

A Walk Along the Shore: Conserving Marine Biodiversity in a Tropical City

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Images by National Parks Board



“
In the end we will
conserve only what
we love; we will love
only what we understand;
and we will understand
only what we are taught.

– Baba Dioum, 1968

1. The false clown anemonefish (*Amphiprion ocellaris*) is quite commonly seen underwater, hiding amongst the large anemones at the Southern Islands. The fish produces a mucus layer that protects itself from being stung by the anemone.

It is challenging to care for and protect what we do not see. This is certainly the case in urbanised cities, where natural areas are often replaced by engineered structures—resulting in environments where citizens have limited contact with the natural environment.

Singapore is no exception. Changes to the coastal and marine environment, particularly over the last century, have resulted in significant habitat loss and subsequently, the disappearance of the biodiversity that these habitats harbour.

In the light of growing civic consciousness among Singaporeans, hope exists. The first major inroads in nature conservation could be seen in the fight to save Chek Jawa from development in 2001, a community-led initiative that led to greater awareness and appreciation of our natural heritage. Since then, the concept of safeguarding our natural heritage has gained traction, fuelled by the proliferation of social media and active interest groups who continuously raise awareness of our native biodiversity via the sharing of pictures, videos and experiences.

However, the conservation of marine biodiversity presents a different challenge. Compared to terrestrial biodiversity, which is easily accessible and visible, it is relatively more difficult to encounter and interact with marine life.

With countless seafaring vessels dotting our horizons, it is easy to assume that there is nothing worth seeing under our busy and murky waters. Therefore, it may surprise many that although Singapore’s territorial waters cover less than 0.001% of the world’s coral reefs, they are home to over 250 species of hard corals—a third of the world’s species, or almost half of the region’s species. With a growing body of knowledge of our marine environment and increasing awareness of our natural underwater heritage over the last three decades, they ultimately led to the recent establishment of the Sisters’ Islands Marine Park, an initiative creating waves in the small but growing field of marine conservation.

The Sisters’ Islands Marine Park occupies an area of 40 hectares around Sisters’ Islands and trails along the western reefs of both St John’s Island and Pulau Tekukor. The park serves as a platform for public outreach, education, research, and conservation of Singapore’s native marine biodiversity. Besides its public-facing role, the park also provides a safe refuge for the many organisms living in the coral reefs and intertidal zones: hard and soft corals, marine turtles, reef fish, sponges, seagrass and numerous other marine invertebrates found within and around the park’s waters. With barely a 40-minute boat ride from Marina South Pier, Singaporeans will be able to visit Big Sister’s Island and experience the abundant marine life that usually remains submerged from view. Through guided intertidal walks, dive trails, and future plans like a floating pontoon and boardwalk, the Marine Park hopes to educate and engage the public in its conservation efforts.

Guided Intertidal Walks

Members of the public can sign up for free guided intertidal walks within the Sisters' Islands Marine Park, led by trained volunteer guides. Popular with visitors, the guided intertidal walks have enthralled visitors with a slew of memorable encounters. Their growing popularity is not surprising; continuous media publicity and numerous social media posts reveal the vibrant marine animals such as seahorses, giant clams, boulder corals and sea stars spotted during low tides, which have piqued the interest of many Singaporeans and potential visitors.

In recent times, the corals at Sisters' Islands were not spared from soaring sea surface temperatures, a cause of mass coral bleaching globally. While the sight of bleached coral exposed during low tides was saddening, the volunteer guides have continued with the intertidal walks, now using the opportunity to share about climate change and its potential impacts on marine biodiversity.

Coral Nurseries and Turtle Hatchery

Apart from visiting or volunteering with the marine park, new community outreach initiatives such as the Plant-A-Coral and the Seed-A-Reef programmes under the Garden City Fund provide different avenues for individuals, organisations, and other corporate bodies to contribute to conservation efforts. Donors will be able to sponsor a coral via the Plant-A-Coral initiative; the Seed-A-Reef initiative lets donors sponsor a reef enhancement unit (REU), an artificial structure placed within suitable reef zones to enhance bare areas for marine organisms to grow and reef fish to seek refuge. HSBC has fully supported the first phase of the Seed-A-Reef initiative through their donation of \$180,000 for nine REUs. Interested parties can make an online donation at www.gardencityfund.org/coral, and receive a photo update every six months on the progress of the REUs through the Garden City Fund website for a period of three years.

A turtle hatchery will also be established within the southern lagoon of the Small Sister's Island through a \$500,000 donation from HSBC. Sea turtles visit sandy beaches such as those at East Coast Park and Changi Beach to lay eggs. If eggs are found and assessed to be at risk, they will be collected and transferred to the turtle hatchery, where they will be monitored and cared for until they hatch and are released into the sea. The hatchery also provide research opportunities to study local sea turtle populations.




What's Next?

New conservation, research, outreach and educational plans for the Sisters' Islands Marine Park were announced in May 2016, providing the public with more opportunities to learn about Singapore's rich marine biodiversity and contribute to marine conservation efforts.

They will be carried out sensitively according to principles of sustainability to ensure existing habitats and the biodiversity they support are not negatively impacted. These plans were the results of a feasibility study that began in 2015 after engaging key stakeholders for their ideas and feedback. The study explored sustainable ways to conserve the habitats in Sisters' Islands Marine Park, as well as to provide a range of outreach and educational activities for members of the public.

Big Sister's Island will serve the Marine Park's objectives of conservation, outreach and education. Members of the public can look forward to a boardwalk, intertidal pools and a floating pontoon which will be sensitively established; while further inland, the public can explore the island via forest trails. Small Sister's Island will serve as a dedicated site for marine conservation research, with facilities to promote species recovery and habitat enhancement. Programmes will be conducted to facilitate visits for schools, institutes and organisations to learn about marine research and initiatives carried out in Singapore's waters. A coral nursery and Singapore's first turtle hatchery will also be established on Small Sister's Island.

Exciting times lie ahead for both marine researchers and Singaporeans alike. While operations on Sisters' Islands are still in the early stages, the potential of the Marine Park to capture the hearts and minds of visitors cannot be denied. In the midst of balancing competing needs in conservation, outreach and education, it is hoped that the Marine Park will play an important role in not only providing a biodiverse sanctuary, but to also serve as a valuable educational platform encouraging public appreciation for our unique marine life—a significant part of our natural heritage that may otherwise go unappreciated. 



2. NParks officer conducting a coral survey.

3. The Neptune's cup sponge (*Cliona patera*), with its iconic wine-glass shape and giant size, was once abundant in the waters surrounding Singapore. The sponge species was first described from a specimen collected in Singapore in 1822. It was thought to be extinct for more than a century before it was rediscovered in Singapore waters in 2011.

4. Sea fans also known as gorgonians can be found at both the northern and southern waters of Singapore. They are marine animals and not plants and are related to the sea anemone and jellyfish.

5. Bringing visitors along for a public guided walk at the Marine Park.