Exploring Uncharted Waters and Oceanic Mammals in the northern Indian Ocean - A Journey with Ajith

Dr. Ajith Kumar was best known for his work in primatology, behavioural ecology, and wildlife education. His interest in marine mammals was less well known. Though he rarely spoke about it, he hoped to build a long-term research program focused on these species in India. When Divya Panicker first expressed an interest in marine mammals, Ajith gently cautioned her—explaining that the work was resource-intensive and far less glamorous than the animals themselves. But what set him apart was that, even as he warned her, he quietly worked to open doors and create opportunities. He understood better than most that progress in this field would depend on collaboration, given the vast waters in which marine mammals live and their wide-ranging nature.

In 2013, Ajith was introduced to Drs. Kate Stafford (University of Washington, UW, now with Oregon State University) and Mark Baumgartner (Woods Hole Oceanographic Institution; WHOI), two U.S. researchers who were organizing a marine mammal survey team for a cruise abord the R/V *Roger Revelle* in the offshore waters of the Bay of Bengal. In email correspondence from April 2013, Ajith wrote to Kate and Mark:

"Some of us have been talking about the need for a marine mammal study initiative in India; therefore all of us are very excited about your survey and interest in working together in the future. As of now, there are no 'experienced' Indian marine mammalogist in India. There is a very small pool of (maybe 5 or 6) young and enthusiastic marine ecologists with limited experience of studying coastal marine mammals. Divya Panicker, who wrote to you, is one of them and works with me. Your survey would be a fantastic opportunity for 1 or more of them to get a feel [for] what this is, to be with you and your colleagues, and then to develop a long-term program. I think it is also important that a more 'experienced' wildlife ecologist (in the absence of a marine mammalogist) spend time on this survey to get a feeling of what the survey is like and to discuss the broader issues of long-term collaborative research such as institutional linkages, funding etc. Personally, I would be most excited to be on board, although I have no prior experience in this field; but this is a call that my colleagues and I can make while meeting your requirements".

Ajith and Divya enthusiastically joined Kate and Mark's survey team aboard the *Revelle*, which

Figure 1: Dr. Ajith Kumar on a marine mammal research cruise

Figure 2: Cover of the MMCOI report produced from the 2023 meeting. This meeting was a direct consequence of Ajith's early efforts.

marked a turning point for all of us. It began a journey—both at sea and in thought—that led to the first recordings of blue whales in Indian waters (Panicker and Stafford 2021) and helped lay the foundation for what would later become the Marine Mammal Consortium of India (MMCOI report 2023).

At the time, research on coastal cetaceans in India was growing steadily, with early-career and a very few established researchers asking ecological and conservation-based questions that focused on near shore populations (For example: Sutaria 2009, D'Lima et al. 2014, D'Souza et al. 2013, Muralidharan 2013, Jog et al. 2018, Panicker et al. 2018a). But the field remained difficult—marine work demands boats, equipment, funding, and the ability to operate in tough conditions. These are resources that are often out of reach for early career researchers or students. Offshore marine mammal research in India was even more limited, despite its importance and given the biodiversity of marine mammals in Indian waters. Most research came from a few opportunistic surveys by oceanographic and fisheries institutions, with little contribution from a wildlife ecology perspective (e.g. Afsal et al. 2008).

During the three-week research cruise aboard the R/V *Roger Revelle* across the Bay of Bengal in November-December 2013 (Gordon et al. 2013, Tandon et al. 2016), Dr. Kumar joined a small, international marine mammal research team. The cruise brought together participants from three countries – USA, Sri Lanka and India. Expert

Figure 3: Dr. Ajith Kumar (bottom row, 6th from right) along with scientists from three countries across physical, biological and chemical oceanographic disciplines studying the unique biophysical environment of the Bay of Bengal in 2013

Figure 4: Dr. Ajith Kumar and Suzanne Yin on the foredeck of the *Revelle*

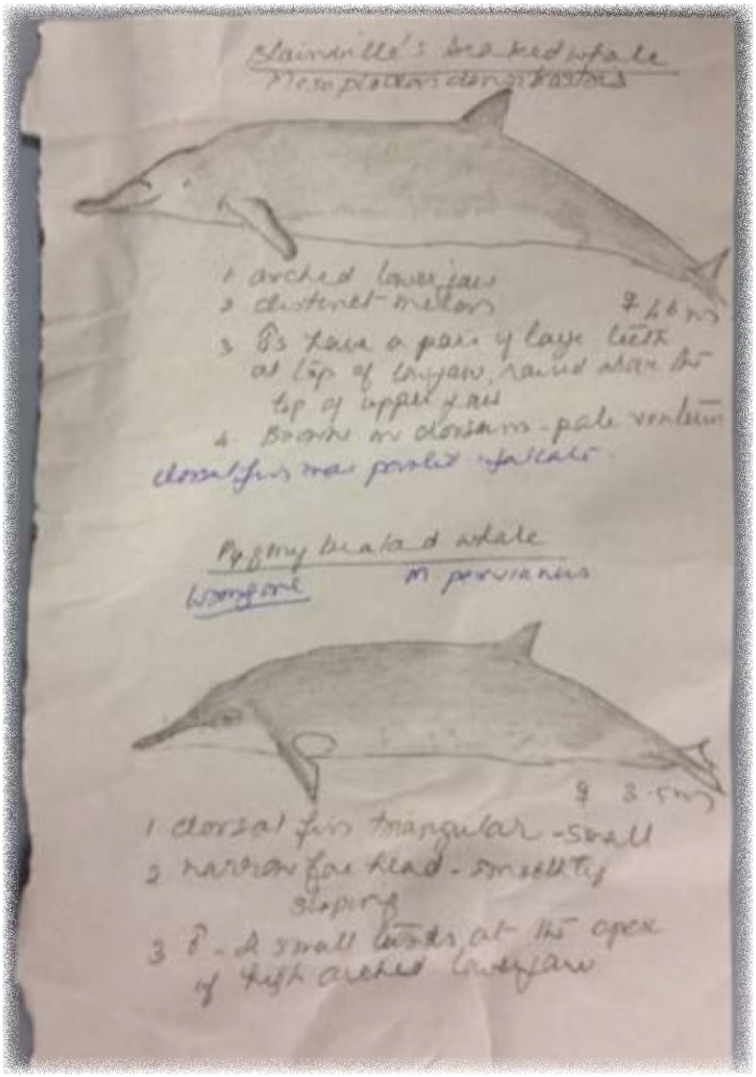

Figure 5: Dr. Ajith Kumar's drawings of beaked whales, which were used to train observers on key markers to identify to species.

marine mammal trainers Suzanne Yin and Ernesto Vásquez guided the group.

The *Revelle* cruise traversed international waters, starting from Columbo, Sri Lanka and cutting through the heart of the Bay of Bengal. Although a senior scientist at the peak of his career, Ajith was new to the field of marine mammal research. He joined the cruise to build institutional linkages and explore the potential for long-term collaboration. True to his nature, he approached it like a student—doing the assigned homework, taking notes (Figure 5), and engaging with quiet curiosity. Ajith joked that while we were still squinting through binoculars, Yin had already identified the species, counted the group, and described their behavior. As Yin later recalled, "*Ajith was someone who kept an eye on what was going on—very understated until something cool happened, and then he got very excited.*"

What made the Bay of Bengal and the northern Indian Ocean so compelling to scientists from around the world was its unique geography and oceanography. Bounded by land to the north, cut off from polar influences, and driven by a powerful monsoon system, the region is shaped by seasonally reversing currents and massive riverine input from the Indian subcontinent after the monsoon. These forces create layers of biological and physical complexity, making it a dynamic but poorly understood part of the ocean. The 2013 cruise marked the start of a five-year international effort to study air–sea interactions at the ocean's surface, focusing on processes that influence freshwater distribution and its connection to the Indian Monsoon. In the northern Bay of Bengal, sharp boundaries between ocean water

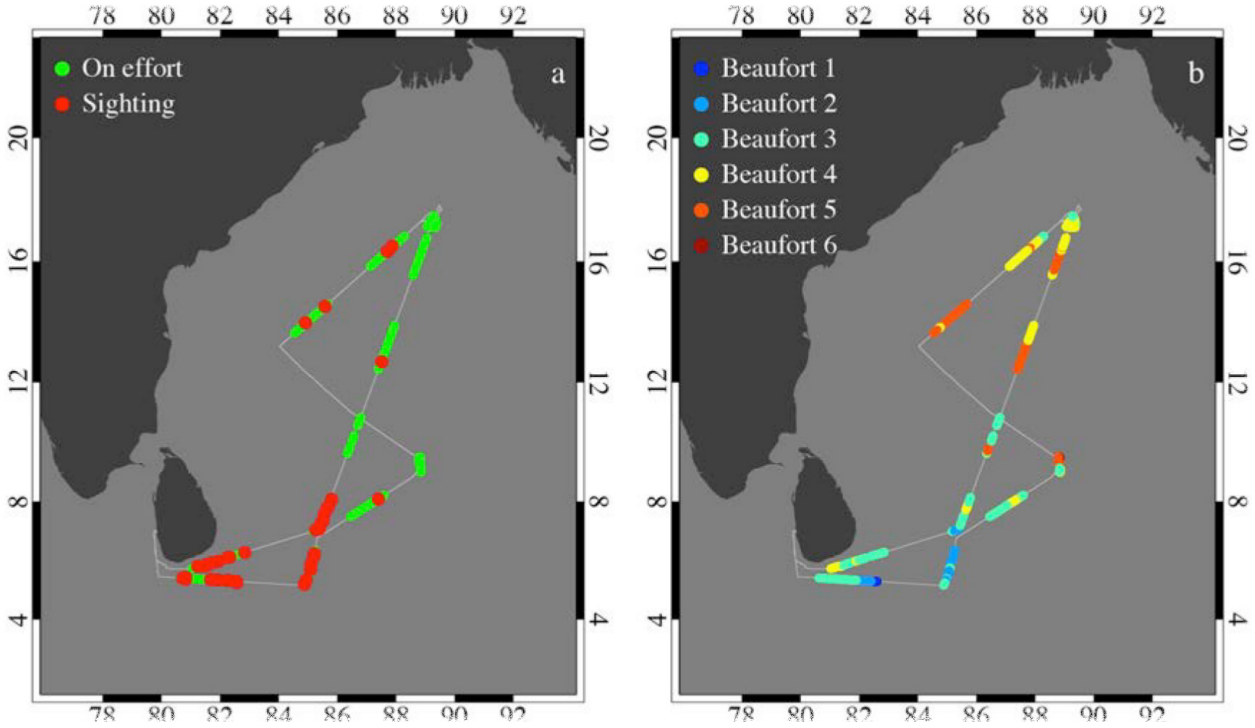

Figure 6: Figure F-8 reproduced by Shroyer & Mahadevan 2013. Left panel: Locations of survey effort (green) and marine mammal sightings (red). Right panel: Beaufort sea state (a measure of how rough sea conditions are) along the cruise track.

Figure 7: Participants of the bioacoustics workshop held by the University of Washington, Woods Hole Oceanographic Institution, National Centre for Biological Sciences (NCBS) and Wildlife Conservation Society Wildlife Programme in 2014.

masses form due to heavy river runoff and rainfall, creating a shallow mixed layer shaped largely by salinity.

Mixing along and across these boundaries can alter water properties. In the southern Bay of Bengal, strong internal waves emerging from the Andaman–Nicobar gaps carry nearly ten times more energy than those in the open ocean and may play a key role in mixing water layers. These physical processes in the Bay of Bengal can influence global climate by affecting wind patterns, heat and salt transport in the Indian Ocean, and shifts in monsoon and rainfall patterns (Wijesekara et al. 2016).Within this context, in 2013, our team recorded 52 sightings of 12 different cetacean species, including blue whales, sperm whales, spinner dolphins, and killer whales. Most sightings occurred in the southern Bay, with fewer observed in the central and northern regions. However, better visibility and calmer seas in the south may have contributed to this pattern, so it remains uncertain whether these differences reflect true variations in cetacean distribution (Wijesekara et al. 2016, Figure 6). Yet even this exploratory survey hinted at something intriguing—a possibly distinct and smaller cetacean community inhabiting the northern Bay (Shroyer & Mahadevan 2013). Combining more sighting data with ocean measurements will help

Figure 8: Marine Mammal Symposium participants at NCBS in 2018

Figure 9: Students, and trainers, and Dr. Kumar before the cruise on R/V Sagar Sampada in 2018. Enjoying long pretzels smoked like cigars is a fun tradition whenever a new marine mammal species is encountered at sea; the training participants are practicing this tradition here.

Figure 10: Reproduced from Srinivasan et al. 2018, Photo credit: Mridula Srinivasan – Observers using "big-eye" and handheld binoculars to survey for cetaceans in offshore Kerala waters.

us understand how monsoons affect where and when cetaceans are found in this region.

Beyond the data, the experience left a lasting impact on the team. Amid long hours of surveying in high seas, spotting cetaceans, and mapping the biophysical environment, a shared sense of purpose took shape—one that many of us still carry: to build marine mammal research capacity among Indian students and provide opportunities to access offshore waters to study oceanic species.

Just days after the cruise, Dr. Ajith convened a meeting of researchers from ten institutions to discuss the next steps. That momentum led to an acoustic training workshop at NCBS in 2014 (Figure 7), and the 2017 Marine Mammal Symposium, which brought together over 35 institutions in India and sparked lasting collaborations (Figure 8; Panicker et al. 2018b).

All the while, Ajith quietly built bridges—supporting partnerships with U.S. National Oceanic and Atmospheric Administration (NOAA), Centre for Marine Living Resources and Ecology (CMLRE) in the Indian Ministry of Earth Sciences, WHOI, and UW. These efforts helped students pursue PhDs and training opportunities in the U.S. (Panicker et al. 2022). He also played a key role in organizing a training cruise off Kochi aboard the R/V Sagar Sampada—one of the first dedicated marine mammal cruises on an Indian oceanographic vessel (Figure 9). Led by Dr. Mridula Srinivasan (NOAA), Suzanne Yin, and Ernesto Vasquez, the cruise helped to train ten students in offshore survey methods, including the use of big-eye binoculars, and gave them a rare opportunity to work on a large research ship (Figure 10; Srinivasan et al. 2018).

Figure 11: Dr Ajith Kumar (first from the left) with marine mammal team on R/V *Roger Revelle*

What was perhaps most endearing about Ajith—and something many of us continue to learn from—was that he never sought recognition for himself. It was always about the work. He never walked alone, and he made sure we didn't have to either.

Ajith's generosity, humility, and belief in collective learning shaped everything he did. He walked alongside students, researchers, and collaborators—many of whom found their way into marine science because of his support. He was gentle and kind and truly made space for young researchers to begin to spread their wings. He also shared his love of the wildlife of India with the international researchers with whom he worked.

Today, as long-term monitoring programs grow and new scientists begin their journeys in India, we see Ajith's legacy everywhere: in the institutions now studying marine mammals, in the students he mentored, and in the questions he helped us start asking. The loss of such an unassuming yet steadfast presence in our midst is immeasurable. Perhaps the only solace lies in carrying his legacy forward—in our work, in our values, and in the communities we build—so that he continues to live on in that we do.

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Citation: Panicker, D., K. Stafford & M. Baumgartner Exploring Uncharted Waters and Oceanic Mammals in the northern Indian Ocean - A Journey with Ajith. In *Zoo's Print* 41(3): xx–xx.