



The living reefs of Kusu Island. Under the Singapore Blue Plan 2018, which made recommendations to the Government this month, the protection of island clusters – instead of specific coral reef areas – is recommended for the first time to ensure that interconnectivity between habitats is preserved. Responding to the ground-up initiative, the Government has said it will see how it can work with the marine community to realise common goals. PHOTOS: RIA TAN

ScienceTalk

Dive into S'pore's marine environment to protect it

Greater awareness, dialogue between Govt and community can realise Blue Plan's goals

Zeehan Jaafar



About the writer

Dr Zeehan Jaafar is the lead editor of the Singapore Blue Plan. She is a marine biologist whose research focuses on the diversity, ecology and evolution of fishes. Concerned over the rapid loss of natural coastal areas of the region, she co-authored a book, *Endangered Forested Wetlands Of Sundaland*, which provides an overview of the current status of, and approaches to, conservation efforts for coastal areas of the region. She is a lecturer at the Department of Biological Sciences, National University of Singapore.

Singapore is an island-nation, and the lives of many Singaporeans are intertwined with the sea. Every day, coastal and marine areas here are used by thousands of people, for work and for play. The impact of these activities on marine ecosystems is significant. Yet, rich biodiversity still persists in our waters.

These marine areas deserve protection – not for the sake of nature alone – but also for our own health and future success. Coastal spaces and offshore islands offer us a respite from urban life and contribute to our well-being and national identity. Healthy marine ecosystems also provide services such as clean coastal waters important for aquaculture and desalination, and protection from coastal erosion.

Their sustainable management will strengthen Singapore's reputation as a global maritime hub and a smart, eco-conscious city.

These are some of the premises upon which the Singapore Blue Plan 2018 – an effort to protect the marine environment – proposed recommendations to the Government this month.

Responding to the ground-up initiative, the Government has said it will see how it can work with the marine community to realise common goals. This is the third blue plan: Ear-

lier recommendations were submitted to the Government in 2001 and 2009, and the latest effort is the most comprehensive to date. Led by five marine biologists, and with over 100 contributors, the document includes – for the first time – scientific and legislative data to support the proposed recommendations.

The recommendations are made in the spirit of ensuring long-term benefits to the country's marine areas. Incorporating basic environmental science concepts into the formal school curriculum is one proposal. Students learn about local culture and history in school, but little of Singapore's natural environments, including that of marine organisms, is unique. For instance, many may not know that our mangroves are home to one of the smallest fish species in the world.

Including environmental science and the ecological roles of native organisms in the formal curriculum ensures that we understand natural processes, and the implications of a changing climate.

In the Blue Plan 2018, in addition to coral reefs – the main focus of earlier years' recommendations – habitat types such as seagrass meadows and mangrove areas are also proposed for preservation. The protection of island clusters, instead of specific coral reef areas, is recommended for the first time to ensure that interconnectivity between habitats is preserved.

Protecting larger, interconnected islands also allows zoning for different uses within the area, an important principle that the

As Singaporeans, we recognise the immense pressure on our limited land and sea areas. When deciding between reclamation and preservation at a coral reef site, for example, difficult decisions have to be made. These decisions must be made carefully, and after active engagement sessions between the community and the Government. Coming to a collective decision may be a laborious process but it allows stakeholders and government agencies to state and justify their positions.

Blue Plan 2018 advocates. Take Pulau Ubin, for example. If it is gazetted for protection, visitors to the island would still be able to enjoy the same activities, including fishing and kayaking. Limited access zones would be restricted only to biologically sensitive sites to minimise trampling effects from human visitors.

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Realisation of the multiple present and potential uses of our natural areas is important in order to understand the value of what would be lost, so that we know what to save.

The commitment displayed by the Government to find a balance between infrastructure development and conservation of biodiversity and habitats is laudable.

Today, many community-led and Government-backed initiatives, such as coastal and reef clean-ups, mangrove and coral restoration efforts, and the annual Pesta Ubin festival to rediscover the island's charms, enhance community spirit.

Such activities are important because openness in communication paves the way for public stewardship of natural areas.

Several recommendations proposed in the previous Blue Plan 2009 have been implemented by the Government. Key among them was the Comprehensive Marine Biodiversity Survey – organised by the National Parks Board (NParks) and National University of Singapore – which ran from 2010 to 2015.

More than 350 surveys were conducted in the Johor and Singapore straits, uncovering a rich biodiversity of over 1,100 species, including many new ones. Another significant milestone was the designation of Sisters' Islands as a marine park.

It is our hope that the recommendations made in the Blue Plan 2018 can be realised through active partnership and collaboration between the community and government agencies.

The Blue Plan 2018 also advances platforms where interested members of the public and the Government can continue the dialogue, be-

cause these issues affect all citizens. It calls for greater transparency and accountability in environmental governance, and the conservation and sustainable use of the marine environment.

Urban development in fragile ecosystems that threatens endangered species must be considered with feedback from the community, so we do not lose our natural and national heritage.

Often, when discussing some of the impacts to the marine environment, we are met with an air of resignation over how little can be achieved as an individual. But the reality is quite the opposite: An individual wields incredible power.

Borrowing from Minister for Social and Family Development and Second Minister for National Development Desmond Lee's speech at the launch of the Blue Plan 2018 last Saturday: "You cannot protect what you don't love, and you can't love what you don't know."

If you are interested in protecting marine areas, visit coastal and marine parks, as well as wetland reserves. Be involved in community initiatives such as coastal and reef clean-ups or participate in guided walks. Share your experiences and your observations with your family and friends.

Resources on the Internet, including the websites of NParks, Celebrating Singapore Shores, and wildsingapore.com, provide ample information on these areas.

The launch of the Blue Plan 2018 is just the beginning of our collective journey.

There is still much we do not know of our marine areas. Continued work to understand the processes within marine ecosystems is crucial to effectively manage them, especially in areas with competing uses. Available scientific data, in an accessible format, must be shared with the public so that there is good awareness of our heritage.

The Singapore Blue Plan 2018 envisages a Singapore that celebrates and cherishes its marine heritage. And we can only do this together.

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Mangrove trees on Pulau Semakau. In the Blue Plan 2018, in addition to coral reefs – the main focus of earlier years' recommendations – habitat types such as mangrove areas are also proposed for preservation.



Young participants on a guided walk at Chek Jawa on Pulau Ubin before the boardwalk was built. Initiatives led by the community and backed by the Government, such as coastal clean-ups and the annual Pesta Ubin festival, enhance community spirit and are crucial because openness in communication paves the way for public stewardship of natural areas, says the writer.