

School Programs Lead Sponsor



ONTARIO **SCIENCE** CENTRE



Exhibit Inquiry

# Oceans: Biodiversity at Sea

An agency of the Government of Ontario

Grade 4-8



ONTARIO  
**SCIENCE**  
CENTRE

# Oceans

**Have students look for the following exhibits related to oceans during their visit to the Ontario Science Centre:**

## Fresh Water

Where to go:

The Living Earth (Level 6)  
*Ground Water*



What it's about:

The Earth consists of about 70% water, but only a small fraction of that is fresh water. Where is most of the fresh water on Earth? Explore this exhibit to learn more about ground water.

What to say and do:

- What are some ways we use water in our life? (*Drinking, washing our clothes, watering our lawns etc*)
- Why should we be careful about our how much fresh water we use? (*We should not waste such a limited and necessary resource.*)
- Read over the information on the exhibit panel. How would having polluted groundwater affect our lives and the environment? (*Wells would dry up; river and lake levels would lower.*)
- How many litres of water do you think you use each day? (*Canadians use over 300L/day!*)

## Ocean Ecosystem

Where to go:

The Living Earth (Level 6)  
*Ocean Ecosystem*



What it's about:

The coral reef is one of the most diverse ecosystems in the world; it is often called “the rain forest of the ocean”. Examine the delicate balance in a coral reef environment by exploring this exhibit.

What to say and do:

- The coral reef is very sensitive to even the slightest changes in temperature, water quality, algae levels, etc. Many of these changes are related to human activity. How might humans be affecting the environment of coral reefs? (*Logging nearby creates sediments that clouds the reef, blocking vital sunlight; sewage and industrial water pollution; boats cause water and noise pollution*)
- How many different species of coral can you find in the tank? (*Numbers may vary*)
- How do you think the fish benefit from the coral reef? (*Fish receive food and shelter.*)
- How do the coral benefit from the fish? (*The fish eat the algae, preventing the algae from overgrowing the coral reef.*)
- Back at school, research what other organisms live in a coral reef.

### Where to go:

The Living Earth (Level 6)  
*Bone or Stone?* (to the right of the ocean ecosystem)



## What is a Coral?

### What it's about:

Have you ever wondered what a coral is? Is a coral made of bone or stone? Learn the answers by investigating the nature of corals at this exhibit.

### What to say and do:

- Before reading the exhibit panel, ask students what they think a coral is. Is it living? Is it a rock or a skeleton? (*Coral is the skeletal bone of the living organism, it is made of limestone. So really, it is both bone and stone!*)
- Coral reefs and algae have a mutualistic relationship and live in symbiosis. What does this mean? (*Coral reefs and algae depend on each other to survive and each benefit from the partnership.*)

### Where to go:

The Living Earth (Level 6)  
*The Fin Whale*  
*Sei Whale Baleen*  
*Sperm Whale Tooth*  
*Look Up! (Whale Skeleton)*



## An Animal Like Us

### What it's about:

The fin whale is the second largest living animal on Earth. Investigate this giant mammal, including the full-sized skeleton.

### What to say and do:

- Look at the ceiling! This fin whale skeleton is an excellent example of a mammal's skeleton. Even though whales live in an aquatic environment, their skeletons are quite similar to ours. Can you compare the bones in the whale's body to the bones in the human body? What are the similarities? (*The ribs, vertebrae, bones in arm/hand.*) How does the whale use these bones in water? (*Elongated hand bones to support flippers are good for swimming*)
- How does the fin whale eat? This whale is incredibly large, but it does not have teeth like ours. Take a look at the exhibit *Sei Whale Baleen*. How does the whale use the baleen to eat? (*The baleen acts as a strainer, allowing water to escape from the mouth but retaining small fish, krill, and plankton.*) Compare the baleen to the *sperm whale tooth*. How do you think the sperm whale eats? (*They use these teeth to grip and hold prey before swallowing them whole.*)
- Fin whales are the second largest creatures on our planet. They are on average about 20 m in length and can weigh up to 55 tonnes. Why is this immense mammal only suited to an ocean life? (*Salt water is a very buoyant medium and it helps to support such immense weight. On land, the bones would be crushed by the body weight.*)

## Resources

# Oceans

### Vocabulary

<b>Adaptation</b>	Any trait that increases an individual's ability to survive or reproduce compared to organisms that do not have the trait.
<b>Baleen</b>	The fringed plates composed mostly of keratin that grow from the upper jaw of baleen whales and filter food from the water.
<b>Coral Reef</b>	Extensive limestone structures built largely by coral animals. They occur in shallow tropical oceans and provide habitat for a large variety of other marine life forms.
<b>Ecosystem</b>	Group of living organisms that interact with each other and with their environment to form a self-regulating system, through which energy and materials transfer.
<b>Habitat</b>	The area in which a species lives.
<b>Hydrological cycle</b>	The constant circulation of water between atmosphere, land, and sea by evaporation, condensation, precipitation and percolation through soil and rocks.
<b>Mammal</b>	A warm-blooded vertebrate animal of the class Mammalia, including humans. Characterized by a covering of hair on the skin and, in the female, milk-producing mammary glands for nourishing the young.
<b>Mutualism</b>	A relationship between two species of organisms in which both benefit from the association.
<b>Niche</b>	The role of an organism within its natural environment that determines its relations with other organisms and ensures its survival.
<b>Species</b>	In biology, a group of related organisms which are capable of interbreeding. In taxonomy, a species is designated by a binomial in <i>italic</i> text, consisting of the genus name followed by a unique descriptor (e.g., <i>Piranga olivacea</i> refers to the scarlet tanager bird.)
<b>Taxonomy</b>	The science of classifying organisms into increasingly broader categories based on shared features.

### Internet Links

Drinking Water in Canada and other Facts  
[www.toronto.ca/water/kids/story\\_of\\_water/html/costs.htm](http://www.toronto.ca/water/kids/story_of_water/html/costs.htm)

Earth Day Colouring Book  
[www.epa.gov/region5/publications/happy/happy.htm](http://www.epa.gov/region5/publications/happy/happy.htm)

Environment Canada: Water Wise  
[www.ec.gc.ca/water/en/info/pubs/nttw/e\\_nttwi3.htm](http://www.ec.gc.ca/water/en/info/pubs/nttw/e_nttwi3.htm)

David Suzuki Foundation  
[www.davidsuzuki.org](http://www.davidsuzuki.org)

**PLEASE NOTE:** Programs and exhibits are subject to change without notice.