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### SHORT COMMUNICATION

#### MARINE MAMMAL STRANDINGS IN THE NORTHERN PALK BAY FROM 2009 TO 2020

Vedharajan Balaji & Veeramuthu Sekar

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## Marine mammal strandings in the northern Palk Bay from 2009 to 2020

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**Abstract:** Globally, the marine mammal population has been under threat due to various human activities. Data on stranding of these animals that are important for effective conservation planning and management, however, are not available in most of the developing countries. This paper presents observations on marine mammal strandings in northern Palk Bay, the southeastern coast of India over the last decade. In total, 21 stranding events consisting of 23 marine mammals were observed from 2009 to 2020. These stranded mammals include a Humpback Dolphin, a Blue Whale, two Finless Porpoises, and 19 Dugongs. The evident reason for the death of the dugongs and the porpoise being fishing activities, regulations on fishing practices, and intensive monitoring of the existing dugong population and their habitats are necessary. This study recommends for establishment of conservation reserve, and setting up district-level marine mammal rescue and release units in Nagapattinam, Tiruvarur, Thanjavur, Pudukkottai, and Ramanathapuram districts, comprising fishers and line departments. These units need to be sufficiently equipped in terms of equipment and infrastructure, and periodical technical training and workshops on marine mammal rescue and release procedures to quickly respond and handle marine mammal strandings in the area.

**Keywords:** Blue Whale, Dugong, Finless Porpoises, fishing net, Humpback Dolphin, Palk Bay, OMCAR, seagrass.

A variety of marine mammals such as dolphins, whales, dugong, and porpoise, are found in the vast marine habitat along the Indian coast. There are many

incidences of these animals getting stranded and dying. As per Gopalakrishnan et al. (2014) ‘stranding’ refers to an animal getting outside its survival envelope, and so ‘marine mammal stranding’ refers to instances where a group or an animal is washed ashore and unable to move back to the sea (Aragones et al. 2010). The Central Marine Fisheries Research Institute (CMFRI) has been publishing marine mammal stranding records for more than 60 years (Jeyabaskaran et al. 2013). The earliest of such instances reported from India are in 1748 (Sathasivam 2000). A well-maintained marine mammals stranding database provides vital information about the status of marine ecosystems (Aragones et al. 2010). This paper is about the marine mammal strandings observed by Organization for Marine Conservation, Awareness and Research (OMCAR) Foundation in the northern Palk Bay from 2009 to 2020. The objective of this long-term monitoring of marine mammal stranding is to highlight their presence in this locality, and promoting their conservation in Palk Bay. This monitoring is important to not only to conserve marine mammals but also their habitats and to implement sustainable fishery activities. The monitoring creates awareness among the public,

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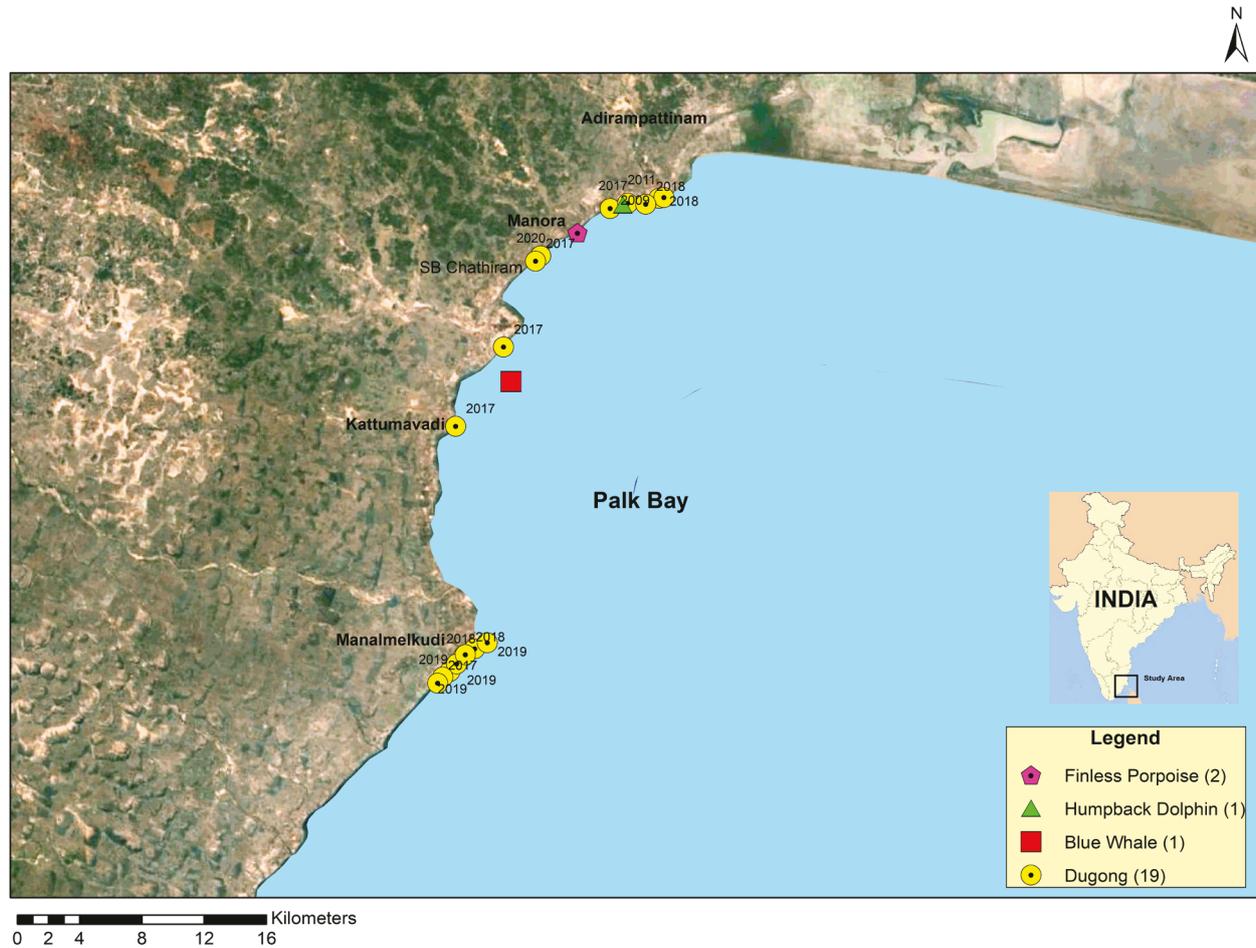


Figure 1. Marine mammal stranding in northern Palk Bay (2009–2020).

and hints to the government to consider for developing policy and guidelines, which is crucial to protect these taxa as per Wildlife Protection Act, 1972. This study is based on the data obtained by working with Tamil Nadu Forest Department and grassroot conservation volunteer groups in the northern part of Palk Bay, Tamil Nadu, India.

**MATERIALS AND METHODS**

The study area in the northern part of Palk Bay falls in Thanjavur and Pudukkottai districts of Tamil Nadu (Figure 1). We received intimations about marine mammal strandings from local forest officials, fishermen, and marine police. Upon hearing about such an incident, we reached the stranding site, marked GPS coordinates of the site using Garmin Etrex GPS, and with due permission from the field-officials of the forest department measurements of the carcass were taken and the state of the specimen and other information were collected.

**RESULTS**

In total, 21 marine mammal stranding events consisting of 23 animals were recorded between 2009 and 2020 (Figure 1). The stranded animals included two Finless Porpoises (Image 1 & 12), a Humpback Dolphin (Image 3), a Blue Whale (Image 4), and 19 Dugongs (Image 2, and 5–11). Other than the 14 dead Dugongs, five Dugongs were rescued from shore seine nets and released back into the sea during the four years from 2016 to 2019 jointly by Thanjavur and Pudukkottai divisions of Tamil Nadu Forest Department, Wildlife Institute of India, Coastal Security Group of Tamil Nadu Police Department, OMCAR Foundation and volunteers from the local community.

**DISCUSSION**

The 12-year observations of this study were made through participatory conservation efforts by Tamil Nadu forest Department along with other inline departments and Friends of Dugongs in Thanjavur and Pudukkottai



Image 1. Finless Porpoise *Neophocaena phocaenoides* washed ashore at Mallipattinam, Thanjavur District, northern Palk Bay in 2010.



Image 2. A female Dugong washed ashore at Keezhathottam Village, Thanjavur District in northern Palk Bay in 2011.



Image 3. Humpback Dolphin washed ashore at Velivayal Village, Thanjavur District, Palk Bay in 2013.



Image 4. A 35-foot Blue Whale washed ashore at Kattumavadi, Thanjavur District, Palk Bay in 2015.



Image 5. Dugong calf washed ashore at Manalmelkudi, Pudukkottai District in 2016.



Image 6. Dead Dugong washed ashore at Adaikkathevan, Thanjavur District in April 2017.

districts.

Online database of Marine Mammal Research and Conservation Network of India (MMRCNI) listed 30 marine mammal stranding records in 120 years from Palk

Bay between 1888 to 2009. Most of the records were from southern Palk Bay, listed for more than a century. This study focused only on a small part of Palk Bay, which documented a total number 21 observations in 12 years.

Monitoring of marine mammal stranding is one of the building blocks of 15 years of rapport building with local stakeholders by OMCAR, through participatory conservation approach. This is achieved by serving the basic needs of local stakeholders including conservation-oriented livelihood support to fishing communities, and integration of management-oriented restoration and baseline research in coastal habitats to support government conservation policy. As marine mammals are scheduled species in the Wildlife Protection Act, 1972, no parts of the specimen were collected during this study. Poaching, entanglement in fishing gear, boat accidents, and habitat destruction are the key factors that threaten the marine mammals of Palk Bay. The Finless Porpoises, recorded in 2010 and 2020, washed ashore in Mallipattinam (Image 2 and 13). This record shows the vulnerability of such animals in the fishing grounds of Palk Bay. Out of the 23 marine mammals reported in this study, only one animal, the Humpback Dolphin, had died due to natural causes. Veterinary doctors reported that a catfish spine had penetrated the oesophagus of the dolphin when the fish was being swallowed. The Blue Whale that washed ashore in 2015 might have drifted from the Bay of Bengal through the Palk Strait. It might have died due to collision with ships in Bay of Bengal, as such large marine mammals may not prefer to swim into the shallow Palk Bay away from their migration route (Randage et al. 2014). Most dugong strandings occurred in summer (Table 1), which may be due to high seagrass growth in summer. Dugongs graze on seagrass (Heinsohn & Birch 1972; Marsh et al. 1982) and Thanjavur District coast of Palk Bay has 12,243ha of seagrass beds as determined through an acoustic survey (Balaji 2018). Fourteen species of seagrass have been reported in this region (Kannan et al. 1999). The biggest threats to the Dugongs and seagrasses are from unsustainable fishing methods, eutrophication, and poor waste management. The seagrass ecosystem does not recover fast once destroyed (Kirkman 1997). It is estimated that about 75 to 100 Dugongs occur in Palk Bay based on the interviews of fishers (Yashpal et al. 2015). This study observed 19 dead Dugongs in 12 years along the coast of Thanjavur and Pudukkottai districts, which covers only 20% of total length of Palk Bay coast. Of the 19 dead Dugongs recorded during this study, 17 animals were recorded only after 2015. By comparing the Dugong population reported by Yashpal et al. (2015) with the observations made during this study, it is assumed that at least 22 percentage of Dugongs in Palk Bay might have died in 12 years between 2009–2020. The percentage may increase if the total number of



**Image 7. Decomposed Dugong calf without head washed ashore in March 2018.**



**Image 8. Heavily decomposed Dugong washed ashore, April 2018.**

Dugong deaths are counted in remaining coastal areas of Palk Bay, or it may decrease if the total number of dugongs in Palk Bay is more than the estimated population by Yashpal et al. (2015).

The number of marine mammals stranded in the area recommends establishing Dugong habitat protected sites as conservation reserve in Palk Bay and marine mammal stranding response units in each district, namely Nagapattinam, Tiruvarur, Thanjavur, Pudukkottai, and Ramanathapuram. These grassroots-level units need to include fishers and line department personnel and have to be provided with appropriate technical training through periodical workshops on marine mammal rescue and release and also collection of data from carcasses. The units also need to be provided with the required equipment and infrastructure to respond to marine mammal strandings.



Table 1. Marine mammal strandings in the northern Palk Bay from 2009 to 2020.

	Date	Common name	Condition	Sex	Total length (feet)	Season	Nos.	Reason for Stranding	Place
1	23.v.2009	Dugong ( <i>Dugong dugon</i> )	Dead	Unknown	9.7	Summer	1	Highly decomposed body, reason not known	Pudupattinam, Thanjavur District,
2	11.vi.2011	Dugong ( <i>Dugong dugon</i> )	Dead	Female	12.2	Pre-monsoon	1	Drowning in a fishing net	Keezhathottam, Thanjavur District,
3	17.iv.2010	Finless Porpoise ( <i>Neophocaena phocaenoides</i> )	Dead	Unknown	3.9	Summer	1	Accidental capture in a trawl net	Mallipattinam, Thanjavur District
4	22.iv.2013	Humpback Dolphin ( <i>Sousa chinensis</i> )	Dead	Unknown	8.4	Summer	1	Oesophagus punctured by catfish spine	Velivayal, Thanjavur District
5	23.x.2015	Blue Whale ( <i>Balaenoptera musculus</i> )	Dead	Unknown	45	Monsoon	1	Unknown	Kattumavadi, Pudukkottai District
6	05.iv.2016	Dugong ( <i>Dugong dugon</i> )	Dead	Unknown	4	Summer	1	Drowning in a fishing net	Ponnagaram, Pudukkottai District
7	15.ix.2017	Dugong ( <i>Dugong dugon</i> )	Dead	Unknown	11	Monsoon	1	Drowning in a fishing net	Sethubhavachatram, Thanjavur District
8	01.vi.2017	Dugong ( <i>Dugong dugon</i> )	Dead	Unknown	-	Pre-monsoon	1	Unknown	Velivayal
9	21.iv.2017	Dugong ( <i>Dugong dugon</i> )	Dead	Unknown	10.5	Summer	1	Drowning in gill net ( <i>kattavalai</i> )	Thierku Pudukkudi, Pudukkottai District
10	02.iv.2017	Dugong ( <i>Dugong dugon</i> )	Dead	Male	10	Summer	1	Drowning in a fishing net	Adaikalathevan, Thanjavur District
11	30.i.2017	Dugong ( <i>Dugong dugon</i> )	Live	Female and calf	11.5	Post monsoon	2	Rescued and released from Shore seine net	Kattumavadi
12	29.iv.2018	Dugong ( <i>Dugong dugon</i> )	Dead	Calf	4	Summer	1	Without head washed ashore	Vadaku Ammapattinam, Thanjavur District
13	05.iv.2018	Dugong ( <i>Dugong dugon</i> )	Dead	Female	9.7	Summer	1	Unknown	Vadaku Ammapattinam
14	06.vii.2018	Dugong ( <i>Dugong dugon</i> )	Live	Female	12	Pre-monsoon	1	Rescued and released from the shore seine net	Keezhathoddam, Thanjavur District
15	12.xi.2018	Dugong ( <i>Dugong dugon</i> )	Live	Male	9.5	Monsoon	1	Rescued and released from the shore seine net	Keezhathoddam, Thanjavur District
16	07.ii.2019	Dugong ( <i>Dugong dugon</i> )	Dead	Male	11	Post monsoon	1	Animal cut into two pieces due to unknown reasons.	Kodimunai, Manaimelkudi, Pudukkottai District
17	02.iii.2019	Dugong ( <i>Dugong dugon</i> )	Dead	-	-	Summer	1	Decayed dugong body washed ashore	Ammapattinam, Pudukkottai District
18	03.iii.2019	Dugong ( <i>Dugong dugon</i> )	Dead	-	5	Summer	1	Head was damaged by boat accident	Ayyanpattinam, Pudukkottai District
19	02.iv.2019	Dugong ( <i>Dugong dugon</i> )	Live	Male and female	10	Summer	2	The male was rescued, and the female died while rescue operation from the shore seine net	Ammapattinam, Pudukkottai District
20	16.ii.2020	Dugong ( <i>Dugong dugon</i> )	Dead	Female	12.8	Summer	1	Drowning in a fishing net	Sethubhavachatthiram, Thanjavur District
21	16.x.2020	Finless Porpoise ( <i>Neophocaena phocaenoides</i> )	Dead	-	4	Monsoon	1	Accidental capture in fishing net.	Mallipattinam, Thanjavur District



Image 9. A Dugong body cut into two pieces due to unknown reason in February 2019.



Image 10. A female pregnant Dugong accidentally captured in shore seine died during rescue attempt in April 2019. Volunteers try to save the Dugong from the fishing net.



Image 11. A female Dugong washed ashore at Sethubavachaththiram fish landing in February 2020.



Image 12. Finless Porpoise *Neophocaena phocaenoides* washed ashore at Mallipattinam, Thanjavur District, northern Palk Bay in October 2020.

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