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The giant brown alga *Sargassum carpophyllum* on a nearshore coral reef in Okinawa Island, Japan

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Large marine algae, such as kelps, are generally well known in temperate to cold waters, but are rarely observed on coral reefs (Lüning 1990). The benthic algal flora of coral reefs usually consists of small thalli, filaments or crusts, occurring among corals, on rock, and on soft substrate. However, in Oura Bay, near Cape Henoko on Okinawa Island, Ryukyu Islands, patches of large *Sargassum carpophyllum* J. Agardh were found, reoccurring in the months of March to May, in the years 2008–2012 (Fig. 1). Around the patches, many smaller algae and some assemblages of hermatypic corals inhabit sandy and gravel slopes (10–20 m depth), in low transparency water as compared to other reefs in the same bay. *S. carpophyllum* has a tropical to temperate Indo-West Pacific distribution and can be recognized by the characteristic morphology of blades, vesicles and receptacles (Silva et al. 1996; Shimabukuro et al. 2006; Mattio and Payri 2009). In Oura Bay, this species consists of huge plants with lengths ranging from 3.0 to 7.4 m, which is much taller than its previous record of 1.5 m (Mattio and Payri 2009).

Most coral reefs in Japan are fringing reefs, whereas Oura Bay has a small barrier reef and a deep lagoon reaching down to a depth of 60 m (Fig. 1b). The habitat and biota of the reef slope where *S. carpophyllum* was found resemble those of lagoon-side reef slopes of barrier reefs in the tropical Pacific. This is the first report of such a large alga occurring on a coral reef.

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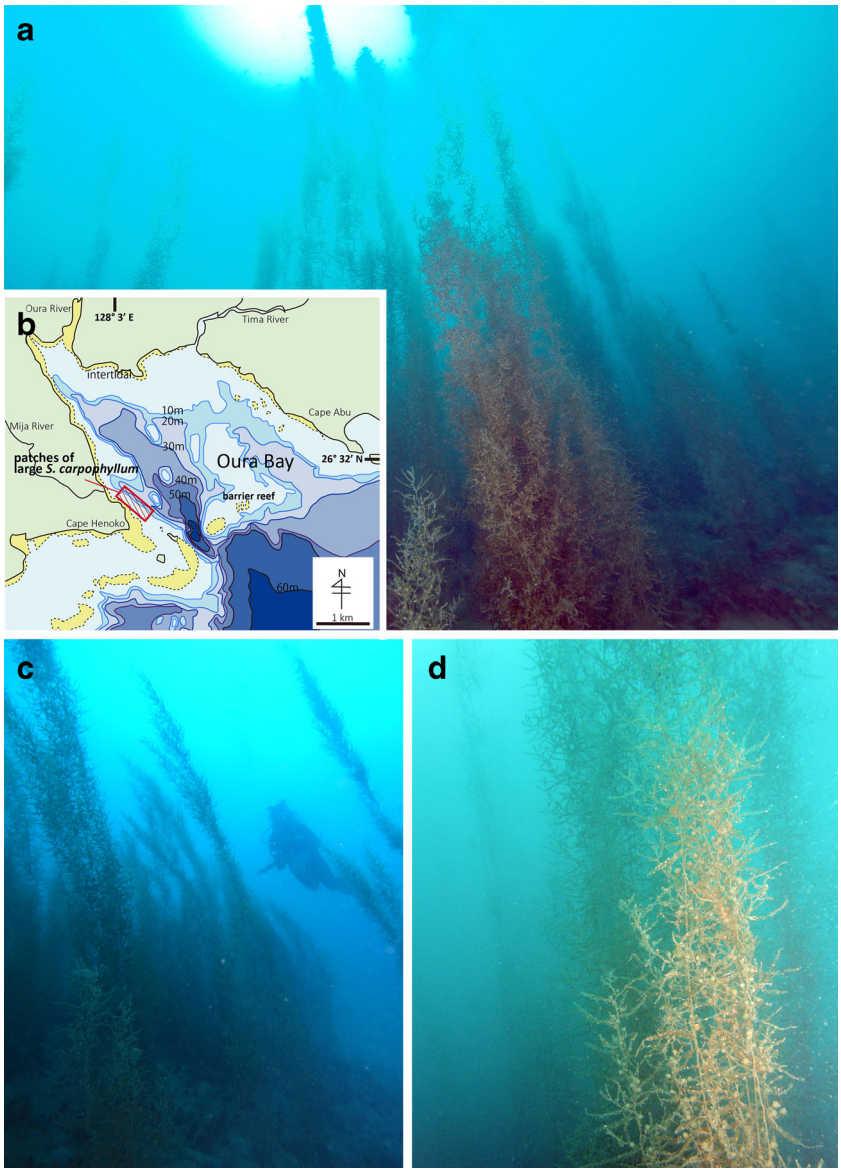

Fig. 1 *Sargassum carpophyllum*. **a** Patch of *S. carpophyllum* at 15 m depth in Oura Bay. **b** Map of Oura Bay showing the position of the patch. **c** Large thalli with a diver as scale. **d** Close-up of thalli

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