

Lesson 7: Marine Planning and Eelgrass Beds

Overview: Students will learn more about marine planning, including the differences between marine reserves and marine protected areas. Using eelgrass beds as an example, students will learn about this important habitat and make recommendations on how to conserve eelgrass beds for future generations.

Subjects: Science, Language Arts

Suggested Time: 2 classes (45-60 minutes)

Materials and Resources:

- Computer, projector and screen
- Lesson 7 Film Clips:
 - Collaborative Decision-making (10 mins)
 - Protected Areas Overview (2 mins)
 - Eelgrass (9 mins)
- Teacher Background – Lesson 7
- 7.1: Conservation in the Great Bear Sea
- 7.2: Marine Reserves and Marine Protected Areas
- 7.3: Protecting Eelgrass Beds

Learning Objectives:

Students will:

1. Understand that marine planning is key to creating a sustainable future for all British Columbians
2. Learn the positive impacts that Marine Protected Areas have on fish stocks and how different knowledges help contribute to marine planning.

Lesson Context

This lesson will allow students to continue examining marine planning and start thinking about the differences between Marine Reserves and Marine Protected Areas. The students will examine eelgrass beds and will focus on why these habitats should be protected. Students will work collaboratively to design presentations that teach others about why eelgrass beds should be protected and make recommendations on how to conserve these habitats.

Learning Activities

Activity 1: Marine Plans and Conservation (45-60 minutes)

1. Read this quote to the students and ask the students what it means to them.

"We know that if we can get our ecosystems back in balance, and make sure that we don't pollute the water, make sure that all the nutrients that are required in the ocean and the rivers and the lakes and everything that feed our salmon and feed our halibut and feed everything that there – if we can get that balance back, the natural capital that exists in that region will begin to bear fruit for us again. And that's the objective that Coastal First Nations has. That's the objective that we have in the terrestrial side, that's the objective we have on the marine side."

– Art Sterritt, Executive Director, Coastal First Nations

2. Watch the film clip **Collaborative Decision-making**.
3. Review with students what the word **ecosystem** means. Discuss the idea of a balanced ecosystem in the Great Bear Sea and how this balance is being worked on to ensure the health of the ecosystem. Some discussion points may include:
 - In order to create balance marine plans are being designed for each sub region in the Great Bear Sea.
 - This means the marine plans are customized to that specific area.
 - The needs of communities are different just like the needs of sub regions in the Great Bear Sea.
 - Each region is unique and plans must be made for that region taking into account its diversity.
4. Review the four regions of the Great Bear Sea (Central Coast, Haida Gwaii, North Coast, North Vancouver Island) and how each sub-region is unique. See **Teacher Background – Lesson 7** for more information on each sub-region.
5. Remind the students that marine plans are guides to help conserve the Great Bear

Sea for the future, including stewardship, sustainable development, economic opportunities, and reducing conflicts among marine users. Discuss with the students that these marine plans were created using a collaborative approach, taking into consideration traditional knowledge, local knowledge and science.

6. Provide students with **7.1: Conservation in the Great Bear Sea** and have them complete by brainstorming what **conservation** means to them. Share the brainstorming together in a class discussion.

Activity 2: Protecting the Great Bear Sea (45-60 minutes)

1. Ask the students if they can think of ways to participate in conservation actions in their community. Can they think of ways to help conserve the Great Bear Sea?
2. Watch the film clip **Protected Areas Overview**.
3. Inform the students that Marine Reserves and Marine Protected Areas are two ways to help with conservation efforts. There are many others that will be discussed in future lessons. Use **7.2: Marine Reserves and Marine Protected Areas** to see if students can recall the differences between **Marine Reserves** and **Marine Protected Areas**.
4. Discuss with the students the differences between Marine Reserves and Marine Protected Areas and why it is important to have these areas of protection in the Great Bear Sea.
5. Watch the film clip **Eelgrass**.
6. Review with the students why eelgrass beds are important habitats.
 - Nurseries for animals: provides protection for eggs and young animals
 - Food: many animals can find food in the eelgrass beds
 - Home: many species make this habitat a home
 - Place to visit: some animals that migrate will stop and rest in eelgrass beds and other animals will come and visit the eelgrass beds
7. Divide the class into six groups and use **7.3: Protecting Eelgrass Beds** to help plan their presentation. The groups will need to design a presentation that focuses on why eelgrass beds should be protected and their recommendations on how to conserve these important habitats. The presentation can be done as a poster, role-play, song/rap, poem, etc. Another option could be have the students create their own film clips to protect eelgrass beds.
8. Share presentations with the class.

Extension Ideas

- Have the students do additional research on eelgrass beds and the species that use eelgrass beds. Students could select an animal featured in the film clip to learn more about its connection to eelgrass beds. Put together a poster, brochure or fact sheet on the selected animal. Or integrate a technology component to create a class blog on eelgrass beds.
- Research, visit and observe habitats that are important in the community. Examples: eelgrass beds, tidal flats, estuaries, wetlands, bogs, marshes, beaches, lakes, rivers, shorelines, etc. Reflect on why these habitats are important to the ecosystems in the community and how these habitats can be conserved. Clean this habitat if any garbage is present.
- Find out if marine reserves, marine protected areas or other protected habitats such as rivers, wetlands, etc. are in the community.

Assessment Ideas

- Formatively assess students' engagement in individual and group work as well as large group discussion.
- Assess student work from the lesson.
- Assess the eelgrass bed presentations including the recommendations to conserve these habitats.

Teacher Background – Lesson 7

Marine planning is underway all over the world. Currently the Great Bear Sea is one of the areas with the largest marine plans in the world. The marine plans must be customized to each sub-region, as each area is unique in its own way. Ecosystem based management integrates human well-being, ecological integrity and governance as well as considers the effects of ocean use and activity on marine life and coastal communities.

There are three management zones that benefit human well-being, economic opportunity and conservation.

1. General Management Zones are areas that allocate space for public, private and community marine uses and are managed using ecosystem management approach.
2. Special Management Zones are areas that allocate space for high priority or high potential marine uses.
3. Protection Management Zones are areas that allocate space for primarily for conservation purposes.

Note: There are pictures from the Marine Plans of each sub-region for the Great Bear Sea so that the students can see how each sub-region is unique. The marine plans with pictures are available at www.mappocean.org.

Marine Protected Areas

Marine Protected Areas (MPAs) are an important tool for protecting ecosystems from overuse and exploitation. MPAs restrict human activity in a protected area of seas, oceans or large lakes for a conservation purpose, typically to protect natural, historic or cultural resources. MPAs can allow for fish and marine life restoration, increasing both the size and number of species, and protecting species in critical stages of the life cycle. MPAs can also act as a baseline for research purposes, to judge management processes in nearby areas. To date, Canada has just over 60,000 km² of protected oceans and lakes. In June 2010, Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site (3500 km²) in British Columbia (in the region of the Great Bear Sea) was established under the Canada National Marine Conservation Areas Act.

Northern Shelf Bioregion MPA Network

The Government of Canada, Province of British Columbia and 17 First Nations are working together to develop a marine protected area network in the Northern Shelf Bioregion (NSB), which extends from the top of Vancouver Island (Quadra Island/ Bute Inlet) and reaches north to the Canada – Alaska border, in the region of the Great Bear Sea. The Northern Shelf Bioregion Marine Protected Area Network planning process aims to build a network of MPAs that will help to ensure that future generations will inherit the beauty and productivity of our Pacific Ocean. For more information on the Northern Shelf Bioregion MPA Network visit: www.mpanetwork.ca/bcnorthernshelf.

Vocabulary

Conservation: the act of preserving, protecting or restoring the natural environment of a specific area.

Marine Reserve: areas that prohibit fishing/harvesting. It is a safe haven for marine life so stocks can be replenished. Plants, invertebrates and fish can spread into surrounding water, which is open to fishing.

Marine Protected Area: areas that are less restrictive than marine reserves. They may allow crabbing, salmon trolling, sport fishing and other activities.

Name: _____

7.1: Conservation in the Great Bear Sea

Brainstorm

CONSERVATION

Name: _____

7.2: Marine Reserves and Marine Protected Areas

Marine Reserves

Marine Protected Areas

Quote from film clip – What does this mean to you?

"Marine protected areas provide an insurance policy for the ocean..." Russ Jones, Hereditary Chief, Haida Nation Project Manager, Haida Oceans Technical Team

Name: _____

7.3: Protecting Eelgrass Beds

Why are eelgrass beds important ecosystems?

Our conservation recommendations...

Presentation notes and ideas: