



MARINE & COASTAL PLANTS

LESSON PLAN

Overview

This lesson will provide students with an introduction to various marine and coastal plants found in the U.S. Virgin Islands. Students will assist with the planting of red mangroves to help support the biodiversity of an established restoration site.

Objective

Students will be able to identify common marine and coastal plants found in the U.S. Virgin Islands.

NGSS Standards

ESS3.C: Human Impacts on Earth Systems
 LS2.A: Interdependent Relationships in Ecosystems
 ESS3.A: Natural Resources

Ocean Literacy Standards

6. The ocean and humans are inextricably interconnected.

Background – What are marine & coastal plants?



Marine and coastal plants are plants often found growing coastal and nearshore environments. Some of these plants are classified as halophytes (halo = salt / phyte = plant) which are plants that can tolerate saline environments. Examples of these plants include mangroves, seagrasses, and algae.

I. Mangroves



Red mangrove

Rhizophora mangle



White mangrove

Laguncularia racemosa



Black mangrove

Avicennia germinans

There are 3 main species of mangroves found in the U.S. Virgin Islands: red, white, and black mangroves. Most mangroves provide shelter for shore birds; however, the red mangrove, due to its prop roots which give the tree the appearance of walking on water goes one step further. These roots are able to also provide suitable habitat for juvenile fish as well as acting as a buffer to lessen the impacts of storm surge.

2. Other coastal trees



Haiti Haiti (Maho) *Thespesia populnea*

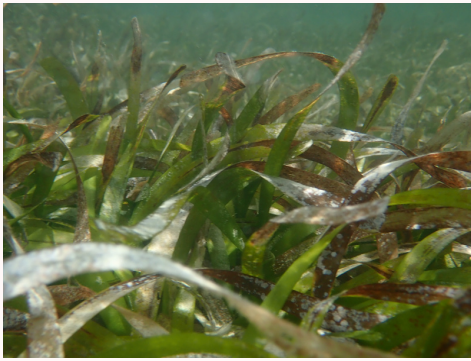


Manchineel apple *Hippomane mancinella*



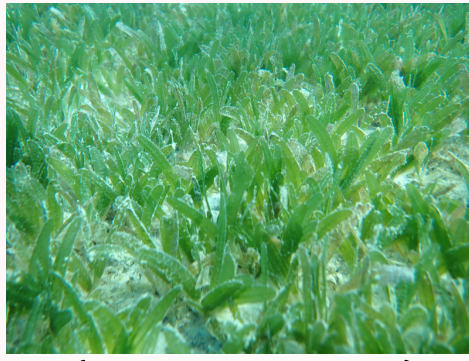
Other coastal plants include the Maho and Manchineel apple. The Maho has heart-shaped leaves and round green fruits that could be mistaken for the Manchineel apple which is poisonous along with most parts of the tree. Caution should be exercised to not consume the fruit of the manchineel apple.

3. Seagrasses



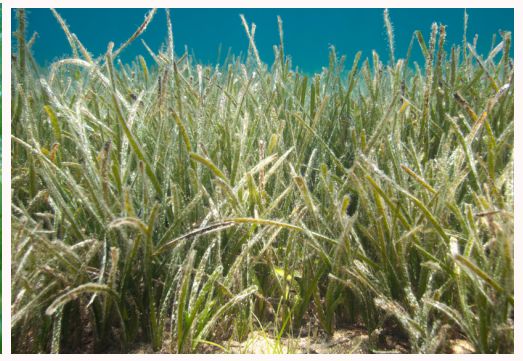
Turtle grass

Thalassia testudinum



(Invasive species)

Halophila stipulacea



Shoal grass

Halodule wrightii

There are 4 main species of seagrasses found in the U.S. Virgin Islands: Turtle grass, Shoal grass, and Manatee grass (the fourth is *Halophila stipulacea* which is native to the Mediterranean). Seagrasses are flowering marine plants that also provide habitat for marine invertebrates and vertebrates. It is also a food source for herbivores like sea turtles and manatees.

4. Algae



White scroll algae

Padina jamaicensis



Calcareous algae

Halimeda spp.



Bubble algae

Caulerpa racemosa

There are numerous species of algae found in the U.S. Virgin Islands but are easily categorized based on their color: Brown algae, Green algae, and Red algae. Algae provide a source of food for a variety of marine herbivores.

Overview of the Mangrove Planting Activity

Equipment

During the mangrove planting activity, the following equipment will be used/needed:

- Shovels or hand trowels
- Gloves
- Red mangroves ready for planting
- Notebook and pencil
- Drinking water

Attire

Students should have the following:

- Clothing they don't mind getting wet (No long pants)
- Water shoes
- Hat

Safety

The following precautions will be taken during the shoreline walk to ensure safety of all participants:

- **Safety briefing administered prior to the start of activity.**
- **Gloves will be worn while planting.**
- **Water shoes are worn by all participants to avoid injury.**

Explore

Examples of students learning about mangroves and planting mangroves are pictured below.



Overview

- Organize into small groups and receive their equipment.
- Receive the safety briefing and introduction to mangroves at the sea water tables.
- Traverse to Range Cay and identify 1) Plants along the way and 2) Suitable locations for planting mangroves.
- Once location has been found, carefully remove the mangrove from the pot, insert into dug hole, and cover back with sand and rocks for stabilization.

Duration

Approximately 30-45 minutes

Critical Thinking

While on the planting mangroves, use these prompts to encourage further discussion:

- What are the 3 species of mangroves found in the USVI?
- What are some threats that mangrove ecosystems face today?

EVALUATION:

Evaluation Rubric:

Can identify all 3 species of mangroves while in the field.

1

2

3

Can identify 2 other coastal plants (besides mangroves).

1

2

3

Needs work

Great

Excellent

1

2

3