Project Update: December 2018

I attended the UN Biodiversity Conference (COP14) in Sharm El Sheikh, Egypt from 11th to 29th November 2018. At a side event entitled "Egypt's Biodiversity: opportunities vs. challenges", I introduced a presentation of "Status of the Egyptian Dugong". It included the summary of our efforts in the previous two projects by Rufford Small Grants (Rufford Small Grant (RSG: 17553-1, 21354-2) and mentioned the new efforts of the current project using laser photogrammetry. During the conference, I attended several side events for the marine mammals and share our works on dugongs in Egypt with the delegates.

I started the fieldwork for the autumn season with the participation of Egyptian Dugong Team (EDT). We conducted several dives in different study sites in Wadi El Gemal National Park (WGNP) and Marsa Alam areas. The data for seagrass density, feeding trails measurements and dugong grazing were collected.

Dugong feeding trails are frequent in some sites and rare in others. At Wadi El Gemal Island, the feeding trails indicated the presence of three different individuals visiting the Island for feeding. The trail's length was short and ranged from 0.9 to 1.4 m. The seagrass is covered by many of turf algae that may be affected on the dugong grazing. The trails were most obvious at the area of low algal coverage and dominated by the seagrass species of *Halophila ovalis* and *Halodule uninervis*.

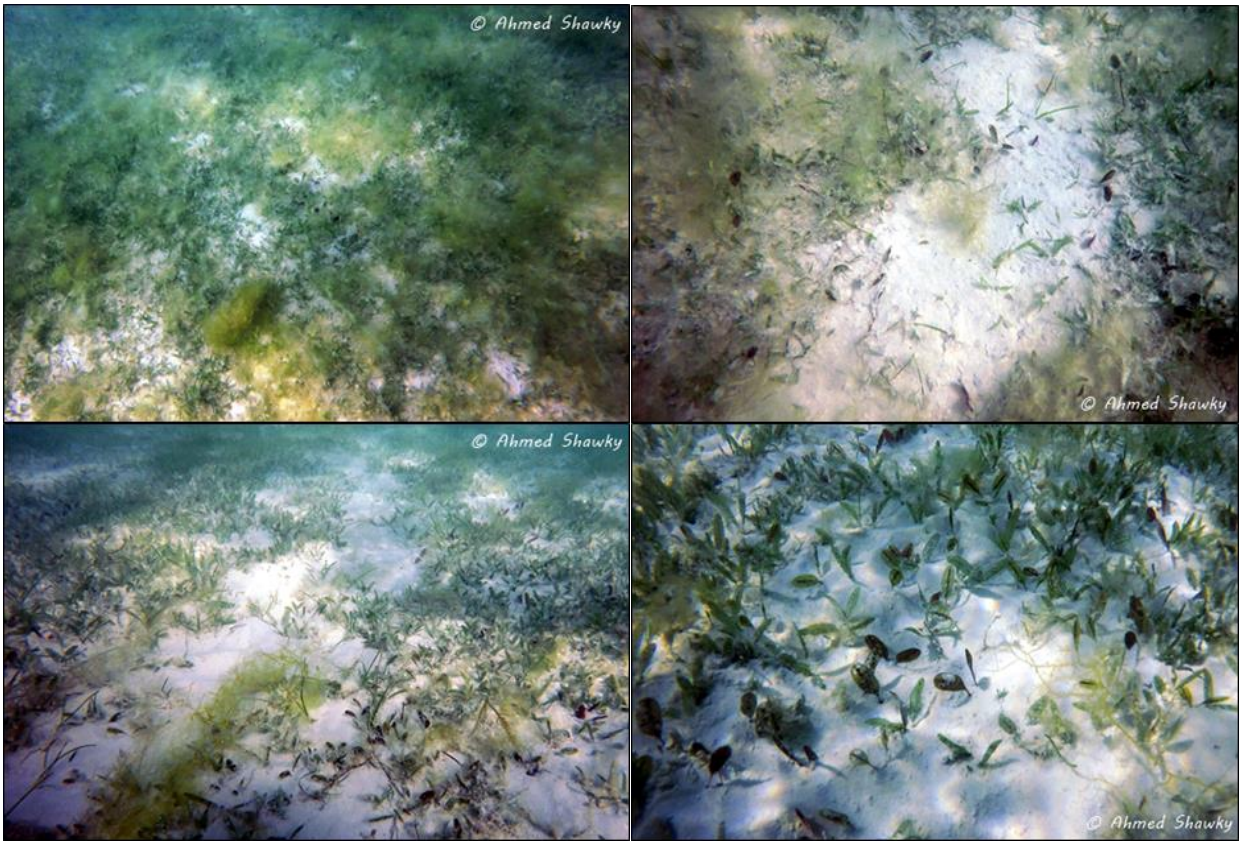
At Ras Baghdady within WGNP, I recorded no algal coverage on seagrass beds. The dugong feeding trails are more obvious and longer than Wadi El Gemal Island, where the length of the feeding trails ranged from 2.5 to 3.5 m. I recorded a small feeding trail of 10 cm width, which indicated the presence of small dugong. Also, the indication of the presence of mother dugong was recorded for a feeding trail with 25 cm width beside the previous one.

At Shams Alam beach (WGNP), many feeding trails were recorded mainly with the same width of 15 cm. The feeding trails are long that each to 4.2 m.

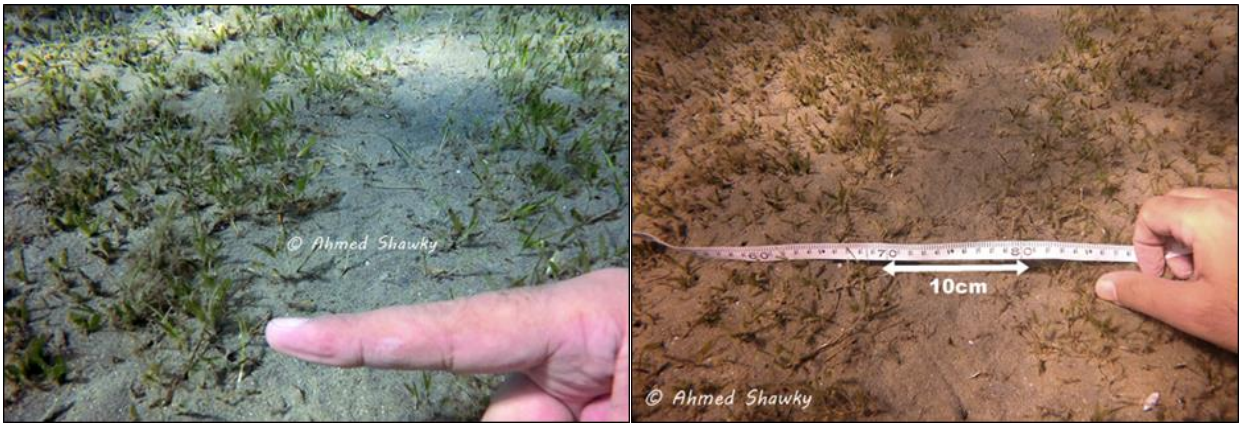
Only one short feeding trail was recorded in Marsa Abou Dabbab and many were recorded at Marsa Hermez.

Our efforts in Egypt are published by Springer in the book of "Oceanographic and Biological Aspects of the Red Sea" at a chapter entitled "Status of Red Sea Dugong" and Rufford foundation is acknowledged. DOI: 10.1007/978-3-319-99417-8_18.

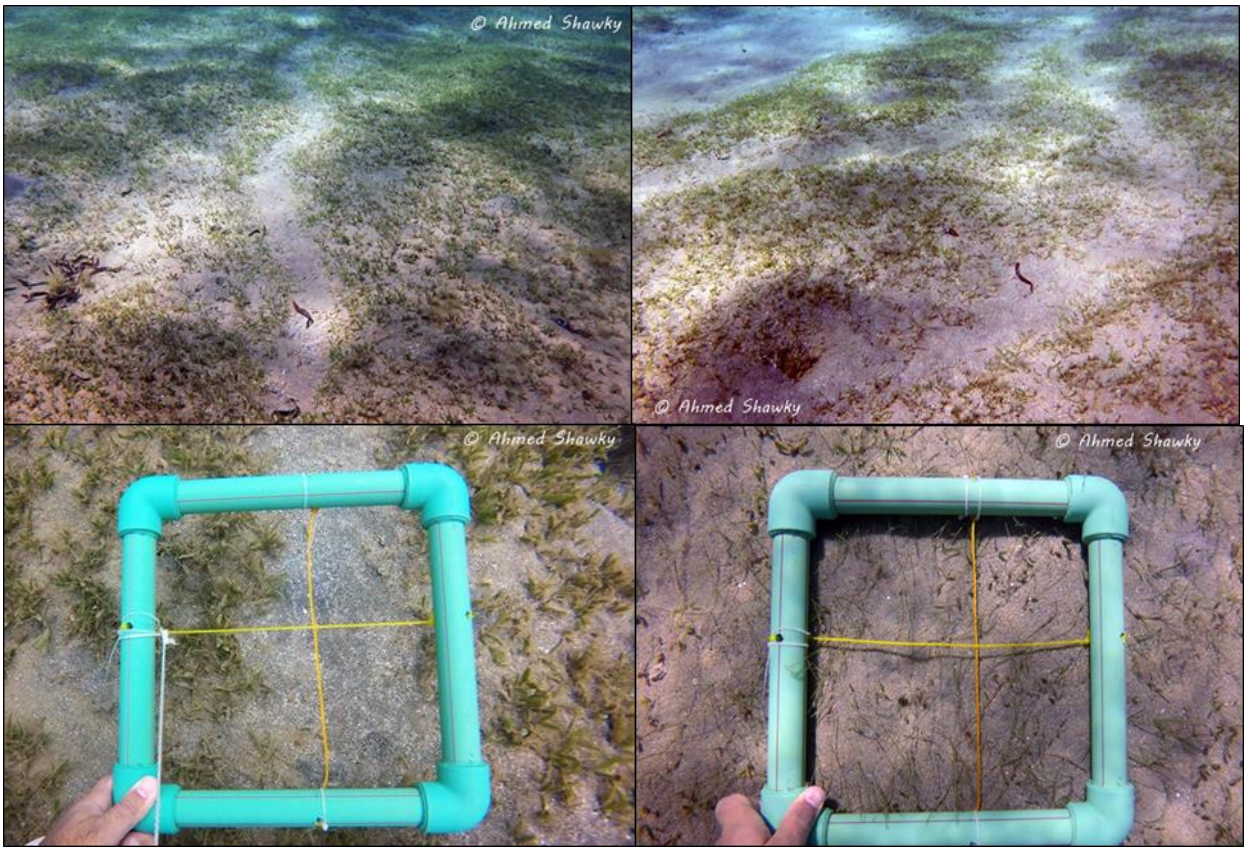
Attendance of UN Biodiversity Conference in Sharm El Sheikh and introducing the presentation about the status of the Egyptian Dugong in the side event.



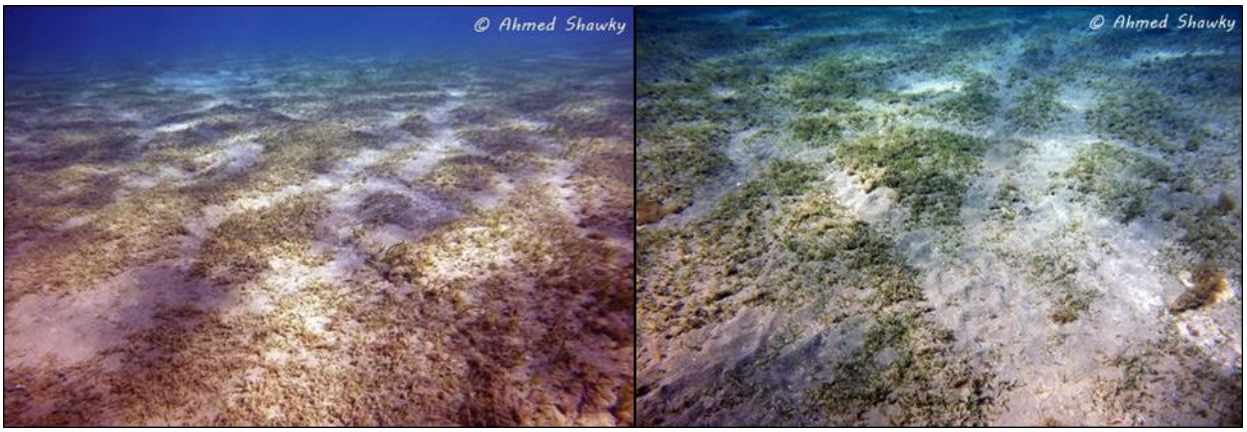
Photos for the seagrass bed at Wadi El Gemal Island shows the high densities of green algae and the dugong feeding trails within the main favorable species of Halophila ovalis.



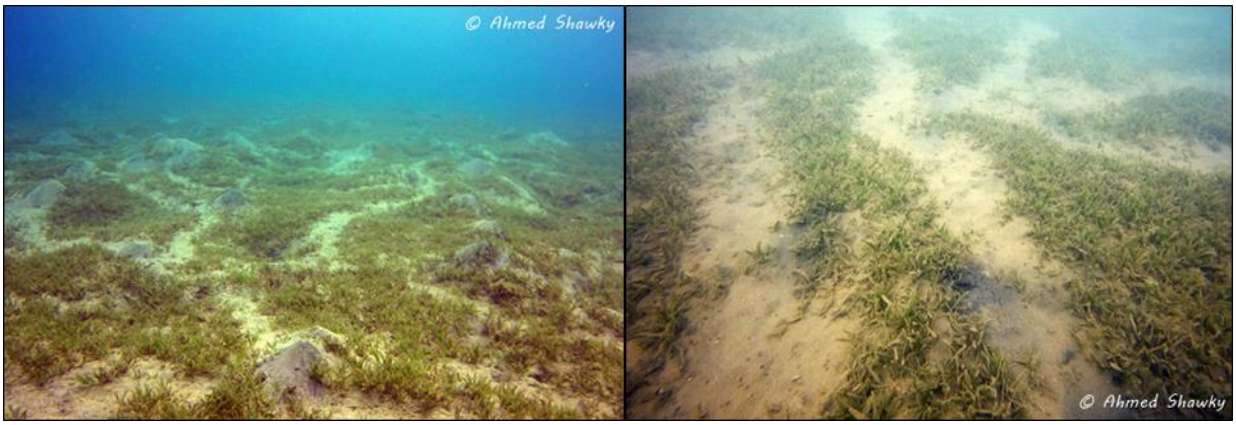
Recording and measuring the small feeding trail at Ras Baghdady, WGNP.



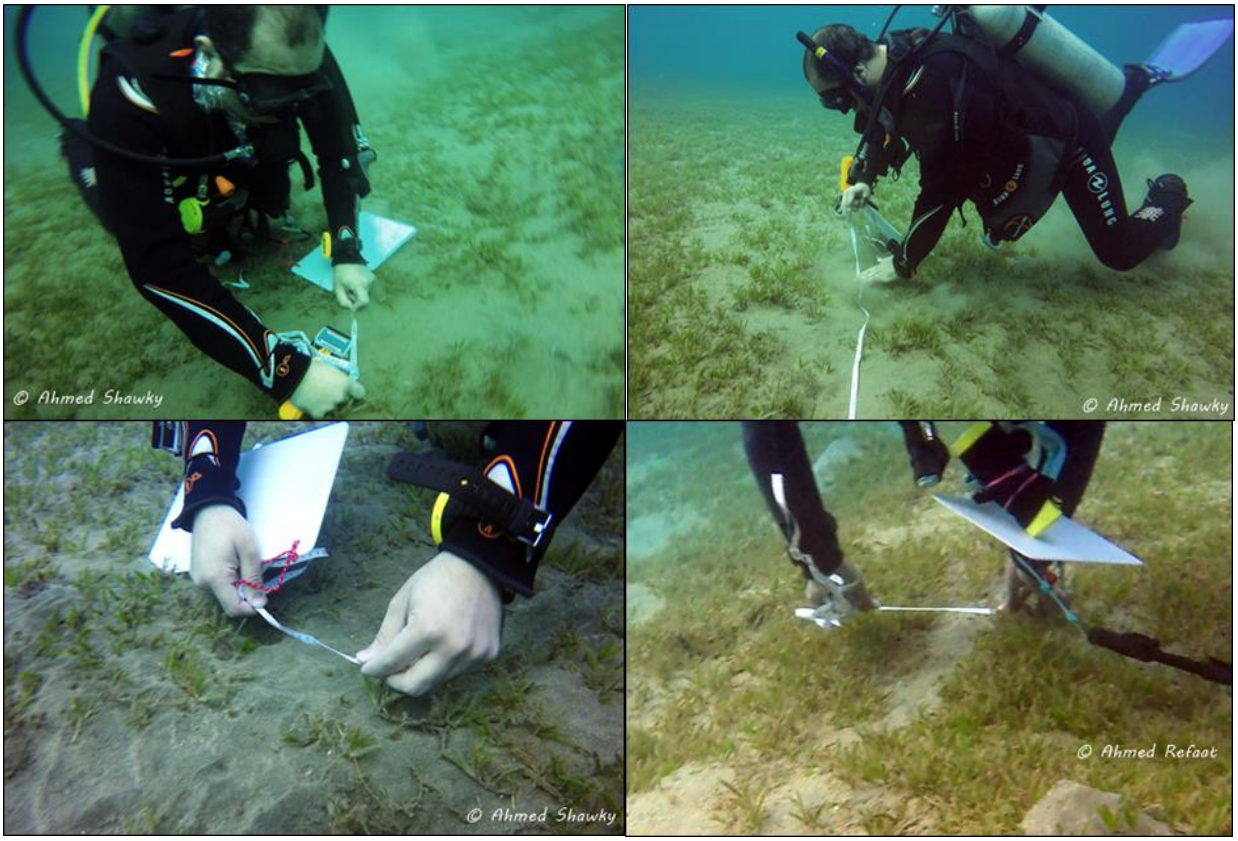
The status of seagrass and feeding trails at Ras Baghdady.



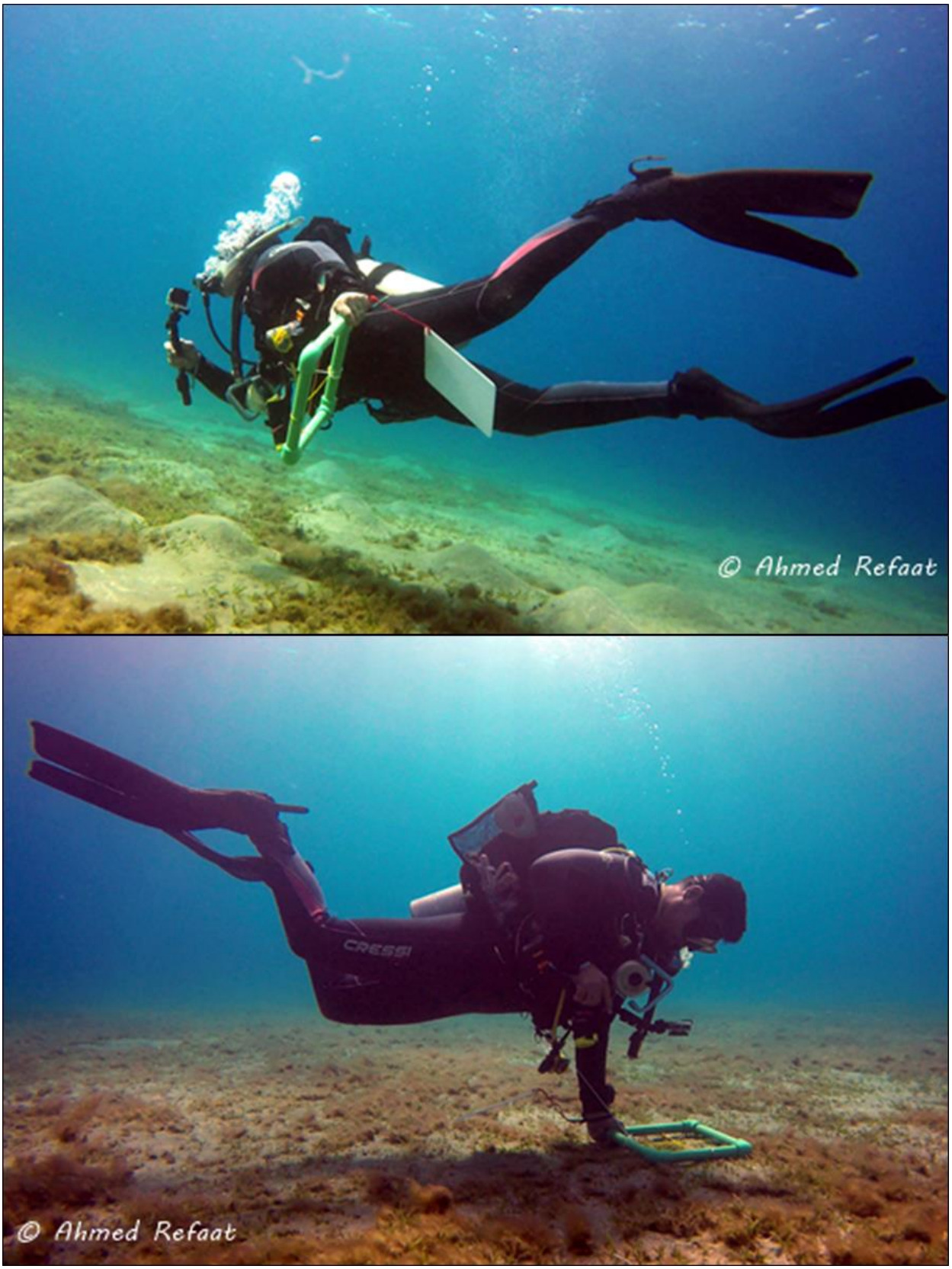
Feeding trails at Shams Alam site.



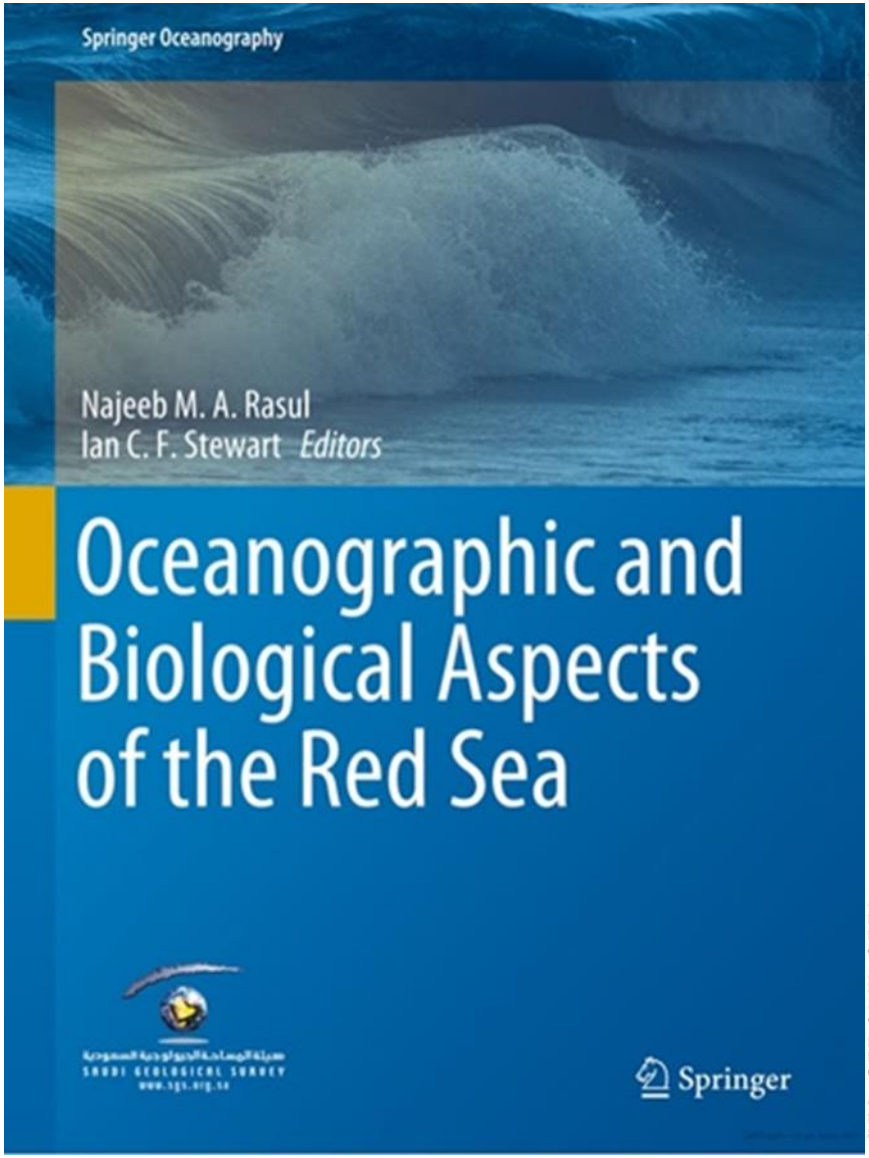
Feeding trails at Marsa Hermez.



Field efforts during measuring the feeding trails dimensions in the study sites.



Field efforts for diving activities over the seagrass beds in the study sites.



Status of Red Sea Dugongs

18

Dirar Nasr, Ahmed M. Shawky and Peter Vine

Abstract

Dugongs (*Dugong dugon*), also known as 'sea cows', have captured the imagination of the general public ever since they were first scientifically named in the 18th century. Much of the research on dugongs has been undertaken in Australia and SE Asia and publications are rarely dedicated specifically to the Red Sea population of dugongs and their conservation status. This is a reflection of the relatively poor state of knowledge of Red Sea dugongs—a situation that has changed marginally in the case of Egypt through research work undertaken by the second author. Methods employed to count dugongs, in order to estimate the size of a particular population, vary according to the general nature of their habitats (e.g., close to shore in sheltered bays or over deeper water further offshore), the frequency of sightings and facilities available to the surveying team, both in terms of observation platforms (e.g., helicopter, fixed-wing aeroplane, drone, boat or car) and time that can be allotted to the task. Given the seasonal nature of their behaviour, it would seem necessary that surveys in particular areas extend over at least 12 months and preferably longer. Research on this species in the Red Sea began with largely anatomical and physiological work on dugongs that were accidentally killed or purposely netted. Today, they are protected throughout the region so studies have shifted, largely to observations of live animals in the wild and to data that can be collected from stranded carcasses. Meanwhile, much of the data on their distribution, both in the Red Sea and elsewhere, is based on tapping into the local knowledge of fishermen and, more recently, dive guides at marine resorts.

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Introduction

The dugong (*Dugong dugon*—Müller 1776) is the only herbivorous mammal which is strictly marine and is the only existing species in the order Sirenia, family Dugongidae (Donning 1999; Marsh et al. 2002a, b; Bakkar et al. 2016). The dugong is a charismatic species (Cullen-Unsworth et al. 2017) that feeds mainly on seagrass (Preen 1992; Rajamani 2009; Marsh et al. 2012; Hossain et al. 2016). Moore et al. (2017) reported that dugongs could probably be considered as a keystone species in tropical seagrass ecosystems in the Indo-Pacific region. The dugong is listed as vulnerable in the IUCN Red List (Marsh and Sobtzick 2015) and in CITES Appendix I (UNEP-WCMC 2015). Marsh et al. (2002a, b) reported that the dugong is vulnerable to extinction because it feeds only on seagrass in constrained habitats in coastal waters and has a low reproductive output.

The dugong or "sea cow" has a range spanning waters of 48 countries, from the tropical and subtropical shallow coastal habitats of East Africa to the Red Sea and Arabian Gulf, and eastward to the Indo-Pacific region as far as Australia (Nishiwaki and Marsh 1985; Marsh 2008). They are usually recorded in the shallow coastal areas of the Indian and Western Pacific Oceans (Marsh et al. 2002a, b; D'Souza et al. 2013; Ponnampalam et al. 2014; Pilcher et al. 2017). Within the western Indian Ocean their range extends from Madagascar and Mozambique northward along the East African coast to the Red Sea, Gulf of Aden and Arabian Gulf. Their range extends eastward from there, along the south coast of Asia, including India and Malaysia, to the western, northern and eastern coasts of Australia (Bertram and Bertram 1973; Husar 1975, 1978; FAO 1979; Sobtzick et al. 2012) and as far as Micronesia (Figs. 18.1 and 18.2).

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The cover page of the book and the first page of the chapter "Status of Red Sea Dugong".