Let's be ocean explorers!

But first, what is an ocean, anyway? Oceans are gigantic bodies of saltwater that cover 71% of planet Earth. That's almost three-fourths of the entire world! Oceans aren't just giant bathtubs — they're full of life, from the tiniest plankton to massive whales.

In North America, there are three major oceans:

- The **Pacific Ocean** is the biggest of them all and covers more area than all the land on Earth combined.
- The **Arctic Ocean** is the smallest and shallowest of the world's oceans, but it's very important. It surrounds the North Pole and is covered by sea ice, creating homes for polar bears and seals.
- The **Atlantic Ocean** is home to the Gulf Stream, a powerful ocean current. It's like an underwater superhighway that moves warm water from the tropics to the colder North Atlantic.

What's so important about oceans?

Oceans help balance the climate!

Oceans absorb heat from the sun and move it around, helping to balance weather patterns on Earth. This helps plants, animals, and people live in a world where it is not too hot and not too cold.

Thank the ocean for the air we breathe!

Ocean plants create about half of the world's oxygen through photosynthesis (PHOTO-SIN-THUH-SIS). During photosynthesis, these plants also take in and store carbon dioxide. With so many plants in the ocean, it acts like a giant sponge, soaking up carbon dioxide from the atmosphere.

Oceans and climate change

Things like burning fossil fuels and cutting down trees create many heat-trapping gases (like carbon dioxide) in the atmosphere.

The ocean helps out by absorbing extra heat and CO_2. But the ocean can only absorb so much before it gets too warm.

If the ocean is too warm, it can cause big problems for ocean ecosystems and the plants and animals that live there.

How is climate change affecting oceans and ocean animals in North America?

As more heat-trapping greenhouse gases enter the atmosphere, climate change gets worse. Because of this, we are seeing impacts on animals, and the habitats where they live.

Melting glaciers

As the Earth warms, glaciers and ice sheets melt. This shrinks many Arctic animals' habitats and makes sea levels rise.

Polar bears in the Arctic need sea ice to hunt for seals, their main food source. Melting glaciers mean less sea ice, making it harder for polar bears to find food.

Sea level rise

Higher sea levels can lead to flooding and erosion (when water wears down land). This causes the loss of homes for plants, animals, and humans on land.

Sea turtles, like the loggerhead and green turtles, lay their eggs on sandy beaches. Rising sea levels can flood nesting areas, making it hard for baby sea turtles to hatch and reach the ocean.

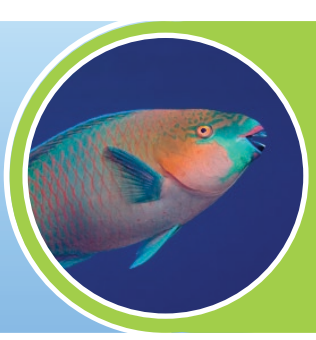
Ocean acidification

When the ocean absorbs too much carbon dioxide, it becomes more acidic. Acidic water is not good for many sea animals.

Animals like **clams and crabs** use shells to protect themselves. More acidic water can cause their shells to break down. That means the animals can get hurt or sick more easily.

Coral bleaching

Corals are covered in colourful algae that feed them and keep them healthy. Warmer ocean temperatures cause the algae to leave. This weakens corals and makes them more likely to get sick.



Fish, like colourful **parrotfish**, need coral reefs for shelter and food. When coral reefs get sick from coral bleaching, these fish lose their homes and sources of food.

Toxic algae

Warmer waters can lead to algae blooms that release toxins into the ocean. These toxins can make fish and marine mammals sick. It can also make people who swim in the water or eat seafood sick.

Sea lions are social and playful marine mammals found along the coasts. Toxic algae blooms can contaminate the fish they eat and can make them very sick.