



Mangroves

How do mangroves help the environment?

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2nd period
Science

Land Features

Mangrove Trees- plants that grow in wetlands in tropical climates. Their roots anchor them against a storm's energy. Their roots also act as filters for sediment before deposition onto a coral reef habitat or onto the land.

What are Mangroves?

- Mangroves are nurseries for juvenile fish from predators. They provide shelter and food for these fish. Mangroves also act as a habitat for shorebirds, mangrove monitors, fiddler crabs, and invertebrates.
- Mangrove seeds settle in shallow water. They sprout leaves to collect oxygen. The roots then rise above the water to collect more oxygen. The salt water flows through the roots to the leaves which create salt crystals or fall off when they turn yellow.



Mangrove Images



Seedlings in Sand



Mangrove Seeds



Mangrove Leaves and
Spuds



Mangrove Roots

More Mangroves



Mangroves at Ekko Warf in Piti

Population of Organisms

The food chain mainly relies on its main producer's (the mangrove) leaves to become decomposed to feed the primary consumers and so on.

Primary Consumer:

- Burrowing Crab
- Snapping Shrimp
- Tube worm
- Bristle worm
- other Small Creatures
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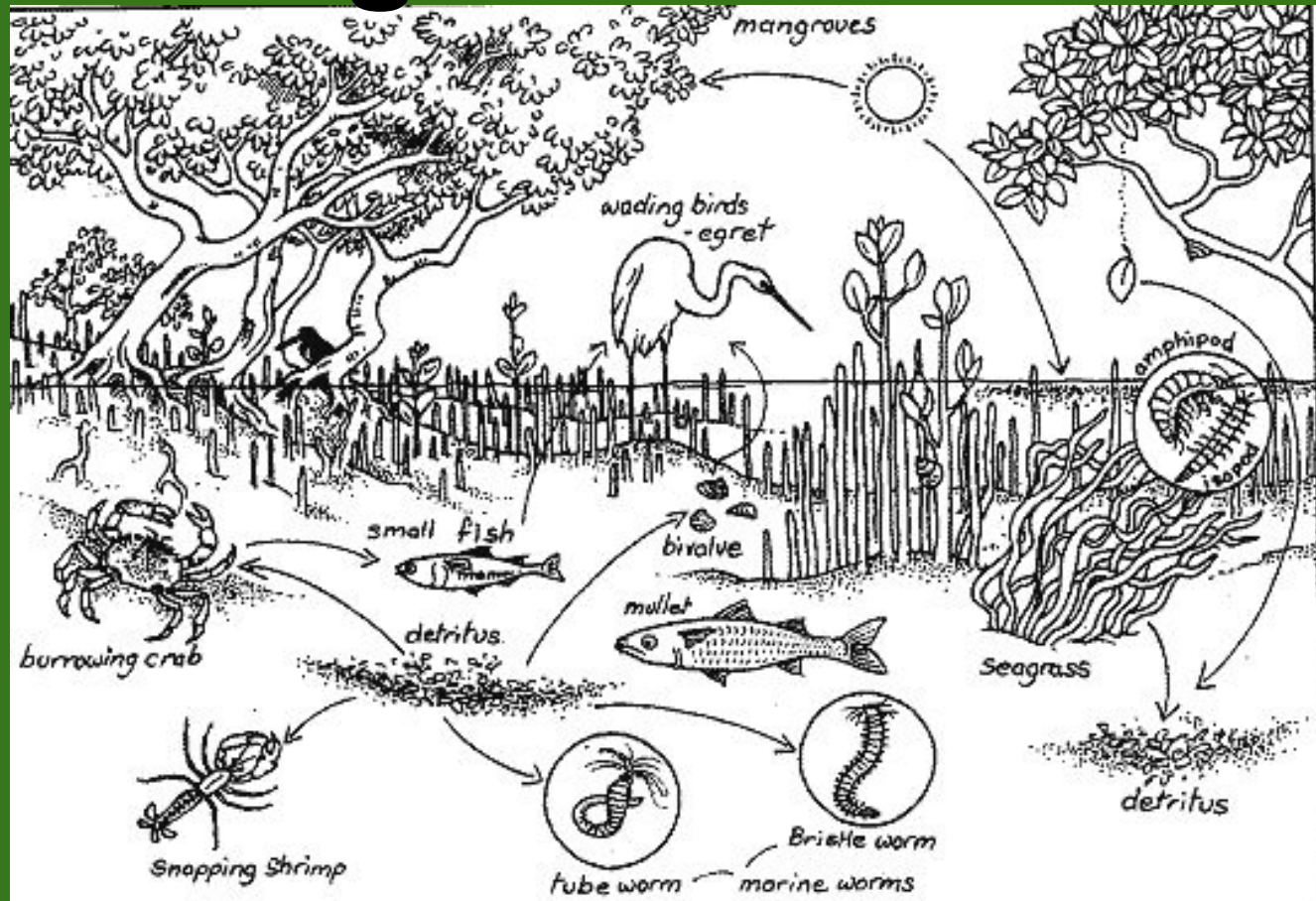
Secondary Consumers:

- Mosquito Fish
- Least Killifish
- Sailfin Molly
- Other small Fish

Top Level:

- Ogrets
- Ospreys
- White-crowned Pigeon
- Eastern Pelican
- Tricolored Heron
- Other Shore Birds

Mangrove Food Web



Mangrove Organisms



Oyster & starfish



Red Scoop Bill



Fiddler Crab



Crocodiles



Mangrove Monitor



Mud Skipper

Scientific Method

Problem: About 50% of mangroves are cleared in the world. In the Americas, they are being cleared faster than the rainforests.

Observation: Mangroves are uprooted and the soil is torn which leads to the destruction of habitats and erosion.

Hypothesis

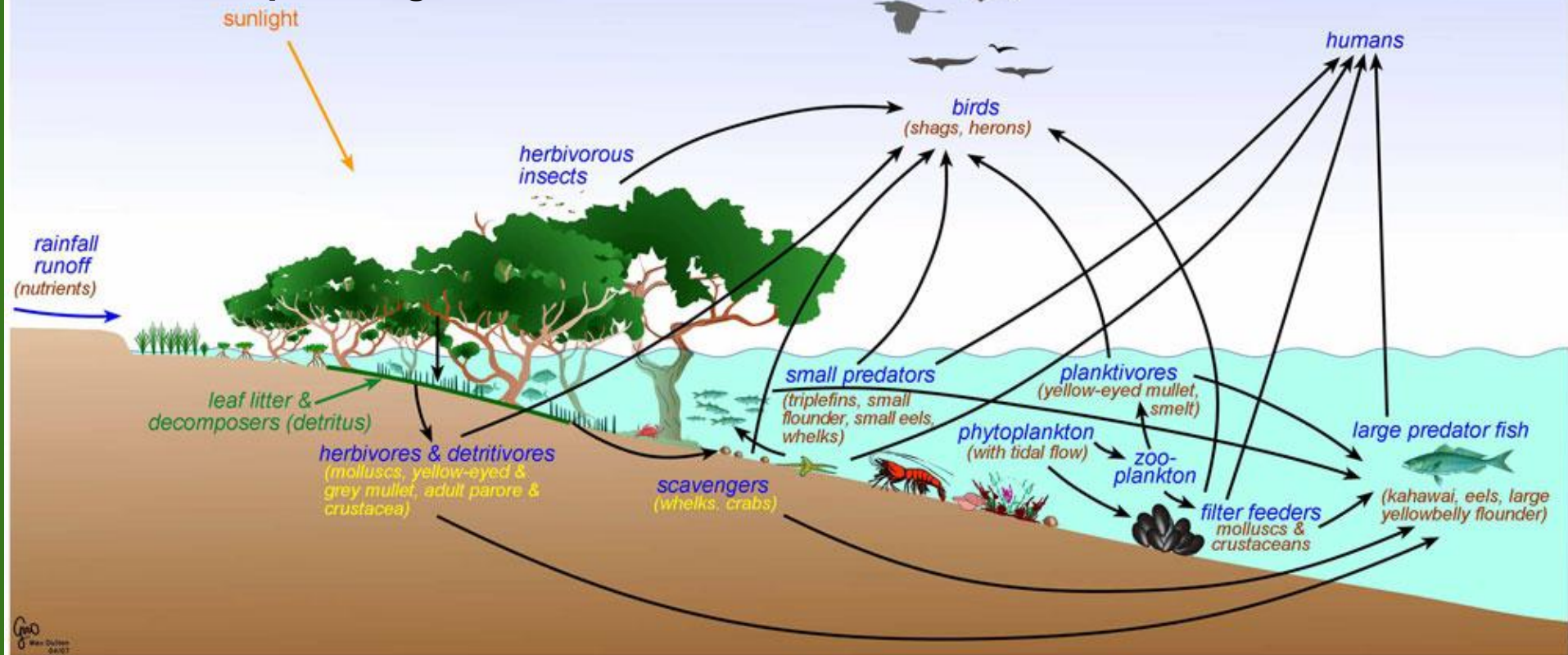
If mangroves are being destroyed around the world because of urban and commercial development, then the government should pass more or stronger laws to support mangroves and end their destruction.

Destroyed Mangroves



Mangrove Food Web

Data 1 : Graphic Organizer

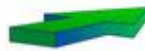


Sediments
Larvae
Adults
Phytoplankton

Flood



Ebb



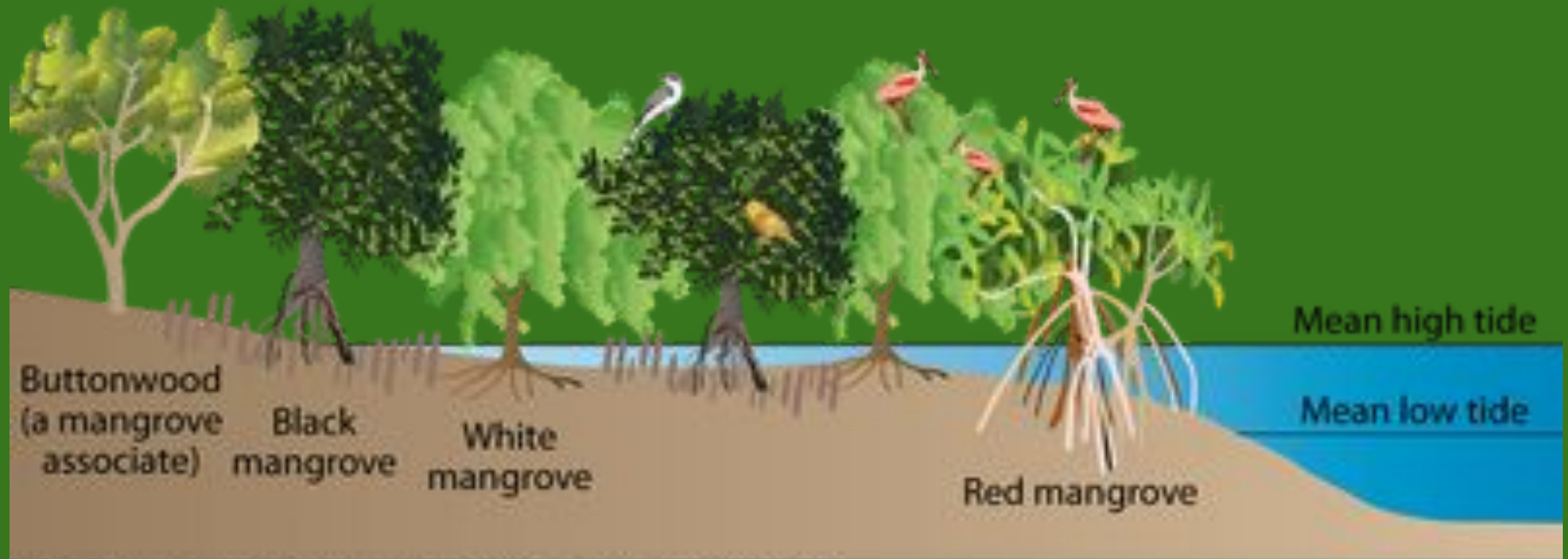
Sediments
Detritus
Nutrients
Larvae

Data 2:

Facts about mangroves:

- There are 35 species. (red and black mangroves are on Guam)
- Factor of desalination. (separation of salt from salt water)
- World's most threatened tropical ecosystems
- In Americas: cleared faster than Tropical rainforests.

Species of Mangroves



Conceptual diagram illustrating the dominant mangrove species of south Florida.

Diagram courtesy of the Integration and Application Network (ian.umces.edu), University of Maryland Center for Environmental Science. Source: Kruczynski, W.L., and P.J. Fletcher (eds.), 2012. Tropical Connections: South Florida's marine environment. IAN Press, University of Maryland Center for Environmental Science, Cambridge, Maryland. 492 pp.

Cite Laws:

All marine plants are protected under Queensland law through provisions of the *Fisheries Act 1994*. The destruction, damage or disturbance of marine plants without prior approval from Fisheries Queensland is prohibited.

Heavy penalties apply to any unauthorised disturbances that impact on marine plants. Protection also applies to all marine plants, no matter where they grow (i.e. on all private and public lands).

Marine plants grow on or adjacent to tidal lands. They include mangroves, seagrass, saltcouch, algae, samphire (succulent) vegetation and adjacent plants, such as melaleuca (paper barks) and casuarina (coastal she-oaks)

Data 2: Figures and Measurements

The current rate of mangrove loss is approximately 1% per annum (according to the Food and Agriculture Organization – FAO), or roughly 150,000 hectares (370,050 acres) of mangrove wetlands lost each year.

The amount of mangrove forest loss is alarming:

Thailand has lost more than half of its mangrove forests since 1960;

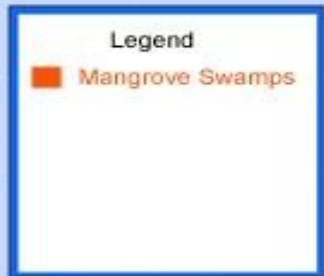
In the Philippines, mangroves have declined from an estimated 448,000 hectares in the 1920s to only 110,000 hectares by 1990;

In Ecuador, estimates of mangrove loss range from 20% to nearly 50% of Ecuador's once 362,000 ha of mangrove forested coastline. The Muisne region of Ecuador alone has lost nearly 90% of its mangroves

Conclusion:

In Florida and Australia (Oceania), they have regulations and protection policies for mangroves. In these laws, they recognized the importance of mangroves and how they help the ecosystem.

Mangroves Around the World



Mangroves around the World



Reflection

We went to Port Authority Road, Piti to take pictures and get a personal experience with Guam's mangroves. If there are more laws that protect mangroves, we can save marine life and not cause erosion around the world. Mangroves are apart of our ecosystem and it is our job to keep them there.

Mangrove Revival



Organizations around the World participate in Mangrove Revival Activities. This activity is able to grow more mangroves or help their growth after being destroyed.



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The End!



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