

PENANG SANGAM HIGH SCHOOL
P.O.BOX 44, RAKIRAKI
LESSON NOTES

Subject: Basic Science

Year/Level: 10

Week 15

Strand	1 : LIVING THINGS AND THE ENVIRONMENT
Sub Strand	1.3 : BIODIVERSITY, CHANGE AND SUSTAINABILITY
Content Learning Outcome	Explore and describe the importance of traditional and contemporary methods conserving the marine ecosystem for sustainability.

▪ **Mangroves:**

Primary threats to all mangrove species are:

- ✓ habitat destruction

 - ✓ removal of mangrove areas for:
 - aquaculture
 - agriculture
 - freshwater diversion
 - forest use
 - urban and coastal development
 - overexploitation.
- } clear-felling, aquaculture and over-exploitation of fisheries are the greatest threat

▪ **Causes of degradation of coastal habitats:**

- ✓ inappropriate agricultural activities
- ✓ mining
- ✓ sewage pollution
- ✓ inappropriate solid waste disposal
- ✓ fishing activities
- ✓ use of destructive fishing practices

- ✓ beach sand mining
- ✓ building of jetties
- ✓ commercial harvesting of coral
- ✓ soil erosion and siltation
- ✓ improper disposal of industrial waste
- ✓ Natural hazards:
 - climate change
 - sea level rise
 - hurricanes.

Conservation

Habitat destruction and exploitation have meant that thousands of species of plants and animals have been brought to the verge of extinction. In the face of economic development, the growth of human population and the increase in agriculture to feed them, habitats are vanishing quickly and their species with them. The destruction of tropical rain forest means that 500 -1000 species of plants are becoming extinct every year. They are disappearing even before they are discovered by man and their potential value, for instance in providing new medicines, is wasted. Animal species are now disappearing at the rate of one species per day. Humans, through greed and ignorance, are cutting down forests that not only harbour a huge diversity of species but provide the oxygen we breathe and uses up carbon dioxide. The destruction of habitats to enable agriculture to feed ever more mouths is one cause. The over exploitation of species for commercial use is another.

- protecting our environment so that animals and plants can maintain their numbers.
- **aims to:**
 - ✓ make our total surrounding better by sustained utilization of the resources in the environment.
 - ✓ plan development so as to retain as much natural beauty as possible to keep:
 - Fiji green
 - the sea unpolluted
 - the air fresh
 - using our natural resources scientifically so that they are not exhausted.
- To support conservation is not opposed to development and changes but to be prepared to consider fully the cost of development, including the effect on the natural environment – a cost which must be minimised if our world has to survive.
- Conservationists want development that works with nature.
- Preserving our environment can benefit future generations.
- Over exploitation of non-renewable resources will leave us poorer in the future.
- Safeguard the existence of species that are part of the delicate balance of nature in our world.

Conservation Practice

1) **Fisheries**

- ✓ must be managed on a sustainable level as they can be easily reduced but not so easily increased.
- ✓ can only be protected if harvests are kept below the level at which fish are taken faster than they can be replaced.
- ✓ **Overfishing:**
 - affects other marine life.
 - Fish are a critical part of the food chain and overfishing means other animals go hungry.
- ✓ **use of drift nets:**
 - hang in the water for many kilometres are not selective in the animals it trap.
 - Often abandoned and left to float free in the ocean becoming death trap for even more animals.
 - impossible to estimate how many dolphins, sharks, turtles and other animals have died in these nets.

For your knowledge:

Aquatic environments are home to countless species of fish and invertebrates, most of which are consumed as food. (Others are harvested for economic reasons, such as oysters that produce pearls used in jewellery.) Seafood is respected all over the world, in many diverse cultures, as an important source of protein and healthy fats. For thousands of years, people have fished to feed families and local communities. Demand for seafood and advances in technology have led to fishing practices that are depleting fish and shellfish populations around the world. Fishers remove more than 77 billion kilograms (170 billion pounds) of wildlife from the sea each year. Scientists fear that continuing to fish at this rate may soon result in a collapse of the world's fisheries. In order to continue relying on the ocean as an important food source, economists and conservationists say we will need to employ sustainable fishing practices. Consider the example of the blue fin tuna. This fish is one of the largest and fastest on Earth. It is known for its delicious meat, which is often enjoyed raw, as sushi. Demand for this particular fish has resulted in very high prices (\$2000 - \$20 000 depending on size) at markets and has threatened its population. Today's spawning population of blue fin tuna is estimated at 21 to 29% of its population in 1970.

ACTIVITY:

1) State four developments that are the reason for removal of mangrove plants.

- a) _____
- b) _____
- c) _____
- d) _____

2) Define Conservation.

3) Why are drift nets not classified as a sustainable fishing method?

4) Name three greatest threats to Mangrove species.

- a) _____
- b) _____
- c) _____

...STAY SAFE... 