Corals dominate monofilament lines in Sesoko Island, Japan

The damage to corals and other coral-associated organisms due to various fishing methods and gears is long documented. As observed in the Florida Keys, USA, 84% of the sponges and cnidarians have faced partial or full mortality due to the adverse effects of lost fishing gear. However, only recently the effects of monofilament fishing lines on corals have been identified as seen in Hawaii, where they have caused higher mortality and damage to colonies compared to areas where fishing is not prevalent. Monofilament lines were present in 65% of the colonies observed leading to partial or full mortality to 80% of corals. Similarly, in the subtropical reefs of eastern Australia, monofilament lines have caused damage and mortality to Pocillopora damicornis, a common species in the region. With such damage and mortality due to monofilament lines reported from different parts of the world, it becomes important to report any adaptive mechanism that has led the corals to accept the presence of such debris rather than facing damage or death.

Sesoko Island (26°38′36″N, 127°51′51″E) in Japan, which is located towards the western side of mainland Okinawa supports the presence of a fringing reef. Towards the southern end of the island, the reef gets denser where species of tabular Acropora seem common and dominant. Though commercial fishing surrounding the island is limited, local fishermen and tourists are seen regularly angling along the island edge, especially towards the southern part of the island where designated spots are present for fishermen and tourists to practice angling with a rod. Thus, it is highly probable for monofilament lines to get entangled within the coral colonies around the island.

6. The Fertilizer (Control) Order 1985 (as amended up to April 2015), The Fertilizer Association of India, New Delhi, 1985, p. 181.

Received 15 June 2017; revised accepted 16 November 2017

T. ABINAYA
D. J. BAGYARAJ*
G. THILAGAR
R. ASHWIN

Centre for Natural Biological Resources and Community Development, 41 RBI Colony, Anand Nagar, Bengaluru 560 024, India

*For correspondence. e-mail: djbagyaraj@gmail.com
At the southern reef of Sesoko Island, we observed three colonies of tabular Acropora, which had overgrown on the monofilament lines, facilitating further growth without facing any physical damage or mortality. The term 'Scaffold' as mentioned by Smith and Hattori, who had observed a similar phenomenon on the corals of Savusavu Bay, Fiji, can be well applied in this scenario. Our findings indicate that when thick fishing lines (diameter 0.6 mm) are stable enough and have strong tension, the surrounding coral tissue might have subsequently covered the filament showing physical modifications to accept foreign material (Figure 1). Moreover, subsequent surveys revealed that the phenomenon is not limited to a particular genus or colony morphology, which calls for detailed future studies. In addition to Japan, similar observations have been recently reported from Clipperton Island (Eastern Pacific) and Oahu (Hawaii). Although, little is known about the long-term effects of such adaptation, it seems the corals are developing a different strategy amidst the rising presence of marine debris.

ACKNOWLEDGEMENTS. We thank the staff of Sesoko Station, TBRC, University of the Ryukyus for providing the necessary facilities. R.R.D. acknowledges the Monbukagakusho Scholarship (no. 170021) provided by Ministry of Education, Culture, Sports, Science & Technology (MEXT), Japan.

Received 20 October 2017; accepted 9 November 2017

ROCKTIM RAMEN DAS*
HIDEYUKI YAMASHIRO

Sesoko Station,
Tropical Biosphere Research Center,
University of the Ryukyus, Motobu,
Okinawa 905-0227, Japan
*For correspondence.
e-mail: asomorlora@gmail.com