

ScienceTalk

Marine habitats and their civil advocates

Volunteer groups in S'pore, unsung heroes of conservation, have made a big impact

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As the volunteer scuba divers descended into the waters off Lazarus Island, which lies south of Singapore, they were treated immediately to the sight of multiple marine animals and plants.

Close to 20 per cent of the seabed was covered with coral, and a school of rabbitfish weaved in and out while nibbling on luscious green algae.

A cuttlefish watched the divers warily and constantly changed its skin colour to blend in with its surroundings as it retreated.

Nestled between the rocks, a palm-size decorator crab fully encrusted with blue sponge lay still, trying to remain as inconspicuous as possible.

This was not any recreational dive. The divers were connected through an event organised by the marine civil society group, Our Singapore Reefs.

They had a common mission – to remove the ropes strangling the corals and the bottles swaying precariously on the seabed, while meticulously documenting the items collected. In one such marine clean-up event, the volunteers can collect as many as 440 pieces of rubbish.

Such conservation work requires a lot of planning. From applying for permits, reviewing safety protocol, designing, marketing and recruiting volunteers to the execution of the actual programme, these mammoth tasks are handled by a small team of two to five people.

Most of the organisers hold full-time jobs but have dedicated their free time to carefully curating the events to ensure the best learning experience for volunteers.

Who are these unsung heroes and how do they shape marine conservation in Singapore?

In conjunction with the International Year of the Reefs 2018, a global initiative aimed at raising awareness of the importance of coral reefs, the National University of Singapore initiated a study to examine how marine civil society groups have contributed to conservation here.

THE EMERGENCE OF MARINE CONSERVATION GROUPS

In Singapore, the number of active civil society groups with a clear focus on marine conservation has grown from two to 17 over the past 30 years.

The present numbers are likely an underestimation, as there are smaller groups hosted by educational institutions and businesses with ad hoc marine programmes.

The astounding rise in these “blue” groups is likely a result of multiple factors. For one, the realisation of the fragility of the marine ecosystem and the awareness of environmental impact are among the most prominent reasons why people have stepped up.

The International Coastal Cleanup Singapore, for example, was established because the founder encountered close to 50 marine animals trapped in nets resting abandoned in mangroves. Since its inception in 1992, the group's number of volunteers has grown to more than 3,000.

Other groups, like Hantu Bloggers, which focuses on raising awareness of Singapore's biodiversity, started because the organisers' early exposure to diverse marine life found in local waters sparked a passion to share their findings.

Interestingly, there are signs that youth involvement in environmental stewardship is on the rise. The younger blue groups were initiated mostly by people below 35 years old, and there seems to be more youth volunteers than before.

EDUCATION IS KEY TO CONSERVATION

In our interviews with representatives from the marine conservation groups, a common refrain was “people don't care because they don't know”.

So public outreach and education have been an integral part of many marine conservation groups' core mission. The Naked Hermit Crabs, for instance, conducts guided walks for the public to the biodiversity-rich mangroves in Chek Jawa, and the volunteers would speak passion-

ately to participants about their encounters with wildlife.

There is also WildSingapore, which provides an online repository of publicly available images and species descriptions. Fact sheets are printed and distributed to the public and schools.

Also, its blog serves as an aggregator of environmental events and news that helps the public stay up to date with the latest happenings.

Marine conservation groups provide a platform for informal learning about local conservation issues. Some groups partner schools to supplement the curriculum with more in-depth understanding of what may be taught in school.

PLUGGING THE KNOWLEDGE GAPS

In recent years, marine conservation groups have been increasingly involved in data collection.

For example, Project Driftnet was founded primarily for research. Volunteers record the location and type of abandoned driftnets found on our shores, so these can be properly disposed of.

The horseshoe crab rescue and research programme set up by the Nature Society (Singapore) focused on collecting much-needed information on the mangrove horseshoe crab to support the conservation of this globally data-deficient species.

The output was published in an international scientific journal that shed light on the population structure and breeding patterns of these living fossils.

For others, such as Team Seagrass and Bluewater Volunteers, their data revealed important information on Singapore's natural heritage. Without it, we might not

know that we have one-fifth of the world's seagrass species in Singapore, or that the Republic's coral reefs can be resilient to environmental stress.

A lot of the data collected is usually shared with local partners as well as the global community. Groups like International Coastal Cleanup Singapore and Our Singapore Reefs are major contributors to global databases established by international non-governmental organisations such as Conservation International and Project Aware.

As a case in point, the number of data points for Singapore in the Dive Against Debris citizen science programme quadrupled from three in 2014, to 14 last year.

These groups allowed for huge amounts of data to be collected with the help of volunteers.

FOSTERING PARTNERSHIPS TO SOLVE PROBLEMS

These groups do not just work independently.

The launch of the Friends of the Marine Park network last year was a prime example of the willingness of marine conservation groups to join forces. In this formal partnership among representatives from businesses, government agencies and civil society groups, the committee works together to drive ground-up initiatives and the development of community guidelines.

Multi-stakeholder research projects, like Restore Ubin Mangroves, have taken the collaboration one step further. By working with civil society groups, tertiary institutions and the local community in Pulau Ubin, the initiative provided an interdisciplinary perspective to marine conservation and offered a range of benefits for both the environment and people.

Some groups, like Our Singapore Reefs, have also made it their personal mission to engage different stakeholders for their events. Despite the lack of a formal secretariat to coordinate their efforts, their marine clean-ups always include more than two partners to help combat the problem of marine debris.

Emerging threats, like the recent invasion of the American mussel *Mytella strigata* in our waters, can be more effectively tackled through collaboration between academia, agencies and marine conservation groups.

By mustering the resources available from these parties, the mussel removal programme presents an exemplary case of how these groups can adapt and forge ad hoc partnerships to manage environmental risks.

Blue groups in Singapore are like the tiny bubbles in a soda drink – they function well individually, but are able to fuse and collaborate with other groups for a common purpose when the conditions are right.

GETTING INVOLVED IN MARINE CONSERVATION

Clearly, the blue groups provide a



A fragment of a pink plastic bag, which could be easily mistaken by marine animals as red algae, found within a meadow of seaweed. Marine civil society groups in Singapore often organise clean-ups of local waters and shores, as well as help to collect much-needed data. PHOTO: COURTESY OF SAM SHU QIN