

ICS research

# The distant undersea meadows of Seychelles

Amongst the Outer Islands lie some of the most intact and important seagrass ecosystems in Seychelles, which hold both biological and commercial value. The large lagoons found amongst the atolls provide critical habitat for several species of seagrass, which in turn host an abundance of marine life and help combat the effects of climate change by absorbing CO2 from the surrounding water.

Contributed by Island Conservation Society. Authored by Matthew Morgan and Jeanne A. Mortimer

Known locally as "gomon", seagrass comes in many shapes and sizes, but generally forms large mats of vegetation, comparable to a garden lawn. It typically grows in shallow water, as it requires sunlight to photosynthesise, but in clear water it can be found at depths in

excess of 30m. Unlike marine macro-algae (also known as "gomon") - the structure of which are comparatively basic - seagrasses are more complicated with roots and vascular systems, and reproduce by means of flowers, seeds and pollen. Their structural complexity allows them to create complex habitats. In nearshore waters, their leaves baffle the impact of heavy seas, which helps to stabilize the seabed, thereby reducing coastal erosion.

These underwater meadows support an abundance of life, including turtles, fish and sea cucumbers. Their importance is comparable to that of coral reefs, but unfortunately, they have not received the same amount of attention.

In order to help fill this knowledge gap, the Island Conservation Society (ICS) has produced a protocol for assessing and monitoring seagrass habitats under the GOS-UNDP-GEF Expansion and Strengthening of the Pro-

TECTED Areas Subsystem of the Outer Islands of Seychelles and its integration into the broader land and seascape project. ICS is using this protocol across Poivre, Desroches, Alphonse/St. François and Farquhar atolls, as well as at other sites, including Providence and Platte islands. The ICS teams primarily focus on seagrass mapping and on descriptions of species assemblages of plants and associated fauna. They also collect samples to archive at the Seychelles National



Dead seagrass leaves even provide nesting material for birds. Here, Brown Noddies are collecting dead leaves of the seagrass (*Thalassodendron ciliatum*) to construct their nests at Ile aux Goélettes at Farquhar atoll.

Herbarium. Depending on the depth of the habitat, the work can be carried out while walking at low tide with a viewing bucket, or while snorkelling or SCUBA diving.

So far, baseline surveys have produced some very interesting results. At several sites, including Poivre atoll and Platte island, ground surveys conducted by ICS found expanses of cropped *Thalassia hemprichii* across the tidal flats; evidence that this is an important feeding area for Green Turtles (*Chelonia mydas*). Had researchers relied only on satel-

About the GOS-UNDP-GEF Outer Islands Project

The GOS-UNDP-GEF Outer Islands project, "Expansion and strengthening of the protected area subsystem of the Outer Islands of Seychelles and its integration into the broader land and seascape", aims to promote the conservation and sustainable use of terrestrial and marine biodiversity in the Seychelles' Outer Islands by expanding the protected areas system and strengthening protected area management, supported by broad-scale ecosystem planning and sustainable land management activities to conserve ecosystem functions.

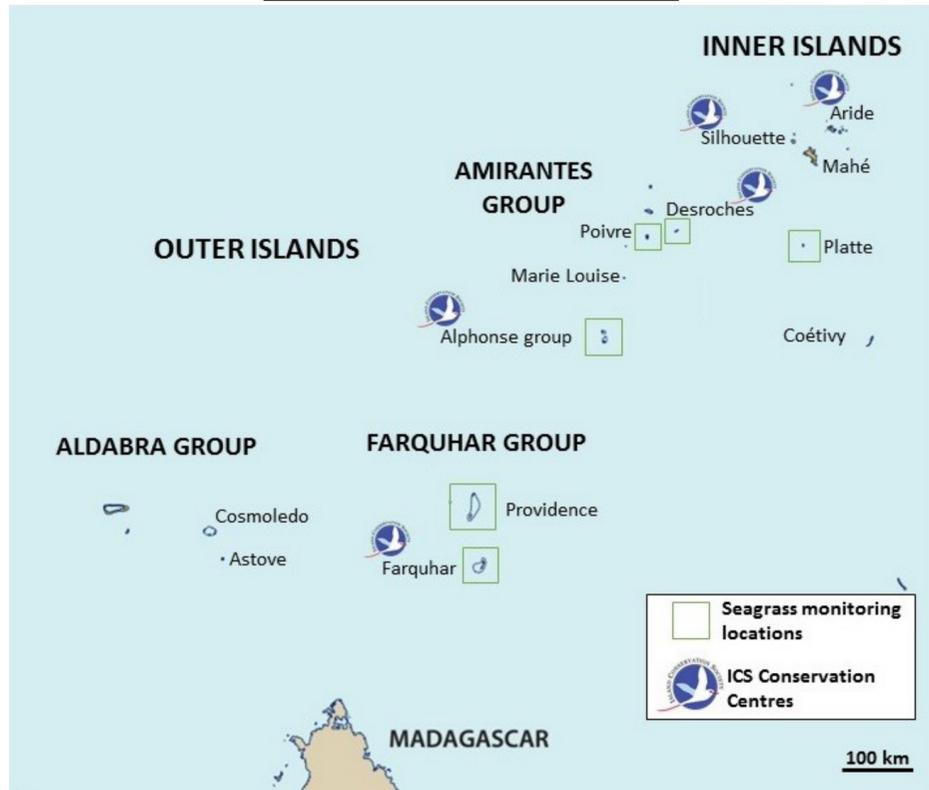
lite imagery to assess seagrass abundance, they would have discounted the importance of these areas as seagrass habitats because the cropped leaves made the plants difficult to see from a distance. Desroches atoll probably hosts the richest and most diverse seagrass habitats in the Outer Islands. There, ongoing research by resident ICS personnel has revealed at least 5 species of seagrass, ranging from depths of 0.5 - 30+ metres. In fact, the inner lagoon hosts such extensive tracts of seagrass, that old leaves, which are shed on a regu-



Jeanne Mortimer observing a seagrass meadow. Basic in-water observations are useful for understanding seagrass species assemblages and mapping their distribution.



Seagrass is not only important to the underwater world. These highly productive plants shed some of their leaves at intervals which float to the surface and wash ashore, forming large mounds of dead seagrass on islands such as Desroches. These mini-mountains of dead seagrass accumulate at various points around the island, depending on the season. They provide fertilizer for vegetation growing on the beach platform, as well as habitat for a wide range of small invertebrates which, in turn, are fed upon by birds.



A map of Seagrass monitoring locations

lar basis, can wash ashore and form mounds on the beach more than a metre high! This leaf litter helps fertilise the island and provides perfect foraging habitat for wading birds. Further south, at Farquhar Atoll, seagrass assessments were conducted at the coordinates to where an adult Green Turtle had been satellite-tracked by GPS, enabling researchers to better understand the *Thalassodendron ciliatum* foraging habitat of the turtle.

Seychelles is very fortunate to have pristine seagrass habitats, which continue to play their role in the ecosystem. Removal or alteration of seagrass habitats can lead to large-scale coastal erosion and destruction of fisheries, plus a general loss of biodiversity. Furthering our understanding of these habitats is critical for their preservation and management in the future and is particularly important in the face of a changing climate.



A lush meadow of *Thalassodendron ciliatum*, a dominant species of seagrass found throughout Seychelles, but most abundantly in the outer islands. It occurs at depths ranging from 0.5 metres to more than 30 metres.



Dead seagrass mounds and the small animals living amongst the leaves provide ideal foraging habitat for birds, particularly waders. Here, two Ruddy turnstones (*Arenaria interpres*) and a Sanderling (*Calidris miniata*) are taking a small break from rooting for food.

