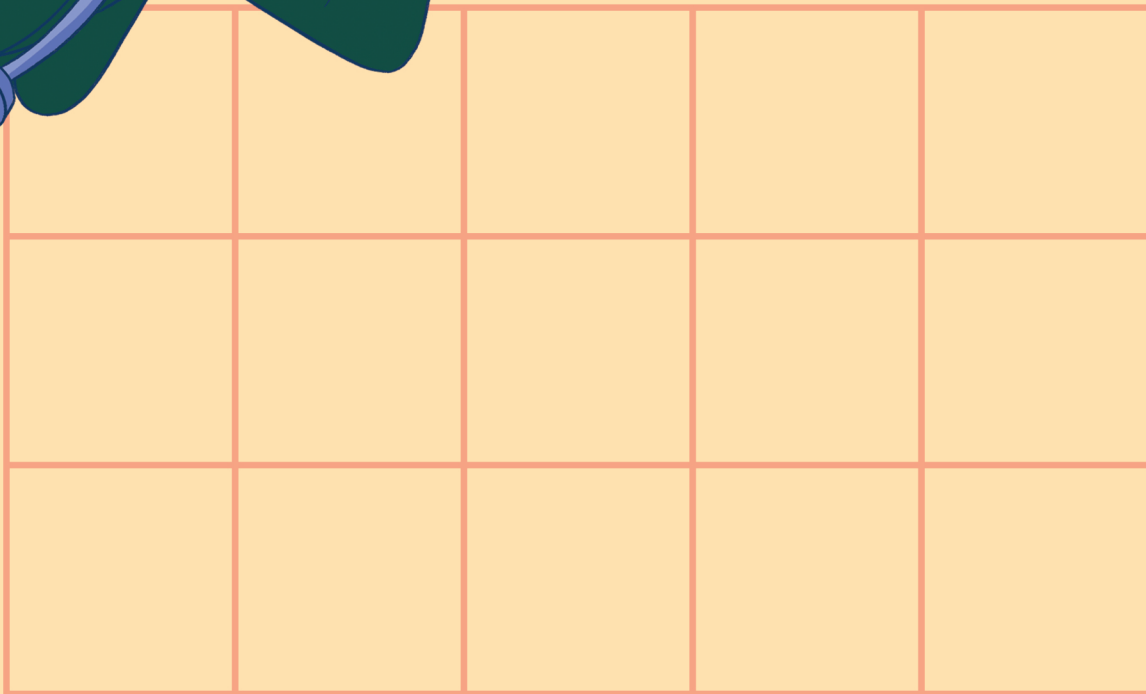
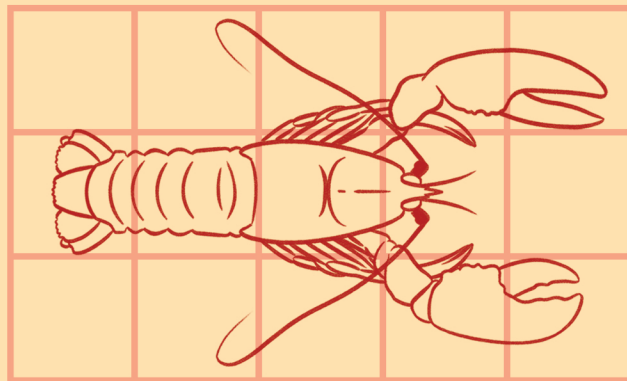
INSTRUCTIONS

Let's board our research boat and head for a lagoon. Take a sheet of paper and follow the instructions to build our research boat!

THE LOBSTER

Can you see this lobster hidden in between the rocks? It's already reached its adult size, but unlike humans, it will continue to grow for the rest of its life. And it can live a long time—up to 100 years!

Adult female lobsters lay eggs. When they hatch, larval lobsters are only 8 mm long—the size of a pea! They will change shells 20 to 30 times to reach their mature size. That's when we can capture them. The shell-changing process is called moulting.



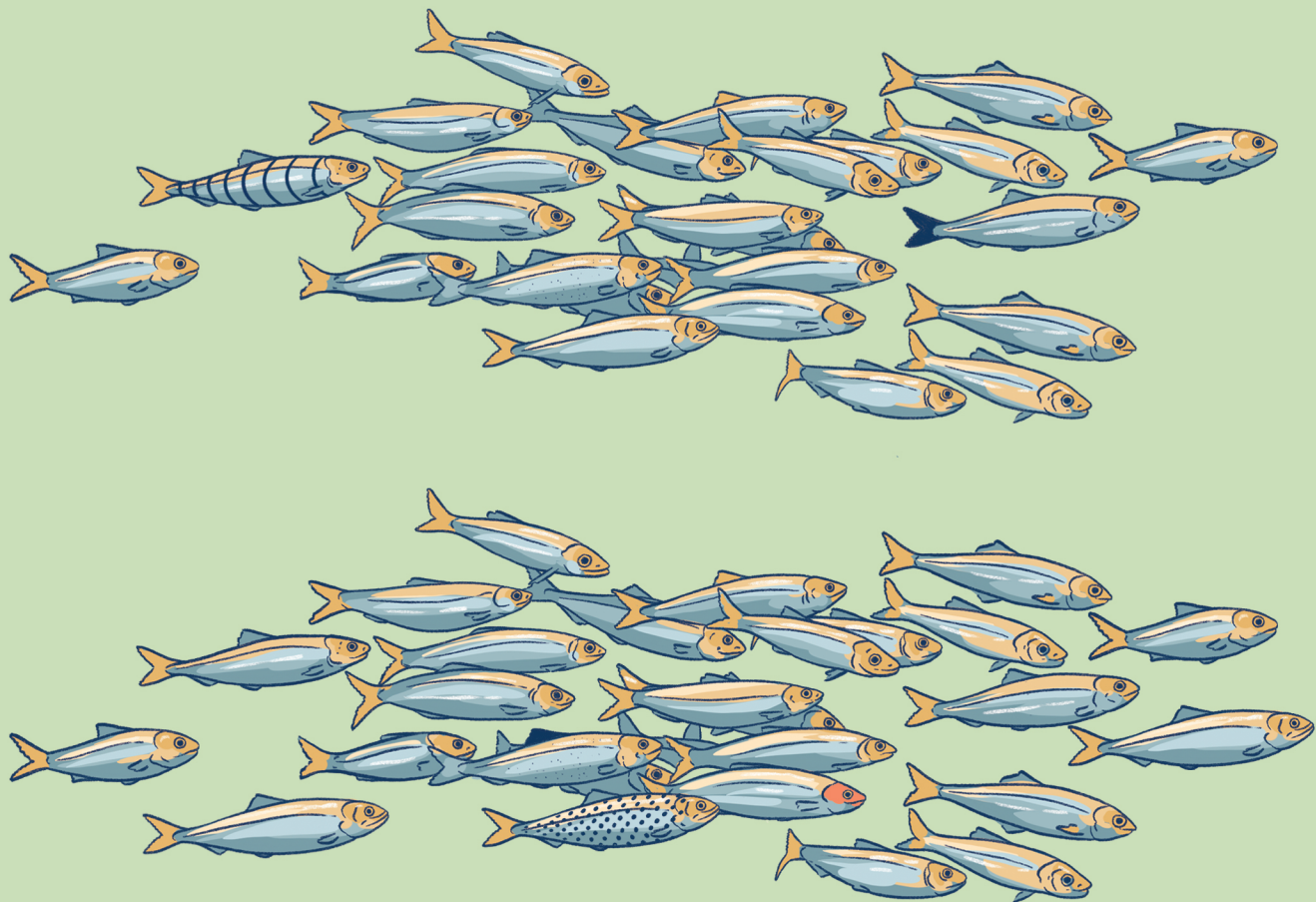
INSTRUCTIONS

Use the grid to draw the lobster after it has moulted several times.

THE HERRING

Oh, a school of herring! This silvery fish is not a loner. They're always found in large groups.

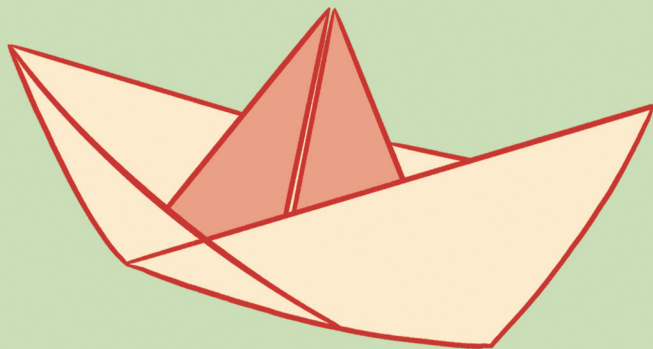
How do herring reproduce? Females lay their eggs on the seafloor near the coast. A single female can lay up to 261,000 eggs a year! After hatching, the young herrings grow into adults. The herring population is in decline in the southern Gulf of St. Lawrence. The marine refuge of the Magdalen Islands lagoons, where fishing activities are restricted, gives them a better chance to grow and reproduce in complete safety.



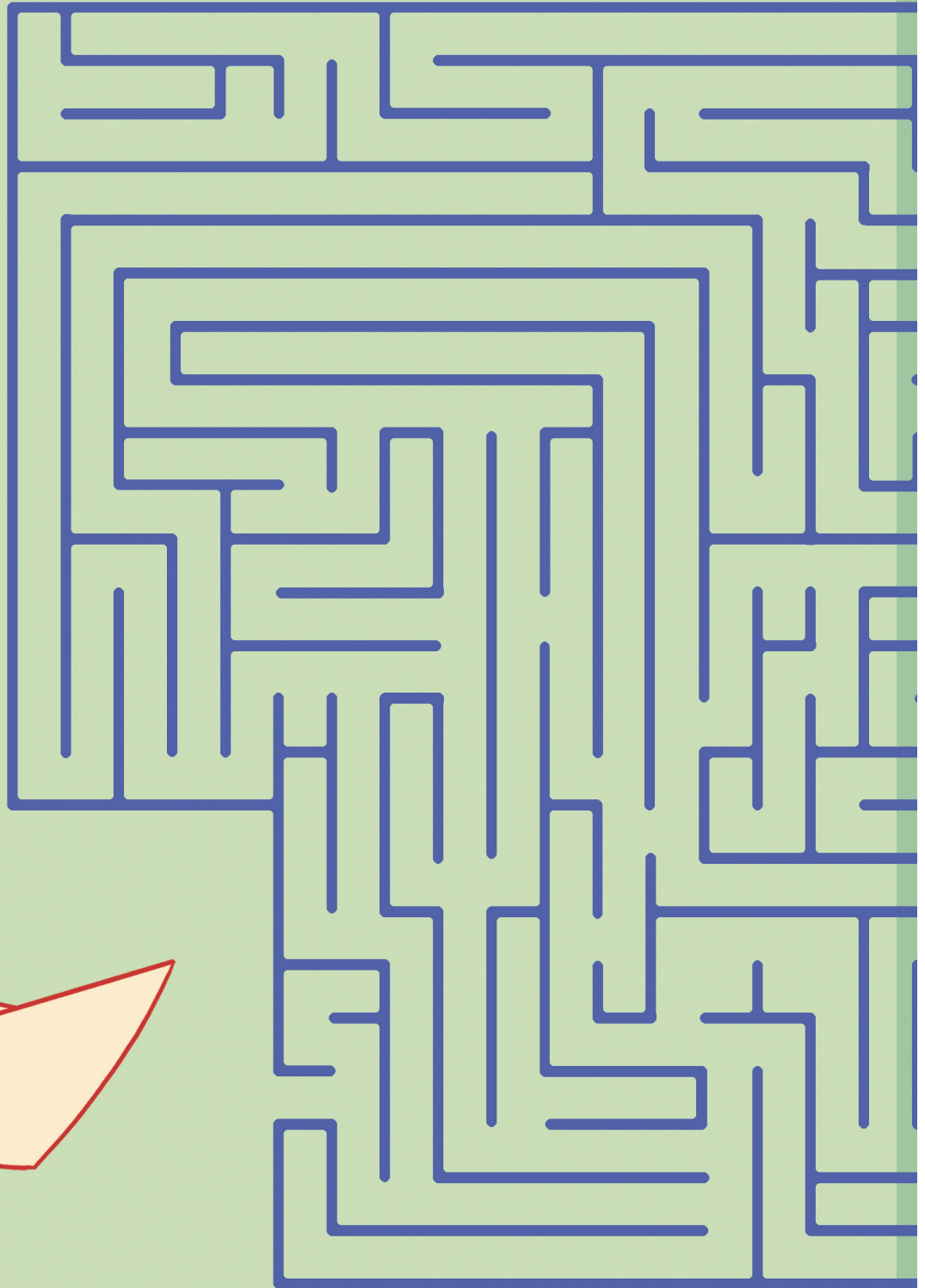
INSTRUCTIONS

Can you help me count how many herrings are in this school? Next, can you find the 7 differences between these two schools of herring?

As you can see, each species provides food for others. They are all important to the well-being of the ecosystem. At the very top of the food chain is the great predator, humans. However, to ensure that we can eat lobsters and herrings for a long time to come, we need to protect them. To avoid damaging their habitat, several types of fishing are prohibited in the Magdalen Islands Lagoons Marine Refuge.

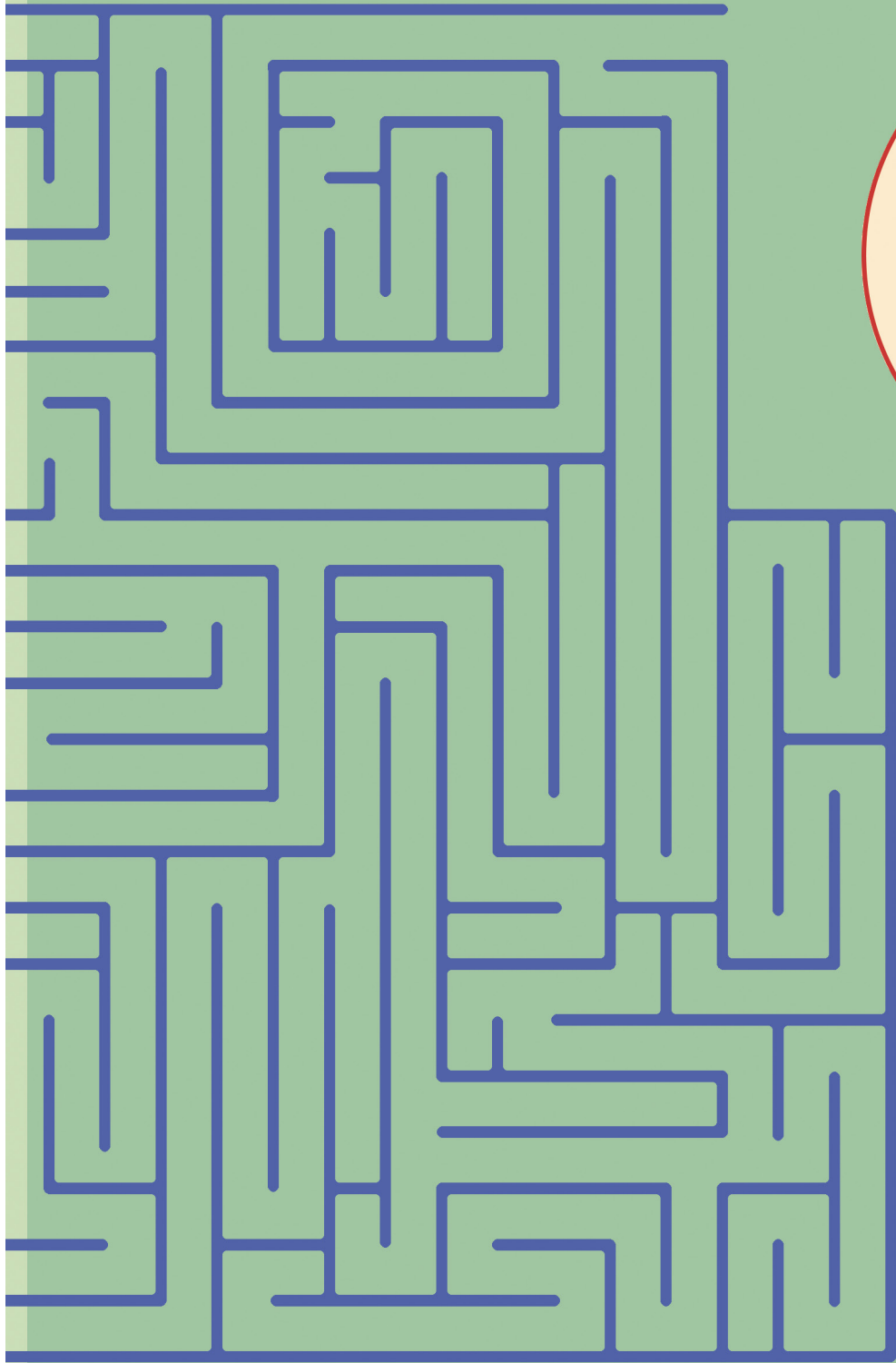


OUR BOAT

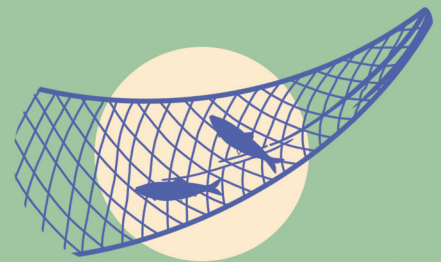


INSTRUCTIONS

Follow the maze to reach the lagoons.

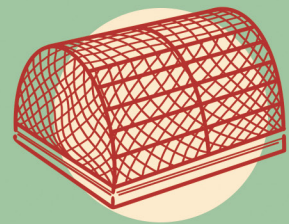


**LAGOONS OF THE
MAGDALEN ISLANDS**



GILLNET FISHING

To protect herring, this type of fishing is prohibited in the lagoons of the Magdalen Islands.



FISHING TRAPS

To protect lobster, traps are not allowed in the lagoons.

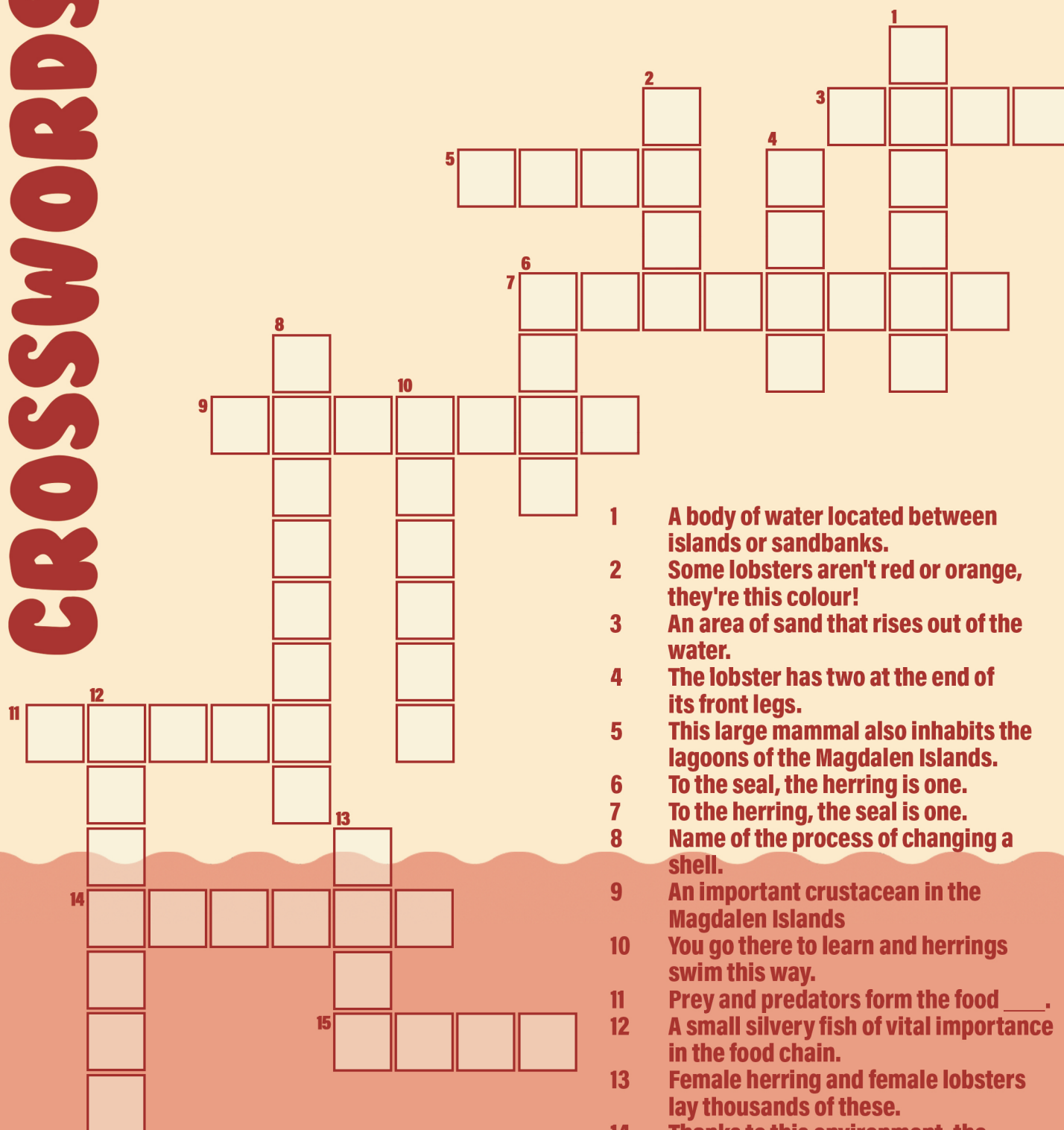


To start the research vessel, we need a code. Use the symbols below to find the hidden code in pink.



Can you help me crack the code?

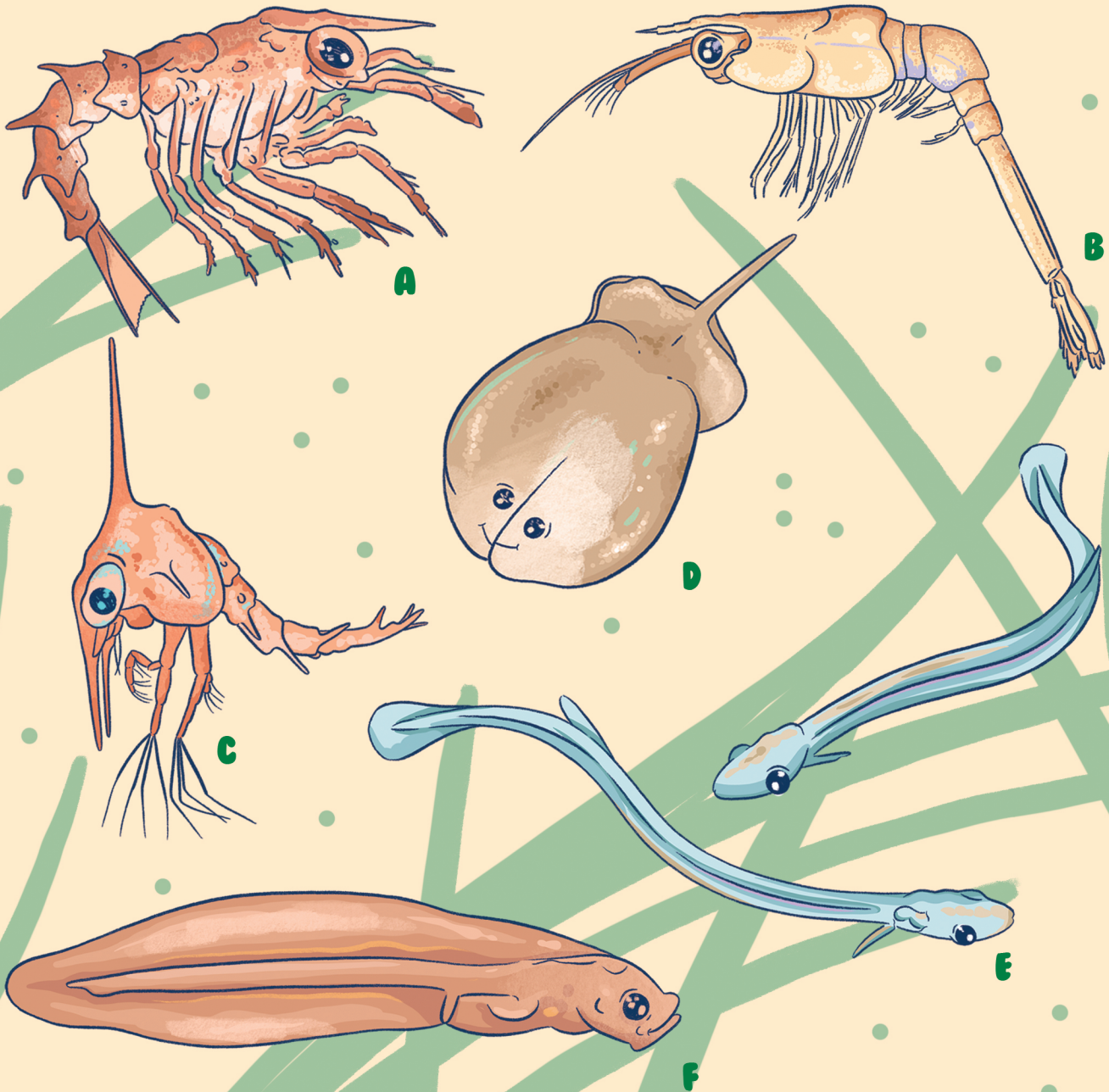
CROSSWORDS



- 1 A body of water located between islands or sandbanks.
- 2 Some lobsters aren't red or orange, they're this colour!
- 3 An area of sand that rises out of the water.
- 4 The lobster has two at the end of its front legs.
- 5 This large mammal also inhabits the lagoons of the Magdalen Islands.
- 6 To the seal, the herring is one.
- 7 To the herring, the seal is one.
- 8 Name of the process of changing a shell.
- 9 An important crustacean in the Magdalen Islands
- 10 You go there to learn and herrings swim this way.
- 11 Prey and predators form the food ____.
- 12 A small silvery fish of vital importance in the food chain.
- 13 Female herring and female lobsters lay thousands of these.
- 14 Thanks to this environment, the animals have a space where fishing pressure is reduced.
- 15 The dunes are made of ____.

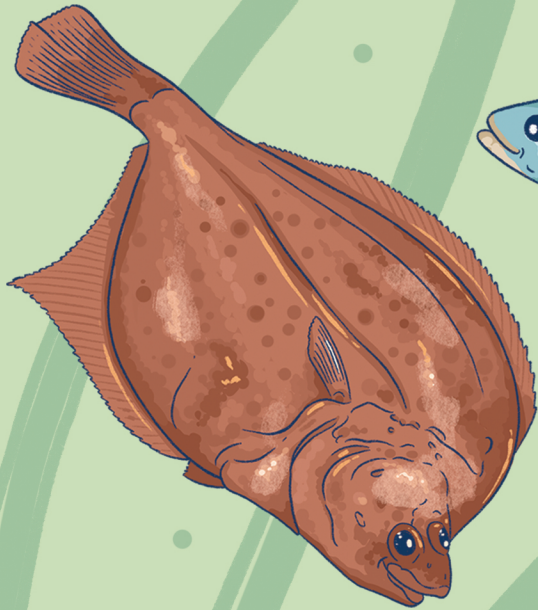
EELGRASS BED

Do you see those tall grasses swaying in the current? That's eelgrass. These large underwater meadows create a pleasant place to live, where the waves have less impact. Many animals pass through them to feed, others to hide from predators, and others to reproduce safely. Young lobsters and herrings take advantage of this habitat to grow.

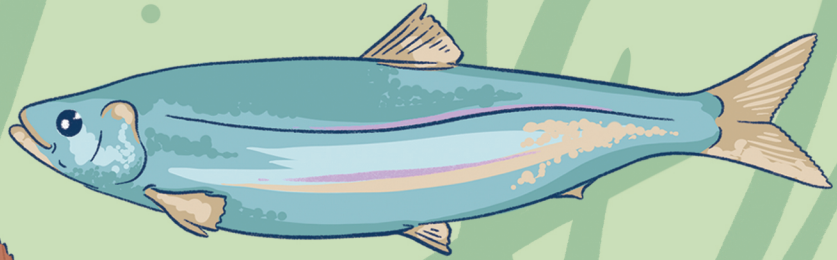


INSTRUCTIONS

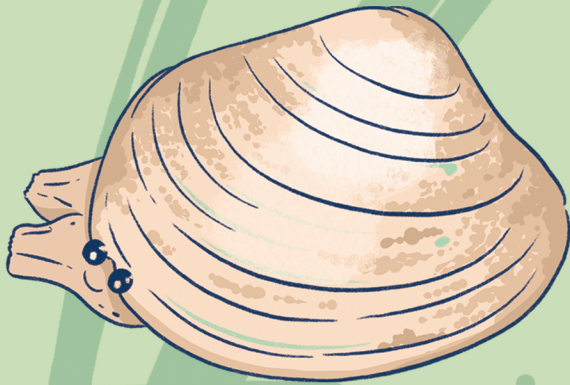
Can you match the larvae on the left page with the adults on the right page?



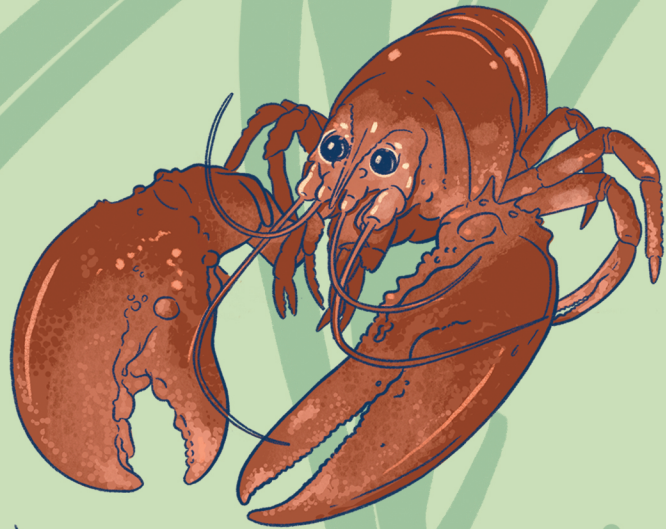
1. ATLANTIC HALIBUT



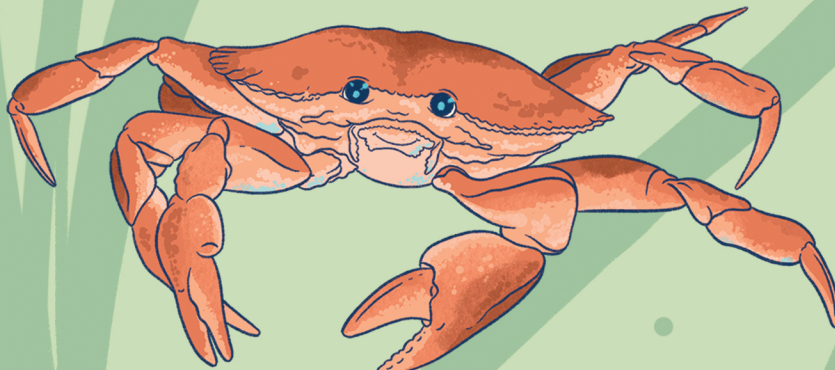
2. ATLANTIC HERRING



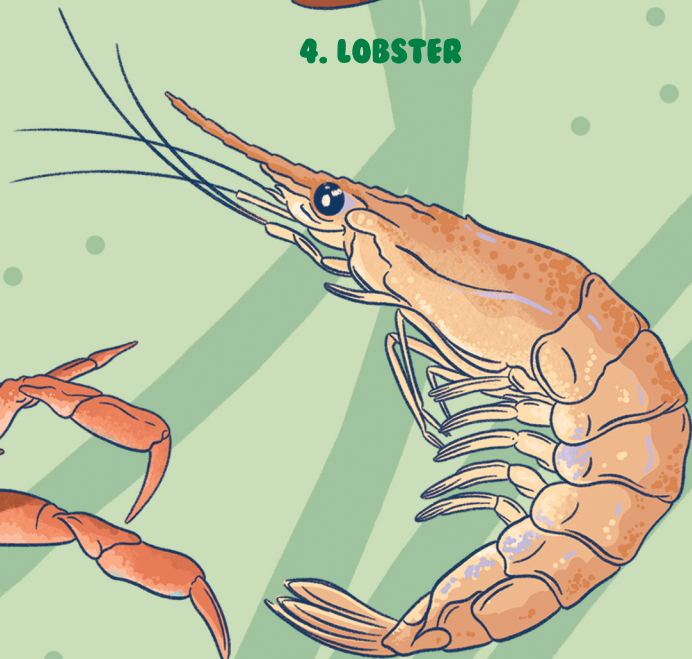
3. CLAM



4. LOBSTER



5. SNOW CRAB



6. COLD WATER SHRIMP

A



B



C



D



E

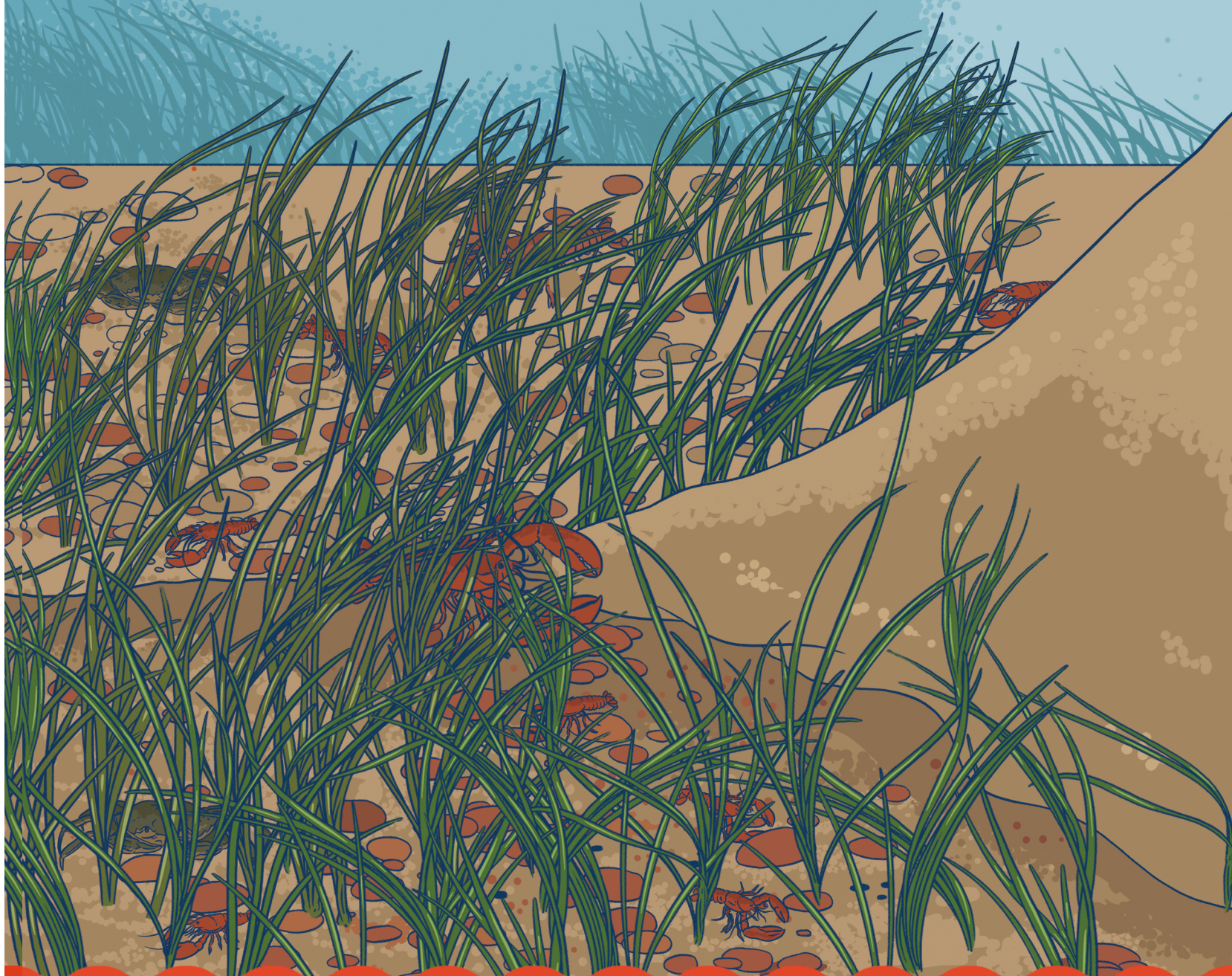


F



Lobsters are champions at hide and seek! They can hide in cracks or dig in the sand.

You'll also see the green crab, another crustacean. It arrived in our waters not long ago and has become an invasive aquatic species. This means that this foreign species is able to reproduce and propagate easily because it doesn't have predators here. Why is this a problem for our lobsters? Well, when the green crabs dig for food they uproot the eelgrass, which kills the plant. This destroys the habitat of the many species that live in eelgrass beds.



INSTRUCTIONS

Help me count the lobsters and look for the intruders, the green crabs. Count them and write down your answer.

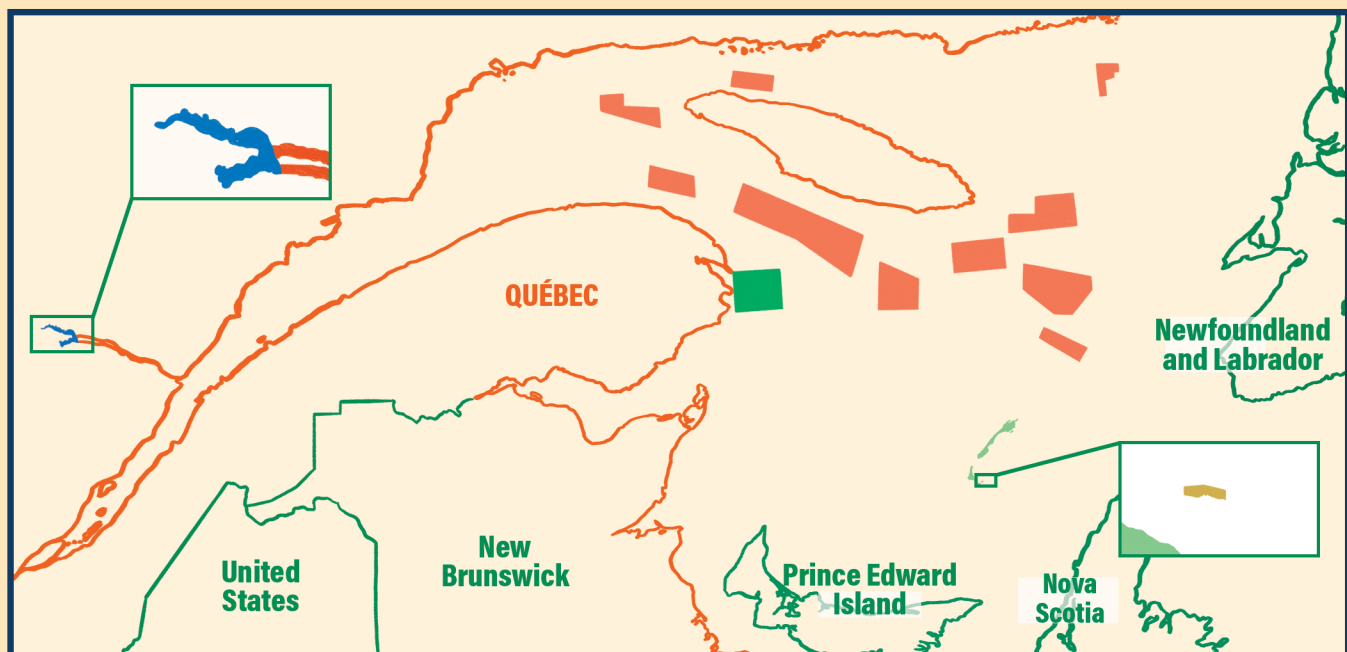
GREEN CRABS

LOBSTERS

OTHER DFO* MARINE CONSERVATION AREAS

Did you know that there are other marine conservation areas in Québec managed by Fisheries and Oceans Canada besides those mentioned in this booklet?

Take a look at the map below to find out which one is the closest to you!



-  Coral and Sponge Marine Refuges in the Gulf St. Lawrence
-  Banc-des-Américains Marine Protected Area
-  Magdalen Islands Lagoons Marine Refuge
-  Les Demoiselles Nursery Marine Refuge
-  Saguenay Fjord Upstream Marine Refuge

*Fisheries and Oceans Canada

ANSWER KEYS

PAGE 6

- 1: PHYTOPLANKTON
- 2: ZOOPLANKTON
- 3: HERBIVORE AND
SMALL PREDATOR
- 4: PREDATOR
- 5: LARGE PREDATOR

PAGE 12

ANSWER: CRUSTACEAN

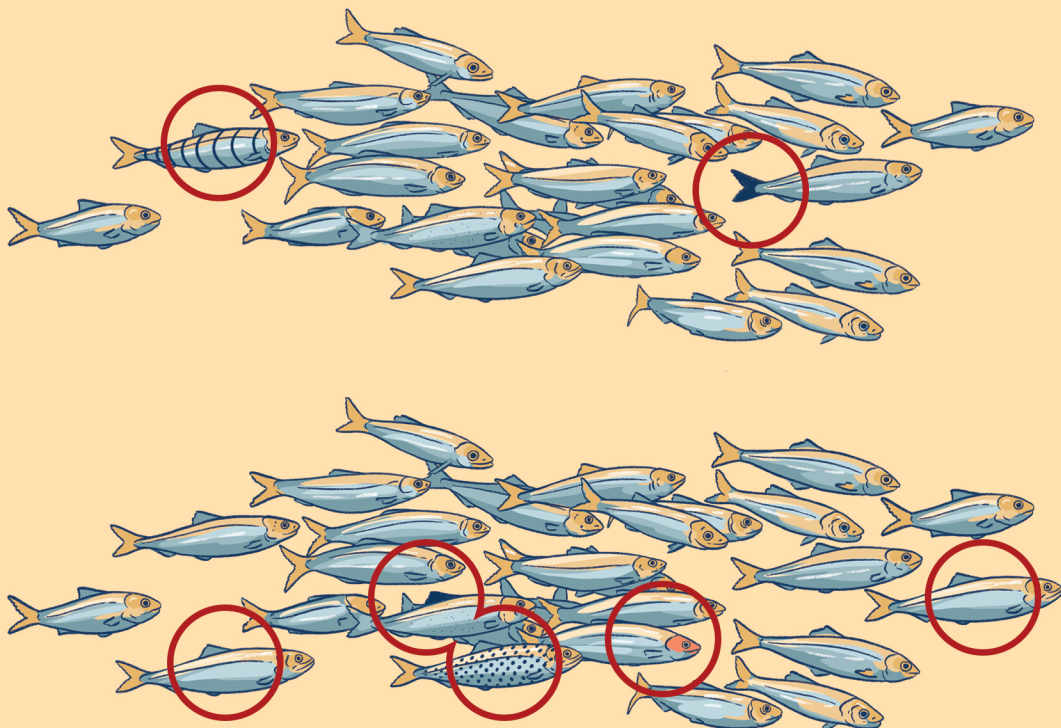
PAGE 16

GREEN CRABS: 2
LOBSTERS: 9



PAGE 8

ANSWER: 26 HERRINGS



A complex maze with a red path highlighted. The maze is composed of blue lines on a yellow background. The red path starts at the bottom left, moves right, then up, then right again, and continues through various turns and dead ends, eventually exiting the maze at the top right.

- 1: LAGOON
- 2: BLUE
- 3: BANK
- 4: CLAW
- 5: SEAL
- 6: PREY
- 7: PREDATOR
- 8: MOULTING
- 9: LOBSTER
- 10: SCHOOL
- 11: CHAIN
- 12: HERRING
- 13: EGGS
- 14: REFUGE
- 15: SAND

A: 4
B: 6
C: 5
D: 3
E: 2
F: 1



Our day in the lagoons is drawing to a close. Together, we discovered how this area plays an essential role in the conservation of lobsters and herrings.

We also learned that lobsters and herring play an important role in the food chain.

Lastly, we saw how eelgrass beds are an essential habitat for many marine species.

That's why the Magdalen Islands Lagoons Marine Refuge was created and why certain activities are not allowed!

You can continue your discovery of the St. Lawrence by consulting our other activity book on the Coral and Sponge Marine Refuges of the Gulf of St. Lawrence.



MAGDALEN ISLANDS LAGOONS Marine Refuge



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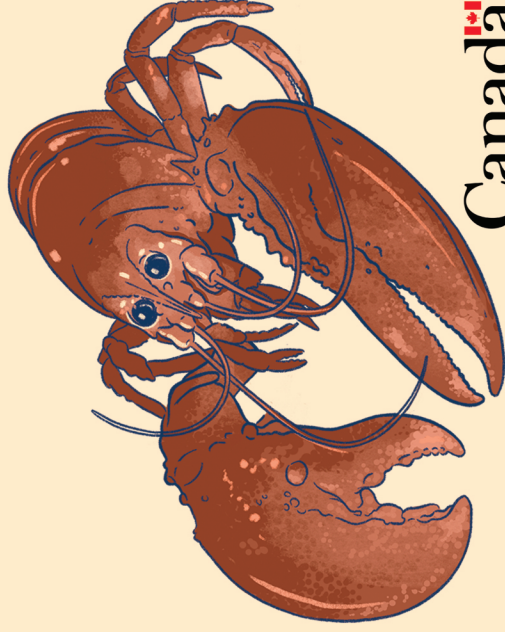
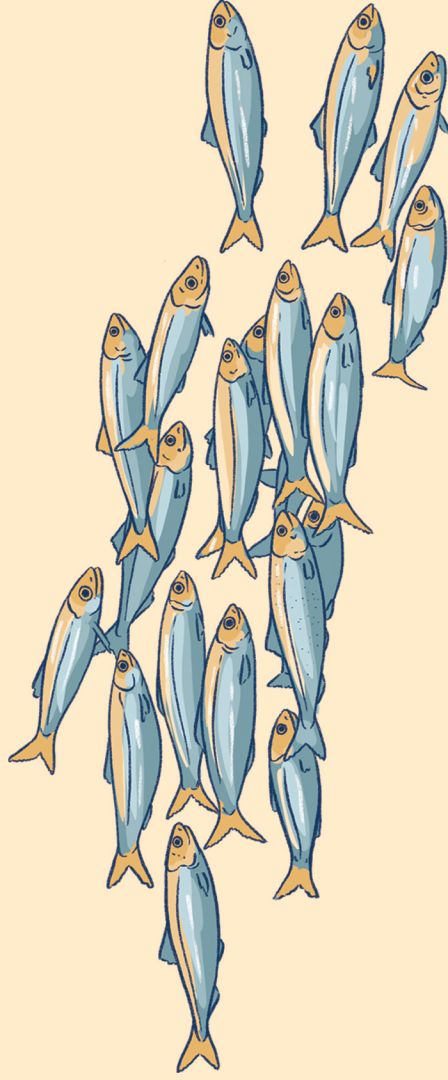
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ASPIRING BIOLOGIST CERTIFICATE

by Fisheries and Oceans Canada's Quebec Marine Conservation Team

Awarded to _____

Magdalen Islands lagoon specialist



Canada



We're now back in the lab. But your mission isn't over yet! Come and join all the people who are helping to protect lobsters, herring, lagoons and eelgrass beds.

- **Harvesters have stopped using certain fishing gear in marine refuges to preserve resources and ecosystems.**
- **Scientists like Elie and I are studying herring, lobster and their habitat to understand how they live and how we can help them.**

And you, you can also help protect the waters of the St. Lawrence and raise awareness of these fascinating animals! Spread the word about the Magdalen Islands Lagoons Marine Refuge and all the life it supports.

You can continue your exploration of the Saint Lawrence by visiting our website and our other activity book about the lagoons of the Magdalen Islands.



**Coral and sponge
conservation measures in
the Estuary and Gulf of
St. Lawrence**



Magdalen Islands Lagoons

