

ISHA BOPARDIKAR

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RESEARCH INTEREST

- Bioacoustics, acoustic behaviour of mammals, animal communication, soundscapes, passive acoustic techniques to monitor populations
- Marine mammal ecology, cetacean behaviour, human-animal interactions, wildlife conservation
- Science education and outreach

EDUCATION

2011–2013 Master of Science (Zoology, Oceanography), **University of Mumbai**

2008–2011 Bachelor of Science (Zoology), **University of Mumbai**

PROFESSIONAL EXPERIENCE

April 2019–Present

Ecology and Evolution Lab, Biology Department, IISER, Tirupati, India

Researcher/Project Student

Supervisor: Dr VV Robin

Sept 2017–Jan 2018

Center for Conservation Bioacoustics, Cornell Lab of Ornithology, Cornell University

Inlaks Scholar (Inlaks Ravi Sankaran Fellowship Program): Short-term scholar under Dr Holger Klinck.

Sept 2015–Oct 2015

Center for Conservation Bioacoustics, Cornell Lab of Ornithology, Cornell University

Visiting researcher for data analysis and manuscript preparation.

Supervisor: Dr Holger Klinck.

RESEARCH/FIELDWORK EXPERIENCE

Researcher: Monitoring the presence of Arabian Sea humpback whales (*Megaptera novaeangliae*), along the western coast of India. Funded by the International Whaling Commission. (November 2019-ongoing)

Analysed long-term acoustic data to determine seasonal occurrence of Arabian Sea humpback whales in Indian waters using stationary passive acoustic monitoring devices.

Researcher/PI: Acoustic communication in Indian Ocean humpback dolphins (*Sousa plumbea*) in a noisy coastal habitat. Funded by The Rufford Foundation. (February 2018-ongoing)

Planned, designed and executed vessel-based survey to document the communication behaviour and vocal repertoire of *S. plumbea*.

Collected and analysed acoustic and behavioural data for *S. plumbea*.

Researcher: Study to assess current information on Irrawaddy dolphins (*Orcaella brevirostris*) in Chilika Lagoon, Orissa, India (April 2017)

Collected behavioural, acoustic, and environmental data for *O. brevirostris*.

Analysed acoustic data and assisted in manuscript preparation.

Researcher/Co-PI: Gol-GEF-UNDP Sindhudurg Cetacean Project, Maharashtra, India (2014–2016)

Planned, designed, and executed vessel-based transect surveys for abundance estimation of *Sousa plumbea* using photographic mark-recapture.

Collected behavioural data for *S. plumbea*, *N. phocaenoides*, *B. musculus*, *B. edeni*.

Collected and analysed acoustic data for *S. plumbea*.

Deployed and analysed passive acoustic data from CPODs for seasonal occurrence patterns of *S. plumbea* and *N. phocaenoides*.

Formed a community-based cetacean stranding response network.

Developed outreach material and conducted workshops.

Analysed data and prepared manuscripts, and reports.

Volunteer: A rapid assessment of cetacean diversity and occupancy along the southeast coast of India: Informing an environmental impact assessment of a coal power plant and its captive port. Funded by The Marine Mammal Commission, USA (October 2013)

Assisted in vessel-based surveys for marine mammal distribution and diversity.

Research Assistant: Small cetaceans of the Maharashtra coast: A study to identify the habitat, threats, and local perceptions to facilitate a conservation effort. Funded by The Rufford Foundation (2012–2013)

Assisted in conducting interview surveys to gauge perception of fishing community regarding marine mammals.

Assisted in vessel-based surveys to determine distribution of small cetaceans along the Sindhudurg coast, India.

Collected behavioural and environmental data for *S. plumbea* and *N. phocaenoides*.

Analysed data and assisted in manuscript preparation.

Volunteer: Assessing impact of bycatch and removal of juveniles on fisheries in Konkan. Funded by The Rufford Foundation (2011–2012)

Assisted in fisheries data collection, and recorded bycatch data across gear types from landing centres.

RESEARCH GRANTS, AND SCHOLARSHIPS

2019

The Rufford Foundation, UK: Assessing the status of humpback dolphins and finless porpoises in a marine biodiversity hotspot off the west coast of India. GBP £6,000

Wildlife Conservation Trust, Small Grants 2019-20 Phase I: Assessing the status of humpback dolphins and finless porpoises in a marine biodiversity hotspot off the west coast of India, INR ₹5,00,000 (~USD \$7,000)

American Association of University Women (AAUW): International Fellowship (Alternate)

2018

The Marine Conservation Action Fund, New England Aquarium, USA: Estimating population densities of two coastal cetacean species in Indian waters, USD \$7,500

2017

The Rufford Foundation, UK: Acoustic communication in Indian Ocean humpback dolphins in a noisy coastal environment, GBP £5,000.

The Ravi Sankaran Inlaks Fellowship Program (Inlaks Shivdasani Foundation) Internship Abroad, USD \$3,600+Travel.

2015–2016

IDEAWILD Equipment Grant, Colorado, USA: Monitoring the presence of Arabian Sea humpback whales (*Megaptera novaeangliae*), along the western coast of India, USD \$749.

GoI-GEF-UNDP Continuation grant for mainstreaming coastal and marine biodiversity conservation into production sectors in the Sindhudurg coast: Assessing the population of cetaceans across the coast of Sindhudurg, Maharashtra, India, INR ₹20,19,090 (~USD \$31,239).

2014–2015

GoI-GEF-UNDP grant for mainstreaming coastal and marine biodiversity conservation into production sectors in the Sindhudurg coast: Assessing the population of cetaceans across the coast of Sindhudurg, Maharashtra, India, INR ₹33,76,875 (~USD \$52,246).

AWARDS

2016

Best poster award, 7th Student Conference on Conservation Science, Bengaluru, India (21–24th Sept 2016).

2013

Prof B.P. Sunderraja rotating trophy for highest marks in Biological Sciences in MSc

Late Maithili Rao prize for highest marks in Zoology in MSc

2012

Lata Rao Foundation Prize for highest marks in Zoology.

2011

Lata Rao Foundation Prize for highest marks in Zoology.

PRESENTATIONS AT CONFERENCES

Bopardikar I., Sutaria D., Sule M., Jog K., Patankar V., Klinck H., (2018): Classification and description of Indian Ocean humpback dolphin whistles recorded off the Sindhudurg coast, India.

13th Western Pacific Acoustic Conference (WESPAC), New Delhi, India (11-15th November 2018) **(Oral Presentation)**

Patankar V., **Bopardikar I.**, (2018): Sounds from the sea: description of soundscapes from coral reefs of South Andaman.

Conference on the Status and Protection of Coral Reefs, Zoological Survey of India, Lakshadweep, India (21-25th October) **(Poster)**.

Bopardikar I., Sutaria D., Jog K., Sule M., Patankar V., Klinck H., (2018): Acoustics of the Indian Ocean humpback dolphin (*Sousa plumbea*).

Rufford India Conference, Goa, India (18-21st September 2018) **(Oral Presentation)**.

Bopardikar I., Sule M., Jog K., Patankar V., Sutaria D., Klinck H., (2016): Whistle characteristics of Indian Ocean humpback dolphins (*Sousa plumbea*) recorded off Sindhudurg coast, Maharashtra, India.

7th Student Conference on Conservation Science, Bengaluru, India (21–24th September 2016) **(Poster)**.

Jog K., Sule M., **Bopardikar I.**, Patankar V., Tregenza N., Sutaria D., (2017): Place based conservation of humpback dolphins, (*Sousa plumbea*) in Maharashtra, India- Hot-spots, space-use, population size, and threats.

18th Student Conference on Conservation Science, Cambridge, UK (28–30th March 2017) **(Poster)**.

Sule M., Jog K., **Bopardikar I.**, Patankar V., Tregenza N., Sutaria D., (2016): Cetaceans of Sindhurg-Using multiple channels to study cetaceans in southern Maharashtra.

7th Student Conference on Conservation Science, Bengaluru, India (21–24th September 2016) **(Oral Presentation)**.

OTHER INVITED TALKS

Contour classification of Indian Ocean humpback dolphin whistles using CART:

Sound Analysis Workshop and Training in Bioacoustics, IISER, Tirupati (14-21st March 2019)

What underwater sounds can tell us about Indian Ocean humpback dolphins Podcast for Mongabay <https://news.mongabay.com/2019/03/audio-what-underwater-sounds-can-tell-us-about-indian-ocean-humpback-dolphins/> (19th March 2019)

What's The Buzz- Using Acoustics to Study Cetaceans: Invited talk for 'Marine Meet-up' organised by the Marine Life of Mumbai (20th July 2018)

PUBLICATIONS

Sule, M., Mankeshwar, M., Ilangakoon, A., Jamalabad, A., Jog, K., K.V Aneesh., Dharini, S., Sekhar, R., K.M. Madhu, **Bopardikar, I.**, De Vos, A., and Sutaria, D. (2019). Status of the genus *Kogia* from India and Sri Lanka. In Review *Journal of Cetacean Research and Management*

Jog K., Sule M., Damle H., **Bopardikar I.**, Sutaria D., (2019). Post-mortem attentive behaviour (PAB) in Indian Ocean humpback dolphins (*Sousa plumbea*). Accepted in *Current Science*

Bopardikar I., Sutaria D., Sule M., Jog K., Patankar V., Klinck H., (2018). Description and classification of Indian Ocean humpback dolphin (*Sousa plumbea*) whistles recorded off the Sindhurg coast of Maharashtra, India. In *Marine Mammal Science* DOI:10.1111/mms.12479.

Jog K., Sule M., **Bopardikar I.**, Patankar V., Sutaria D., (2017). Living with dolphins: Local ecological knowledge and perceptions of small cetaceans along the Sindhurg coastline of Maharashtra, India. In *Marine Mammal Science* DOI:10.1111/mms.12466.

Sutaria D., **Bopardikar I.**, Sule M., (2017): Irrawaddy dolphin, *Orcaella brevirostris* from India. Primary Paper SC/67A/SM/08. *International Whaling Commission*, Slovenia

Sule M., **Bopardikar I.**, Jog K., Jamalabad A., Panicker D., Tregenza N., Sutaria D., (2017): A review of *Neophocaena phocaenoides* records from India, with a special focus on the population in Sindhudurg, Maharashtra. Primary Paper SC/67A/SM/09. *International Whaling Commission*, Slovenia

Sutaria D., Sule M., Jog K., **Bopardikar I.**, Panicker D., Jamalabad A., (2017): Baleen whale records from India. Primary Paper SC/67A/CMP/03. *International Whaling Commission*, Slovenia

Sutaria D., Sule M., Jog K., **Bopardikar I.**, Panicker D., Jamalabad A., (2016): Baleen whale records from the Arabian Sea, India June 2015-2016. Primary Paper SC/66B/SH/34. *International Whaling Commission*, Slovenia

Sutaria D., Panicker D., Jog K., Sule M., Muralidharan R., & **Bopardikar I.**, (2015): Chapter Nine- Humpback dolphins (Genus *Sousa*) in India: An overview of status and conservation issues. In *Advances in marine biology*, 72, 229-256.

REPORTS

Sutaria D., Sule M., Jog K., **Bopardikar I.**, Patankar V., (2016). Summary and Recommendations: National workshop on cetacean research methods. A report submitted to the Maharashtra State Forest Department.

Sule M., Jog K., **Bopardikar I.**, Patankar V., Sutaria D., (2016). The status of cetaceans along the coast of Sindhudurg, Maharashtra. A report submitted to the Government of India, GoI-GEF-UNDP Sindhudurg Project.

Sule M., Jog K., **Bopardikar I.**, Patankar V., Sutaria D., (2015). Cetaceans of the Sindhudurg coast. A report submitted to the Government of India, GoI-GEF-UNDP Sindhudurg Project.

RESEARCH SKILLS

- Acoustic data analysis (MATLAB, Raven, CPOD.exe, PAMGUARD)
- Statistical analysis using MATLAB, and R
- Basic GIS analysis (QGIS)
- Study design using DISTANCE
- Line transects, and distance sampling for marine mammals
- Behavioural observations of cetaceans
- Collection of acoustic data for marine mammals
- Conducting necropsies on small cetaceans

- Tissue sample collection for genetic analysis
- Photo-identification of marine mammals

OUTREACH, AND SCIENCE EDUCATION

Resource Person: Bioacoustics in Conservation- Workshop conducted at the 10th Student Conference on Conservation Science, (SCCS) Bangalore (15th-18th Oct 2019)

Resource Person: Training in Bioacoustics- Sound analysis workshop and training programme organised by The Cornell Lab of Ornithology (USA), and Wildlife Acoustics (USA) in collaboration with IISER (Tirupati).
Funded by the Indo-US Science and Technology Forum (IUSSTF) (14-21st March 2019)

Resource Person: Marine Mammal Stranding Response and Training Workshop for Maharashtra State Forest Department, organised by The Mangrove Foundation, Mumbai (5-6th October 2018)

Cetaceans of Sindhudurg- an illustrated booklet in English and Marathi.
Developed by: Ketki Jog, Mihir Sule, **Isha Bopardikar**, Vardhan Patankar, and Dipani Sutaria. Illustrated by Rohan Chakravarthy (Green Humour)

Posters for dolphin watching guidelines, and species information in English and Marathi.
Developed by Ketki Jog, Mihir Sule, **Isha Bopardikar**, Vardhan Patankar, and Dipani Sutaria. Illustrated by Rohan Chakravarthy (Green Humour)

OTHER

Member: Board of Studies (Department of Zoology) at Ramnarain Ruia Autonomous College, Mumbai (2019-2022)

Volunteer: Teach for India (Grade 3: English and Math, Grade 8-9: English and Science)

Memberships: Society for Marine Mammalogy (2016–Present), British Ecological Society (2017)

REFERENCES

Dr Dipani Sutaria: Senior Adjunct Research Fellow,
James Cook University,
Townsville, Australia.
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Dr Holger Klinck: Director,
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Cornell Lab of Ornithology, Cornell University, Ithaca, NY, USA
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