SHORT COMMUNICATION

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

Vedharajan Balaji & Veeramuthu Sekar

26 April 2021 | Vol. 13 | No. 5 | Pages: 18313–18318
DOI: 10.11609/jott.6302.13.5.18313-18318
Marine mammal strandings in the northern Palk Bay from 2009 to 2020

Vedharajan Balaji ¹, ² & Veeramuthu Sekar ¹, ²

¹, ² Organization for Marine Conservation Awareness and Research (OMCAR), OMCAR Palk Bay Centre, 3498, Velivayal, Rajamadam Post, Thanjavur District, Tamil Nadu 614701, India.
¹ director@omcar.org (corresponding author), ² sekarveera15@gmail.com

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, Tiruvur, Thanjavur, Pudukottai, 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.
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, OMCA 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...
Mammal strandings in northern Palk Bay

Balaji & Sekar

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 April 2021 | 13(5): 18313–18318

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.

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 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) | Reason for Stranding                                                                 | Place                    |
|------------|------------------------|-----------|-------|---------------------|--------------------------------------------------------------------------------------|--------------------------|
| 23.v.2009  | Dugong (Dugong dugon)  | Dead      | Unknown | 9.7                 | Drowning in a fishing net                                                              | Pudupattinam, Thanjavur District |
| 11.vi.2011 | Dugong (Dugong dugon)  | Dead      | Female | 12.2                | Drowning in a fishing net                                                              | Keezhathottam, Thanjavur District |
| 17.iv.2010 | Finless Porpoise (Neophocaena phocaenoides) | Dead | Unknown | 9.7                 | Accidental capture by catfish spine                                                  | Mallipattinam, Thanjavur District |
| 23.x.2015  | Humpback Dolphin (Sousa chinensis) | Dead | Male   | 10.5                | Drowning in a fishing net                                                              | Kattumavadi, Pudukkottai District |
| 05.iv.2016 | Dugong (Dugong dugon)  | Dead      | Unknown | 9.7                 | Drowning in a fishing net                                                              | Velivayal, Thanjavur District |
| 11.ix.2017 | Dugong (Dugong dugon)  | Dead      | Unknown | 10.5                | Drowning in a fishing net                                                              | Sethuvemaiettuva, Thiruvaloor, Thanjavur District |
| 01.vi.2017 | Dugong (Dugong dugon)  | Dead      | Female | 9.7                 | Drowning in a fishing net                                                              | Velivayal, Thanjavur District |
| 02.x.2017  | Dugong (Dugong dugon)  | Dead      | Male   | 11.5                | Drowning in a fishing net                                                              | Velivayal, Thanjavur District |
| 03.v.2018  | Dugong (Dugong dugon)  | Dead      | Female and calf | 12                  | Rescued and released from the shore seine net                                        | Velivayal, Thanjavur District |
| 12.x.i.2018| Dugong (Dugong dugon)  | Dead      | Male   | 11.5                | Rescued and released from the shore seine net                                        | Velivayal, Thanjavur District |
| 12.xii.2018| Dugong (Dugong dugon)  | Dead      | Female | 12                  | Rescued and released from the shore seine net                                        | Velivayal, Thanjavur District |
| 07.xii.2018| Dugong (Dugong dugon)  | Dead      | Female | 9.7                 | Rescued and released from the shore seine net                                        | Velivayal, Thanjavur District |
| 16.xi.2019 | Dugong (Dugong dugon)  | Dead      | Female | 12                  | Rescued and released from the shore seine net                                        | Velivayal, Thanjavur District |
| 02.x.2019  | Dugong (Dugong dugon)  | Dead      | Female | 12.8                | Accidental capture in the fishing net                                                | Velivayal, Thanjavur District |
| 16.x.2020  | Dugong (Dugong dugon)  | Dead      | Female | 12                 | Accidental capture in the fishing net                                                | Velivayal, Thanjavur District |
Mammal strandings in northern Palk Bay

Balaji & Sekar

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 Sethubavachatthiram fish landing in February 2020.

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

References

Aragones L.V., M. A. Roque, M. B. Flores, R. P. Encomienda, G. E. Laule, B. G. Espinos, F. E. Maniago, G.C. Diaz, E.B. Alesna & R.C. Braun (2010). “The Philippine Marine Mammal Strandings from 1998 to 2009: Animals in the Philippines in Peril?” Aquatic Mammals 36: 219–233.

Balaji, V. (2018). Acoustic survey of seagrass beds in northern Palk Bay, India. Indian Journal of Geomarine Sciences 47(08): 1607–1615.

Gopalakrishnan, A. (2014). Training manual Dealing with Marine Mammals Stranding in India. GOI-UNDP-GEF Sponsored Training Programme. Central Marine Fisheries Research Institute (CMFRI), Kochi, 102pp.

Heinsohn, G.E. & W.R. Birch (1972). Foods and feeding habits of the Dugong, Dugong dugon (Erxleben), in northern Queensland, Australia. Mammalia 36: 414–422.

Jeyabaskaran, R., E. Vivekanandan & V. Kripa (2013). Marine Mammal Research and Conservation in India, pp. 105–112. In: ICAR funded Short Course on “ICT -oriented Strategic Extension for Responsible Fisheries Management, 05–25 November 2013, Kochi.

Kannan, L., T. Thangaradjou, & P. Anantharaman. (1999). Status of seagrasses of India. Seaweed research and utilisation 21(1&2): 25–33.

Kirkman, R. (1997). Why ecology cannot be all the things to all people: the “adaptive radiation” of scientific concepts. Environmental Ethics 18: 375–390.

Marine Mammal Research and Conservation Network of India http://www.marinemammals.in/database/sightings-and-strandings/. Accessed on 23 March 2020.

Marsh, H., P.W. Channells, G.E. Heinsohn & J. Morrissey (1982). Analysis of stomach contents of dugongs from Queensland. Australian Wildlife Research 9(1): 55–67. https://doi.org/10.1071/WR9820055

Randage, S.M., A. Alling, K. Currier & E. Heywood (2014). Review of the Sri Lanka blue whale (Balaenoptera musculus) with observations on its distribution in the shipping lane. Journal of Cetacean Research Management 14: 43–49.

Sathasivam, K. (2000). ‘Records of Marine Mammals from India’. Blackbuck 16: 2–3.

Yashpal, A., T. Keton & C.N. Pandey (2015). Status of Dugong (Dugong dugon) in Gulf of Mannar and Palk Bay, Tamil Nadu, India. Indian Journal of Geo-Marine Science 44(9): 1442–1448.
The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under Creative Commons Attribution 4.0 International License unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

Date of Publication: 26 April 2021 (Online & Print)
DOI: 10.11609/jott.2021.13.5.18099-18410

Articles

Spatiotemporal movement pattern of Asian Elephants Elephas maximus Linnaeus, 1758 in Sindhudurg District, Maharashtra, India – Milind Digambar Patil, Vinayak Krishna Patil & Nidin Avinash Mungi, Pp. 18099–18109

Conservation ecology of birds in Mt. Hilong-hilong, a Key Biodiversity Area on Mindanao Island, the Philippines – Arturo G. Gracia Jr., Alma B. Mohagan, Janezel C. Burlat, Welfredo L. Yu Jr., Janine Mondalo, Florfe M. Acma, Hanna9. P. Lumista, Riah Calising & Krizler Cezuela Tanalgo, Pp. 18110–18121

Nesting and hunting behaviour of Olive Ridley Turtles Lepidochelys olivacea (Eschscholtz, 1829) (Reptilia: Cryptodira: Cheloniidae) on Dr. Abdul Kalam Island, Odisha, India – P. Poornima, Pp. 18122–18131

Communications

Feeding ecology of Wila ibex Capra walia (Mammalia: Artiodactyla: Bovidae) in Siimien Mountains National Park, Ethiopia – D. Ejigu, A. Bekele & L. Powell, Pp. 18132–18140

Assessment of crop and property damage caused by Semnopithecus vetulus nestor (Bennett, 1833) (Mammalia: Primates: Cercopithecidae) in Gampa District, Sri Lanka – Sunil Wijethilaka, Lakshani S. Weerasekara, Saumya Bandara & Kithsin B. Ranawana, Pp. 18141–18147

Habitat preference of the Indian Pangolin Manis crassicaudata inhabiting Margalla Hills National Park, Islamabad, Pakistan – Tarig Mahmood, Shaista Andleeb & Faraz Akrim, Pp. 18148–18155

The endangered Himalayan Red Panda: first photographic evidence from its westernmost distribution range – Saroj Shrestha, Sony Lama, Ang Phuri Sherpa, Sonam Tashi Lama & Dinesh Ghale, Pp. 18156–18163

Ecological niche modelling predicts significant impacts of future climate change on two endemic rodents in eastern Africa – Aditya Srinivasulu, Aleembrhan Assfa & Chelmala Srinivasulu, Pp. 18164–18176

Avian diversity in a fragmented landscape of central Indian forests (Bhopal Forest Circle) – Amit Kumar, Yogesh Dubey & Advait Edgaonkar, Pp. 18177–18188

Nest tree preference shown by Ring-necked Parakeet Psittacula krameri – Pranati Gogoi & Namita Nath, Pp. 18297–18312

Notes

Photographic record of Temminck's Tragopan Tragopan temminckii (Gray, 1831) (Aves: Galliformes: Phasianidae) from eastern Bhutan: an evidence of its westward range expansion – Tshering Dorji, Kinley Kinley, Letro Letro, Dawa Tshering & Prem Nanda Maidali, Pp. 18403–18405

Legumes of Kerala, India: a checklist – Anoop P. Balan & S.V. Predeep, Pp. 18257–18282

Legumes of Bagalkot District, Karnataka, India – Jagdish Dalavi, Ramesh Pujar, Sharad Kambale, Varsha Jadhav-Rathod & Shrirang Yadav, Pp. 18283–18296

Indigenous knowledge of ethnomedicinal plants by the Assamese community in Dibrugarh District, Assam, India – Pranati Gogoi & Namita Nath, Pp. 18297–18312