Photo identification of Dugongs in Marsa Alam and Wadi El Gemal National Park, Egypt

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Introduction

The dugong (Dugong dugon) is the only marine mammal species that feeds mainly on seagrass and is the only existing species in the order Sirenia, family Dugongidae [1]. Photo identification based on body markings has been used to examine numerous free-ranging marine mammal species [2]. Information on calving intervals/reproductive rates and age at sexual maturity as determined from re-sightings of individuals is a useful measure for evaluating recovery of the species [3]. In this study, photo-ID was used for the first time to identify dugongs inhabiting the Wadi El Gemal National Park (WGNP) and Marsa Alam; information regarding their occurrence, distribution and abundance were documented, and an identification catalogue was created.

Objectives

1. Information on the persistence of scars, flipper and tail notches and their use for obtaining longitudinal data on individual dugongs.
2. An estimate of the minimum number of dugongs known alive in the coastal waters of the Marsa Alam and WGNP regions of the Egyptian Red Sea.
3. Insights into the population composition and movements of habitual, marked animals.

Method of Analysis

The study was undertaken between December 2015 and October 2017. The data was collected from 22 different sites located in two regions: Marsa Alam (14 sites) and WGNP (8 sites) (Figure 1). The observation was carried out by snorkeling and SCUBA diving and the underwater photographs were taken using an HD camera Go Pro Hero 4 with a red filter. Individual’s size, sex, notches, scars on the different body parts were noted and photo-documented. All dugongs were assigned a five-digit identification number based on the location of initial sighting [3]. The first letters of the site name were followed by the number of the individual.

Results

A total of 30 individuals were sighted in a catalogue (Table 1, 2 & 3). None of the dugongs was observed moving to or from WGNP and Marsa Alam. Particular dugong’s specific sites and movements for eight different dugongs within the sites were recorded (16.6±14.0 km).

Table 1: Numbers of identified dugongs in the study regions.

<table>
<thead>
<tr>
<th>Region</th>
<th>Male</th>
<th>Female</th>
<th>Call</th>
<th>Un-identified</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGNP</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Marsa Alam</td>
<td>12</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 2: Photo ID catalogue of 30 identified dugongs.

Table 3: Examples of dugong IDs with notches.

Conclusions

Identification of dugong using notches allowed re-sighting of the same individuals many times and in different sites [4]. Males outnumbered females in this study by a ratio of 7:1 in both areas. Calves were also recorded for the first time. We suggest that females are inclined to visit those areas to feed at a much quieter time in the day for example early morning or late at night thus avoiding disturbances caused by human activities. Nocturnal foraging has been reported in dugongs by several researchers and explained as a means to avoid human activities, fishermen and hunters [5].

More data is unknown about the dugongs in the offshore habitats. Understanding the movement capabilities of dugongs is essential for their conservation [6]. Future conservation plans in Egypt to notify decisions concerning to dugong conservation and management locally and regionally. Currently, a new study funded by Rufford Foundation (26053-B) is conducting to analyze the width of feeding trails related to dugong’s muzzle width using laser photogrammetry to estimate the dugong population visiting the area.

References