



Department of Planning and Natural Resources
Division of Fish and Wildlife
U.S.V.I. Fact Sheet #28
The Importance of Mangroves



Introduction

The mangrove ecosystem is a group of salt-tolerant shrubs and trees that form coastal or estuarine forests. The main characteristics used to define the mangrove ecosystem are air and water temperature (warm), type of substrate (silt/clay), ability to provide protection from wave energy (from major disturbances), presence of salt water, tidal range, ocean currents and shallow sloping shores. Globally, there are 110 recognized species of plants classified as mangroves, belonging to 20 different families. Within the Caribbean, however, there are only four (4) types of mangroves that belong to three families. In the Caribbean, mangrove species are generally delineated based on the moisture of the soil and how well they have adapted to tolerating salt levels. Mangrove trees found in the Caribbean are Red Mangroves, *Rhizophora mangle*, Black Mangroves, *Avicennia germinans*, White Mangroves, *Laguncularia racemosa*, and the Button Mangrove or Buttonwood, *Conocarpus erectus*.

These trees are found in different zones within the mangrove forest, depending on their ability to tolerate salt concentrations. Red mangroves are found in the areas closest to the water and are usually permanently inundated with salt water. The next shoreward species are the black mangroves. Black mangroves are the most widely distributed species within the mangrove forest since they can tolerate a wide-range of salinity. They are followed by the white mangrove, which grows in brackish to salty

mud and is only intermittently affected by tides. The buttonwood mangrove is the least affected by tides and is usually found on the landward side of the mangrove forest. They are not limited to saline environments and are sometimes found outside of the mangrove forest.

Mangrove forests serve many purposes including, providing habitat to many species, acting as nursery grounds, as wave buffers, protecting coral reefs and seagrass beds from sedimentation, and man-made events.

Species Habitat

The environmental benefits of mangroves, as well as their commercial uses, have made mangrove forests very important ecosystems. Many diverse species inhabit mangrove forests, including fish, birds,



reptiles, amphibians, mollusks, crustaceans and many other invertebrates. Algae, sponges, corals and anemones can often be found attached to exposed roots. Clams, sea snails and mussels can be found hidden in the crevices. Crabs can also be found inhabiting mangrove forests. Coastal birds, such as pelicans, spoonbills and ospreys, use the mangrove canopy for nesting, roosting and feeding.

Nursery Grounds

Mangroves provide juvenile fish with refuge from large predators because the exposed prop roots and pneumatophores provide ample hiding places for fish

and plenty of food. Up to 80% of global fish catches are directly or indirectly dependant on mangroves. Many local commercially important fish species use mangroves as nurseries. The juveniles remain in the mangrove habitat until they grow larger and are less vulnerable to predators. They then move to more open habitats, such as seagrass beds and coral reefs. Studies on St. Thomas and St. Croix have shown that shorelines along mangrove forests are very important habitat for spiny lobster and other reef fish, such as grunts and snappers.

Wave Buffers

Mangrove lagoons are sheltered areas, however the structure of the trees enable them to withstand rare heavy wave impacts and help to dissipate wave action from severe storms. It is because of this durability and protection that boats are often moored in mangrove lagoons during the hurricane season.

Mangrove forests are also important for protecting shorelines from tsunamis and other high wave events. It was determined that, after the 2004 Boxing Day tsunami in Asia, villages with mangrove forests intact survived the waves with a lot less damage than villages on open beaches.

Sediment Filtering

Mangroves help prevent sediments from reaching other critical marine habitats, such as coral reefs and seagrass beds. The health of these habitats is dependent in part on clear water, so that sunlight is able to penetrate the water column.

The retention of sediments and nutrients by mangroves helps to prevent sedimentation on the coral reefs, which could lead to the smothering of reefs and the growth of algae on the reef from increased nutrients in the water. Seagrass beds are also dependent on clear water and decreases in turbidity and sedimentation by the filtering of nutrients by

mangrove forests help promote their health as well. The destruction of mangrove forests will lead to an increase in the amount of sediment discharged into the ocean, thereby decreasing the overall health of adjacent offshore habitats.

The accumulation of sediment by the roots in mangrove forests also helps build land mass. As the

new land stabilizes, mangroves move seaward leaving the new land to be colonized by other plants.



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Commercial Uses

Mangrove forests have several commercial uses. Mangroves are cut and burned to produce charcoal. They are also used to fashion fish traps and boat construction. They are used as harvesting areas for fish, shrimp (Altona Lagoon), lobster, mussels and other mollusks. However, the USVI has a “no net loss” regulation, meaning there cannot be a loss of mangroves within the territory and permits are required to even prune mangroves.

Mangrove lagoons are highly valued for eco-tourism ventures. Kayaking and sailing tours take place in these areas, since they are calm and provide a safe area for both novice and expert boaters. Also, because of the huge diversity of marine organisms found in mangrove lagoons, snorkelers may be able to see species that they may not otherwise be able to find.

Threats

The main threat to mangroves throughout the world is their over-exploitation by man. Globally,

unsustainable harvesting of mangrove trees for charcoal and lumber can lead to a rapid decline in the amount of mangrove forests present.

Development along the coastline often results in the removal of mangroves by dredging for marinas or filling for construction. This has damaging effects on adjacent habitats, such as coral reefs and seagrass beds, as well as on the fish and shellfish that rely heavily on mangroves for the completion of their different life stages.

The destruction of mangrove forests will decrease biodiversity within these areas, increase coastal erosion, storm impacts and decrease fisheries production. It is therefore very important that mangrove lagoons be protected and conservation methods be implemented to ensure their continued health.

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