

Anguilla's Coastal Environment

Anguilla is only 35 square miles. From almost anywhere, you can catch at least a glimpse of sparkling blue water. With a porous limestone base, the island acts as a sponge, soaking up saltwater from the surrounding Caribbean Sea and Atlantic Ocean and freshwater from rainfall.

Although Anguilla's land cover is relatively limited, its vegetation cover is surprisingly extensive – particularly in the in-land areas. While its low-lying scrubland with frangipani trees and popes head cacti provide a beautiful backdrop in the less-developed areas of the island, Anguilla's coastline remains both the primary draw for the tens of thousands of visitors who come to the island each year as well as a source of pride for the fortunate people who call Anguilla home.

Anguilla is famous for its white sand beaches and warm turquoise waters. But an entire other world exists below the low tide mark and the water's rippling surface and it is a world that is affected by what happens outside of it: its health is directly linked to the health of the land.

An intricate network of coral reefs line Anguilla. Often called rainforests of the sea, coral reefs teem with plant and animal life. They also exist in an ecological relationship with two other habitats found slightly closer to shore – seagrass beds and mangrove forests. Working together, coral reefs, seagrass beds, and mangrove forests help to maintain a delicate balance that keeps Anguilla's coastal waters and shoreline clean, stocked with fish, lined with white sand, and protected from excessive and destructive wave action.



Coastal Conservation

Unfortunately, Anguilla's coastal habitats are under threat from both natural and human-based stressors.

Hurricanes and other strong storm systems, weather anomalies such as the El Niño, exposure to the air during extreme low tides, and freshwater inundation have long put pressure on the island's coral reefs, seagrass beds, and mangrove forests. While the impacts of these stressors have been felt for thousands of years, in the past, the ecosystems have been able to recover. Lately, though, recovery has been much slower and far more limited. So what has changed?

Over the years, the amount of pressure placed on the natural environment by humans has increased substantially. Habitats are being destroyed to make way for buildings, water is being polluted by sewage seepage and dumping, sand is being mined, bays are being dredged, anchors are being dropped on corals, reefs and seagrass beds are being suffocated by excessive algal growth and sediment from land and beach erosion, fish stocks and other marine organisms are being over-exploited, and the health of the island and all of its inhabitants is being compromised. If we want to keep what we have left, we need to make some changes.

Conserving Anguilla's coastal habitats means:

- supporting a type of smart, sustainable, green development and technologies;
- working within the environment's limits;
- implementing a long-term plan that considers the alternatives as well as their benefits and costs (social, political, economic, ecological);
- providing government agencies responsible for coastal and environmental management with the necessary financial and human resources and supporting environmental nongovernmental organisations; and
- actively involving the the people who live on this island.



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Preservation for Generations



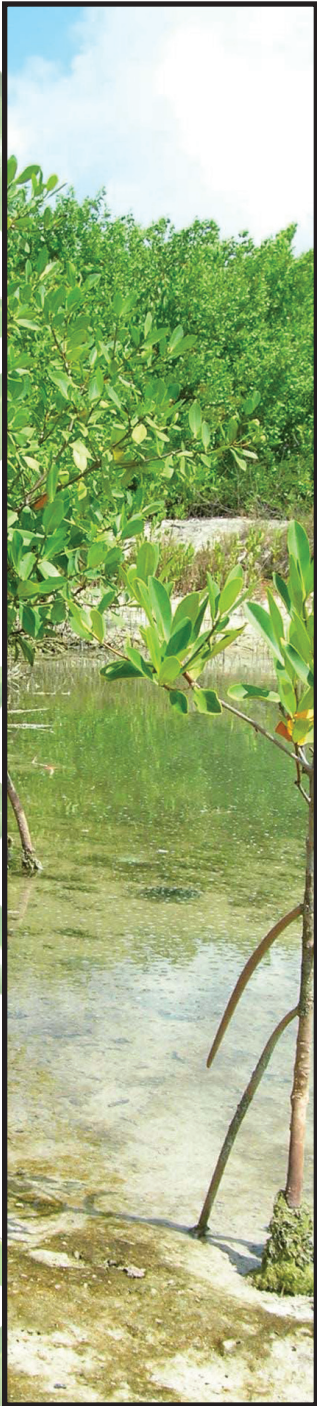
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UNDER
the water's surface

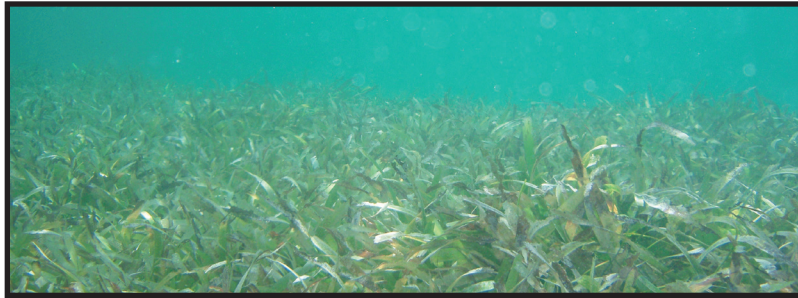
Anguilla's coastal habitats

Mangrove Forests



- Mangroves are found primarily in brackish (salt-fresh) water areas.
- They are usually swamp-like: muddy, sticky, and crawling with insect-life.
- In Anguilla, there are small stands of black, white, and red mangroves.
- Some types of mangroves have long roots that curve above the water and then dip into the ground's muddy substrate.
- The most common type of mangrove tree in Anguilla is the buttonwood (*Conocarpus erectus*).
- They are found along the coastline, along saltponds, and even in the interior.
- Mangrove forests have high productivity and can produce over 23 tonnes of leaf litter, flowers, and branches in a single year.
- This material becomes scattered on the ground and becomes important organic and energy matter for other organisms living in the forest.
- Mangroves act as nursery areas and safe havens for the young fish that use the intricate root system as protective shelter from predators.
- They are also places where food supply is also almost guaranteed.
- Other organisms, such as crabs, use mangrove forests as living and feeding places.
- The mangrove trees' root network helps to protect shorelines from erosion, act as sediment traps, filter contaminants and nutrients, and provide a buffer area for other coastal forests and plant life that cannot survive such salty conditions.

Seagrass Beds



- Seagrass are types of plants that live in water.
- They are found relatively close to shore and in waters that range between 1 and 5 metres in depth.
- The most common type found in Anguilla's waters is turtlegrass (*Thalassia testudinum*).
- They are able to make their own food through a process called photosynthesis which involves using light energy to convert carbon dioxide and water into chemical energy.
- They are extremely productive habitats – one acre can produce up to 10 tonnes of leaves per year, support up to 40 000 fish, and 50 million small invertebrates.
- They provide habitat and grazing areas for some of the world's most endangered species, including green sea turtles.
- An extensive network of roots that run under the sea bottom prevents predators from digging too deep and from preying on organisms that bury themselves into the sandy ground.
- Roots also prevent erosion of the sea bottom by keeping the sand compact and in place.
- One particular type of algae that grows within the seagrass bed, *Halimeda*, is hard and crusty because it has a carbonate skeleton.
- When *Halimeda* gets broken or when it dies, wave action breaks down its hard body and after time, it becomes another source of white sand for Anguilla's beaches.
- Since seagrass beds are also sensitive to changes in the surrounding water, they are considered indicators of the general health of the coastal environment.
- Along with mangrove forests, seagrass beds provide food, shelter, and nursery areas for commercial and recreational fish species and for a wide range of invertebrates.

Coral Reefs

- Reefs are built by individual, simple animals called coral polyps.
- Coral polyps secrete their skeletons from their bases and use their tissue to connect to their neighbours to form colonies.
- Individual coral polyps are dependent both on other coral polyps and zooxanthellae (single-celled algae) which live inside of them for their survival.
- Zooxanthellae photosynthesise, make food for themselves, absorb carbon dioxide from the water, and feed on the coral polyps' waste products - these activities help corals to build their own skeletons and to breathe.
- Corals can also gather the nutrients they need by filtering them from the surrounding seawater and by feeding on the zooxanthellae.
- Some corals polyps are able to produce stony skeletons out of calcium carbonate.



- As these coral polyps grow, reproduce, and die, new corals build their limestone skeletons on those of previous generations and, in some cases, those that have existed for thousands of years.
- How coral reefs grow and develop is influenced by the temperature of the water, marine salinity, water depth and light penetration, and nutrient and sediment content.
- A healthy reef is more than just coral - it teems with life – fish, lobsters, crayfish, sponges, sea stars, sea slugs, and countless other organisms can be found here.
- Coral reef health is important because reefs provide homes and nursery grounds for a wide range of commercial and non-commercial fish and invertebrate species, provide sand for beaches, act as barriers against wave action, produce materials of medicinal value, and directly and indirectly support fisheries and tourism industries.