

Lab Study: Undersea Explorer

Pre-excursion information

This activity allows students to explore the undersea world at the National Marine Science Centre's Solitary Islands Aquarium. Students observe a range of marine organisms and the habitats in which they live and also develop an understanding of the complex interactions between organisms. Students also gain an appreciation on the sustainable use of the marine environment.

Key Understandings

- Identifies and describes the structure and function of living things and ways in which living things interact with other living things and their environment.
- Living things interact with each other and affect their environments in complex ways.

The Solitary Islands Aquarium

The Solitary Islands Aquarium allows students of all ages and learning abilities the opportunity to experience and learn about the marine life of the Coffs Coast. The aquarium displays various marine habitats found along this coastline including inshore, estuary, temperate and coral reef ecosystems. Students gain insight into the animals that live within these habitats and their interaction with one another through watching a short documentary, a guided tour of the aquarium and the opportunity to touch some inshore marine invertebrates.

Background Information

Established in 1991, the Solitary Islands Marine Park (formerly a marine reserve) is one of the oldest marine parks in NSW. The marine park stretches from Muttonbird Island in the south to Plover Island (at the Sandon River) in the north, and incorporates five "Solitary" islands, rock outcrops and reefs, and an array of beaches, rocky shores and estuaries.



Its location along the NSW coast ensures it is bathed by both the warm tropical waters of the East Australian Current from the north, as well as cooler currents from the south. The result is a unique “mixing zone” where tropical, sub-tropical and temperate marine species can co-exist.

To date, over 700 species of reef fish have been observed throughout the marine park. This is diverse for New South Wales and is mainly due to the range, extent and complexity of reef habitat in the Solitary Islands area, combined with the mixed influence of the tropical and temperate currents. The extensive reef habitat is due in part to the offshore continuation of rock from the adjacent coastal range. Estuaries within the marine park are reported as some of the most pristine in NSW; in particular, and largely because the majority of adjacent land is located in Yuraygir National Park, the Sandon River, Woolli Woolli River and Salt-water Creek arm of the Corindi River. In the Sandon and Woolli Woolli Rivers, it is possible to find all of the seven known species of mangroves that occur in NSW.

Protected species occurring in the marine park include sharks, fish, molluscs, corals, birds, sea-turtles, whales and dolphins. The endangered grey nurse shark is found throughout the marine park, but is known to aggregate at sites at North Solitary Island, South Solitary Island and Pimpernel Rock (in the Commonwealth Marine Reserve). The threatened great white shark also occurs in this area, and individuals are occasionally sighted.

Three species of sea-turtle: loggerhead, green and hawksbill, which are all threatened, are also found in the marine park throughout the year, with resident turtles at some sites. Both common and bottlenose dolphins are regularly seen throughout the marine park, as well a number of whale species.

Homes in the Sea

The sea is one of the richest, most diverse areas in the world: rich because it supports an amazing number of plants and animals, diverse because its varied features form a wide array of habitats, or homes. From off shore deep reefs to the wave-swept rocky shore, each habitat is unique. As students explore, they will make a discovery: each habitat has its own special character, living conditions and associated community of plants and animals specially adapted to life there.

In every habitat, plants and animals face the same challenges: they must find food, defend themselves and their homes and live long enough to reproduce - all of these in order to survive as a species. When you investigate the seas - plants and animals, whether at home, at school, along the shore or at the aquarium, you can discover even more about each plant and animal by thinking about its habitat and how well it is suited for life.