



*Diving deep with*  
**Dolphins**

FROM SURVIVING TO THRIVING



*Diving deep with*  
*Dolphins*

FROM SURVIVING TO THRIVING

## Diving Deep with Dolphins – from Surviving to Thriving

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*Photo Credit: Paribrajak  
Irrawaddy Dolphin shot at Chilika Lagoon, Odisha*



# *Contents*

<i>Foreword</i>	01
<i>Messages</i>	02
<i>Prelude</i>	05
<i>Dolphins in History</i>	09
<i>Presence and Populations of Dolphins in South Asia</i>	12
<i>The Ganges River Dolphin</i>	14
<i>The Indus River Dolphin</i>	18
<i>The Irrawaddy Dolphin</i>	22
<i>The Threats</i>	26
<i>What We Can Do</i>	34
<i>Mobius Initiatives</i>	43
<i>The Personhood Status of Dolphins in India</i>	44
<i>Dolphins on Postage Stamps</i>	48
<i>Image Credits</i>	51



*Photo Credit: Mrinal Kaushik  
Shot at Vikramshila Gangetic Dolphin Sanctuary, Bhagalpur, Bihar*

# Foreword

It is with great pleasure and a sense of deep responsibility that I introduce 'Diving Deep with Dolphins: From Surviving to Thriving', which sheds light on the captivating world of dolphins and the urgent need for their conservation.

The allure of dolphins has captivated humanity for centuries, weaving its way through folklore, myth, and ancient cultures. Yet, beneath the surface of these tales lies a stark reality – the perilous plight facing these majestic creatures in our modern world.

Through meticulous research and expert insights shared within these pages, 'Diving Deep with Dolphins' unveils the current challenges confronting these mammals, particularly in the Indian subcontinent. It illuminates their historical significance,

ecological importance, and the critical role they play as indicators of the health of our aquatic ecosystems.

At Mobius Foundation, we believe that knowledge is the catalyst for change. By fostering awareness and understanding, we empower individuals and communities to become stewards of our natural heritage.

I congratulate all the contributors and experts whose dedication and passion have brought this project to fruition.



*Pradip Burman*

*Mr. Pradip Burman  
Chairman, Mobius Foundation*



जी अशोक कुमार, भा.प्र.से.  
विशेष सचिव एवं महानिदेशक  
राष्ट्रीय स्वच्छ गंगा मिशन

G Asok Kumar, IAS  
SPECIAL SECRETARY & DIRECTOR GENERAL  
NATIONAL MISSION FOR CLEAN GANGA



सत्यमेव जयते  
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अमृत महोत्सव

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जल शक्ति मंत्रालय  
जल संसाधन,  
नदी विकास और गंगा संरक्षण विभाग  
GOVERNMENT OF INDIA  
MINISTRY OF JAL SHAKTI  
DEPARTMENT OF WATER RESOURCES,  
RIVER DEVELOPMENT & GANGA REJUVENATION



### MESSAGE

India has a tradition of respecting the elements of nature- water, air, fire, earth and space and all forms of biodiversity in the world. Our Puranas are replete with stories of reverence for rivers, water bodies. The most revered Ganga River, holds immense cultural, ecological, and economic significance. For centuries, dolphins have been an integral part of this ecosystem, serving as vital indicators of environmental health and embodying our rich natural heritage.

Over the years, the dolphin population has encountered significant threats due to habitat degradation, pollution, and unsustainable practices. Recognizing the urgency of this situation, Namami Gange, Program implemented by the National Mission for Clean Ganga was launched in 2014 as a flagship program of Government of India to rejuvenate the river and its ecology. The Program, through its multipronged technological interventions and stake holder participation have succeeded to a large extent to reverse this trend and restore the splendour of the rivers. NammaiGange was acknowledged as one of the top ten "World Restoration Flagships" at the CoP 15 of Biodiversity at Montreal in December 2022. This was for "halting and reversing environmental degradation, with people's participation.

Thus, through collaborative efforts, innovative projects, and community engagement, when the river ecology was revived, we also witnessed a remarkable revival in dolphin populations in Ganga River. From approximately 2,000 dolphins, their numbers surged to an estimated 4,400 to 5,000, a testament to the effective conservation strategies.

The publication "Diving Deep with Dolphins: From Surviving to Thriving" by the Mobius Foundation encapsulates the collective endeavour to conserve and protect India's riverine dolphins. It not only illuminates the remarkable journey of these keystone species but also emphasizes the urgent need for concerted action to secure their future. Through insightful narratives and scientific insights, this publication offers a profound glimpse into the intricate world of dolphins and the myriad challenges they face.

I commend the Mobius Foundation for their invaluable contribution in bringing forth this publication. I am hopeful that it will serve as a catalyst for further action, inspire greater awareness, and foster collaborative efforts toward the conservation of dolphins and our precious water bodies.

(G. Asok Kumar)  
Ex, Special Secretary and Director-General,  
National Mission for Clean Ganga (NMCG),  
Ministry of Jal Shakti, Government of India



राष्ट्रीय स्वच्छ गंगा मिशन  
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# Message

It is with great pride that we present this publication, 'Diving Deep with Dolphins: From Surviving to Thriving', which offers a comprehensive overview of dolphins, exploring their historical significance and current status in India. The publication sheds light on their populations, with a particular focus on species like the Ganges Dolphin, while also providing valuable insights into the biology and ecology of other species such as the Indus River Dolphin and the Irrawaddy Dolphin.

Moreover, this publication underscores pressing threats faced by these magnificent creatures, including habitat degradation, poaching, pollution, and human-induced disturbances. Importantly, it does not merely highlight challenges but also offers actionable recommendations to mitigate these threats and ensure the conservation of the dolphin population for generations

to come. Additionally, it examines the intriguing topic of the 'Personhood Status of Dolphins in India', adding another layer of depth to our understanding.

In commemoration of Wildlife Week and Dolphin Day, Mobius Foundation convened a panel discussion on 'Diving Deep with Dolphins: The Urgency of Conserving Endangered Species' on October 13<sup>th</sup>, 2023. The insightful deliberations and exchange among the distinguished panelists shed light on the challenges confronting the conservation of dolphins in India.

I extend my sincere appreciation and gratitude to all those involved in the event and in the creation of this publication. Together, we are taking significant steps towards safeguarding the future of these remarkable mammals and the ecosystems they inhabit.



A handwritten signature in dark ink, appearing to be 'P. Garg', located below the portrait.

*Mr. Praveen Garg, IAS (Retd.)  
President, Mobius Foundation*



*Photo Credit: Sandeep Behera  
Ganges River Dolphin*

# Prelude

The mention of dolphins often conjures up images of soul-stirring stories of ship-wrecked sailors rescued on the high seas by pods of friendly dolphins. Although, mostly denizens of the depths, dolphins do also occur in fresh water river systems across the world. Dolphins are members of the Cetacea infraorder which includes all species of aquatic mammals like whales, dolphins and porpoises. While there are 40-odd extant species of these cetaceans, there are only six river dolphin species that still exist globally; namely the Amazon River Dolphin, the Ganges River Dolphin, the Tucuxi River Dolphin, the Yangtze Finless Porpoise, the Irrawaddy Dolphin and the Indus River Dolphin. Of these, three species are residents of the Indian subcontinent. While the marine dolphin population globally is fairly stable, river dolphins face a future as murky as the waters they inhabit, as the three species of

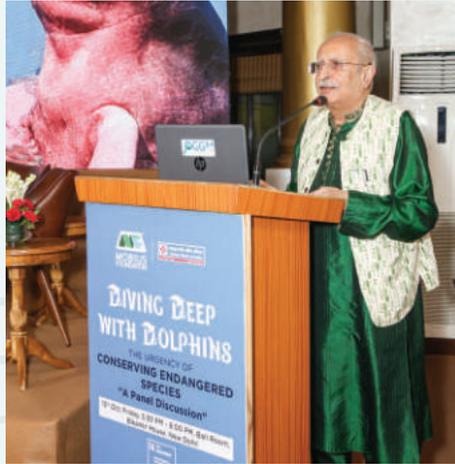
cetaceans this publication focuses on, are all marked endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

While ancient myth and legend and certain historical accounts abound with references to dolphins, not much was commonly known about these elusive creatures. The Ganges River Dolphin was first scientifically documented in 1801, and christened *Platanista gangetica* by William Roxburgh, the then superintendent of the Calcutta Botanical Garden. Until recently, both the Ganges and the Indus River Dolphin were considered to be one and the same species and were clubbed together as the South Asian River Dolphin. It was only in 2021 when the taxonomy was revised, that they are now recognised as two separate species with different scientific names—*Platanista gangetica gangetica* and *Platanista gangetica minor*.

Although India is home to two riverine species, the Ganges River Dolphin or *Platanista gangetica gangetica* and the

Indus River Dolphin or *Platanista gangetica minor*, and one euryhaline (marine as well as freshwater) species, the Irrawaddy Dolphin or *Orcaella brevirostris*, many modern-day Indians are surprised to learn of their presence as it is mostly the communities who have traditionally resided along the specific river systems they inhabit, that were aware of their existence.

These creatures swim in some of the world's mightiest rivers like the Ganges, Indus, Yangtze and Amazon. These river basins are home to over 15 per cent of the world's population and include some of the poorest and most densely populated areas on the planet. In China, the Yangtze River was once home to two species of freshwater dolphins; the Yangtze River Dolphin and the Yangtze Finless Porpoise. The Yangtze River Dolphin, locally known as Baiji became functionally extinct in 2006, while the Yangtze Finless Porpoise has been all but completely extirpated with numbers between 500 and 1800. Dolphins in India too, are under grave threat with numbers that have shrunk alarmingly.



*Clockwise from top: 1. Panel discussion with Ms. Gargi Rawat, Mr. Suresh Babu SV, Dr. Sandeep Behera and Mr. Sanjay Upadhyay.  
2. Mr. Pradip Burman, Chairman, Mobius Foundation addressing the guests.*

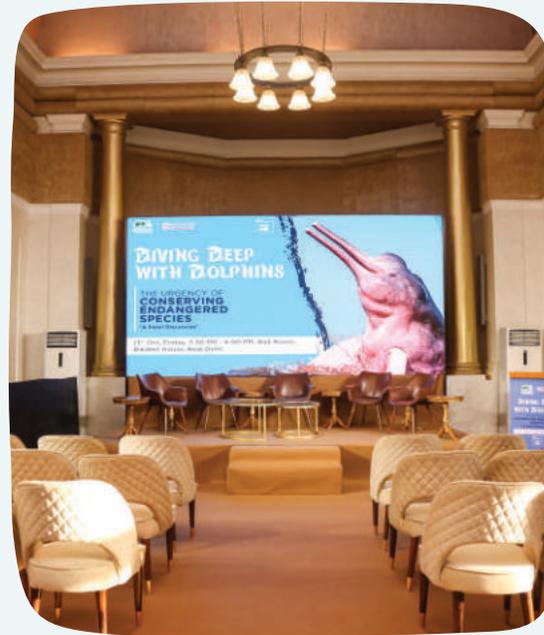
*3. Audience members at the talk.  
4. Address by Mr. Praveen Garg, President, Mobius Foundation.*

*5. Mr. Suresh Babu SV, Mr. Praveen Garg, Dr. Sandeep Behera, Mr. Sanjay Upadhyay, Mr. Pradip Burman, Dr. M.K. Ranjitsinh and Ms. Gargi Rawat.  
6. Ms. Gargi Rawat, Senior News Anchor & Environment Reporter moderating the event.*

Just like big cats in the jungle, all three species of dolphins serve as umbrella species in their habitats and are the apex predators in their specific terrains. Their continued existence is the best indicator of the health of the waters that make up their home. Simply put, if the dolphins thrive, then their river eco-systems thrive as well.

In order to reverse the decline in species' numbers, in 2020, the Government of India announced Project Dolphin. Aiming to emulate the success of Project Tiger and Project Elephant, under Project Dolphin a number of key interventions have been put into place including a systematic dolphin census to be conducted every three years, the Ganges Dolphin being declared the National Aquatic Animal of India and October 5<sup>th</sup> as National Dolphin Day.

As part of this effort, Mobius Foundation, a New Delhi-based not-for-profit, organised "Diving Deep with Dolphins", a special event to raise awareness about the plight of dolphins in India. In partnership with the Central Bank of India, the event took place



on October 13<sup>th</sup> 2023, in the capital's iconic Bikaner House.

Hosted by Mr. Pradip Burman, Chairperson, Mobius Foundation and Mr. Praveen Garg, President, Mobius Foundation, the evening began with a short informative film on the Ganges and Indus

River Dolphins, followed by an interactive Q&A session with an eminent group of panellists such as Mr. G. Asok Kumar, Director General, National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, Government of India, Mr. Sanjay Upadhyay, Supreme Court Advocate, Founder and Managing Partner of India's First Environmental Law Firm, Enviro Legal Defence Firm, Dr. Sandeep Behera, Consultant-Biodiversity at National Mission for Clean Ganga at MoWR, RD & GR, Government of India, and Mr. Suresh Babu SV, Senior Director, Ecological Footprints, WWF-India. The panel discussion was ably moderated by Ms. Gargi Rawat, Senior News Anchor and Environment Reporter.

The panellists discussed the dolphins' historical and present status, with a focus on our own dolphins—the Ganges, Indus and Irrawaddy species. They dwelt upon current population, geographical threats, initiatives for conservation and some innovative solutions for their protection and conservation in India and South Asia.



*Photo Credit: Dibyendu Ash  
Irrawaddy Dolphin shot at Sundarban National Park, West Bengal*

# Dolphins in History

From time immemorial, nature has had a huge influence on ancient cultures and religions. Most ancient civilisations have left behind evidence of the deep connect between humans and the natural world around them. Whether animist religions or tribal rituals and practices, many of which have survived into the modern day, different animals were attributed with special powers and were worshipped accordingly. The friendly dolphin is no different. From the Hellenic isles of Greece that stud warm Mediterranean waters to the glacially fed rivers of India, dolphins have inspired many tales and legends all over the world. In ancient Greece, dolphins were believed to be the messengers of Poseidon, god of the sea and were often cast on ancient Greek coins.



Fig. 1 Silver coin from 290-280 BC of the Greek city of Taras, showing Phalanthos riding a dolphin on one side and a rider with a shield decorated with a dolphin on the other.

Dolphins often make star appearances in popular culture, be it in the form of fiction or film. Whether in Homer's ancient Greek classic *The Odyssey* or the hugely popular hit Hollywood franchise *Pirates of the Caribbean*, starring Johnny Depp, typically dolphins have been seen as rescuers; creatures entrusted by the gods to guide stranded sailors safely to land. Due to these beliefs, the people of ancient Greece held dolphins in high reverence, worthy of keeping away from all harm.



Fig. 2 Greek musician Arion being carried ashore by dolphins, after he was threatened by pirates. Floor mosaic - Villa Romana del Casale, Piazza Armerina, Sicily, 4<sup>th</sup> c. AC.

In Amazonian folklore, Amazon River Dolphins, or Botos, inhabited the mystical realms beneath the river's surface, wielding magical powers. Known as *encantado*, meaning 'enchanted' or 'bewitching' in Spanish, Botos were believed to be shape-shifters; dolphins by day transforming into young men at nightfall.

Once transformed, the *encantado* left the river depths to partake in festivities on land and enchant young women. Like all myths though, there was a twist! Despite the clever guise, these shape-shifters retained traces of their true dolphin selves, unable to entirely conceal their origins. To safeguard their true identities, they donned white hats in order to conceal the blowhole that sits atop their heads, and had to return to the river before the break of dawn to become a dolphin again.

Closer to home, in Hindu mythology Ganges Dolphins occupy a unique and meaningful role intertwined in the religion. Dolphins are often referenced in sacred texts. In Sanskrit the dolphin is called ‘*Ganga Puputaka*’, and in the *Brahmavaiivarta Purana*, it is associated with the Goddess Ganga, who is depicted with her divine vehicle, the *Makara*—a mythical creature bearing the head of a crocodile and tail of a dolphin. Vishnu, the god of Preservation, is said to have worn earrings in the shape of a *makara*. The dolphin finds mention in various verses of



Fig. 3- Ganga on Makara.  
Kalighat painting from Calcutta.

the Rig Veda as well, and was also linked to other Hindu deities, like Varuna, the god of the realm of oceans and waters.

In ancient India the *susu*—as the Ganges Dolphin is referred to in northern India due to the sounds it emits—was regarded as a symbol of purity and always enjoyed a sacred place. As early as in the 3<sup>rd</sup> century BCE, the Maurya Emperor Ashoka the Great, granted the dolphin a special status in his fifth pillar edict and banned its killing or hunting along with a swathe of other animals including various water and other birds, aquatic creatures and a host of small and large mammals.

Centuries after this, the dolphin once again finds mention in the *Baburnama*, which was published in 1598 CE during the reign of the first Mughal Emperor Babur, where it is referred to as *Khokk Aabi* (water hog in Persian). Babur was a keen and accomplished swimmer, and enjoyed swimming across the many rivers and streams that he came upon during his military campaigns and expeditions.

It is believed that Babur swam across the Ganges at least twice, where he must have encountered dolphins.

Reflecting their playful demeanour, dolphins represent the concept of *lila*, or “divine play” and symbolise the joyous voyage of the liberated soul. The presence of dolphins in Hinduism encompasses a fusion of reverence for their inherent existence and their symbolic portrayal of virtues, thereby contributing to the intricate spiritual tapestry of the religion.

Dolphins are remarkable creatures, inspiring wonder and fostering connections across a multitude of both ancient and modern societies. They have navigated the currents of human cultures and belief systems, imprinting themselves on the stories that define our interaction with nature. Dolphins persist in being treasured as awe-inspiring creatures from the depths of waters, highlighting the harmonious relationship between humanity and these amazing mammals.

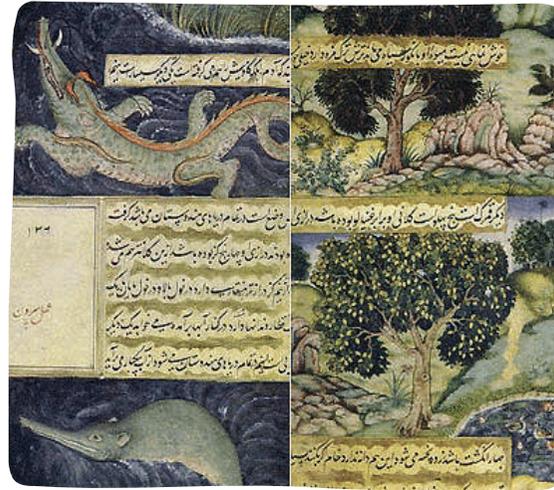


Fig. 4 - Illustrations from Baburnama—Crocodile and Water hog ‘(platanista gangetica), ‘Jaman’ (similar to the black grape) ‘(eugenia jambolana)’ and ‘Kamrak (averrhoa carambola)’.

Fig. 5 - The Monkey and the Dolphin, Illustration for Aesop’s Fables by Victor Wilbour ca. 1916.

Fig. 6 - Sculpture of Aphrodite riding a dolphin.

# Presence and Populations of Riverine Dolphins in South Asia

Despite the reverence and veneration that dolphins in India received in the country's ancient past, the 20<sup>th</sup> century has proved a very different prospect for them.

The Ganges River Dolphin, the Indus River Dolphin and the Irrawaddy Dolphin—native to India and Southeast Asia, are all struggling for survival.

As per available data, there has been a 40 per cent reduction in range over the last 100 years. A century ago, dolphins were quite commonly spotted upstream of Bijnor in Uttar Pradesh and even in the Yamuna near Delhi. In the Ganges - Brahmaputra - Meghna river basin, at the turn of the last century, the Barak River, which is the headstream of the Meghna River in Assam, was considered the safest haven for the Ganges dolphin. Recent studies have shown a complete decline in numbers and today, dolphins no longer occur in the Barak river system. The extirpation of dolphins from the Barak river system proved to be a wake up call for scientists, conservationists and policy makers. The awareness on dolphin conservation grew and now more serious steps and efforts were being taken to this end, albeit with moderate success.

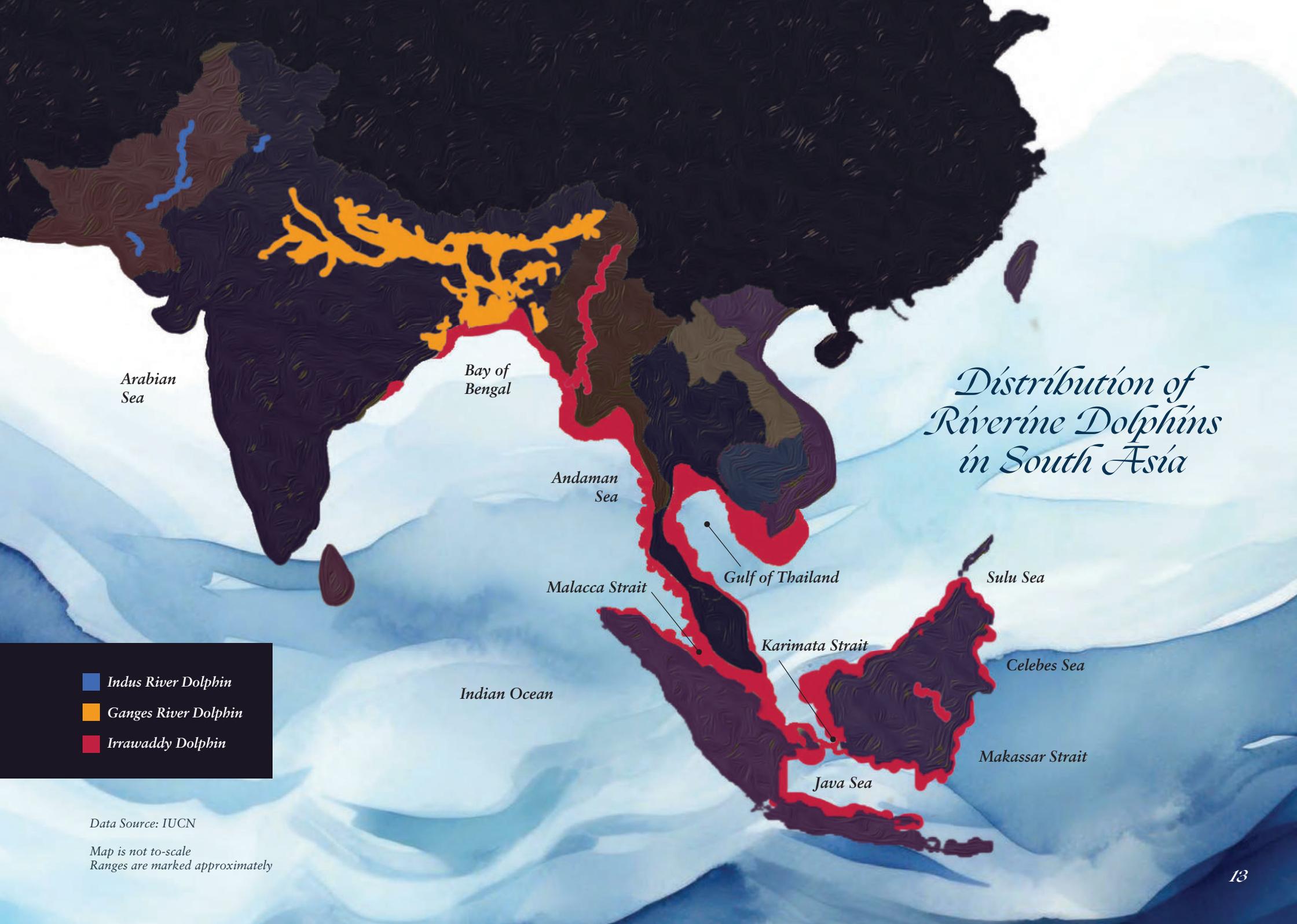


# *Distribution of Riverine Dolphins in South Asia*

-  *Indus River Dolphin*
-  *Ganges River Dolphin*
-  *Irrawaddy Dolphin*

*Data Source: IUCN*

*Map is not to-scale  
Ranges are marked approximately*



# The Ganges River Dolphin

Of the three species, the Ganges River Dolphin or *Platanista gangetica gangetica* is one of the oldest surviving cetaceans in the world having evolved over 20 million years ago. It has the largest territory inhabiting the Ganges - Brahmaputra - Meghna river basin that spans three countries, India, Nepal and Bangladesh.

WWF estimates, peg their total population to be between 3000 and 5000.



This includes less than 100 in Nepal and an unknown number in Bangladesh where a significant part of their range has not been surveyed. The Ganges, which originates in Gangotri at a height of 4000 metres above sea level, in the Himalayan state of Uttarakhand, flows through five Indian states—Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal—covering a total distance of 2510 kilometres before entering Bangladesh to finally empty into the Bay of Bengal.

The Ganges River Dolphin is found across these states, albeit in varying numbers.

The Himalayan region is the youngest mountain eco-system on earth and is quite appropriately called “the water tower of Asia”. Traversing 33,000 square kilometres of glaciers, it is the source of many major river systems including the Ganges, Indus and Brahmaputra.

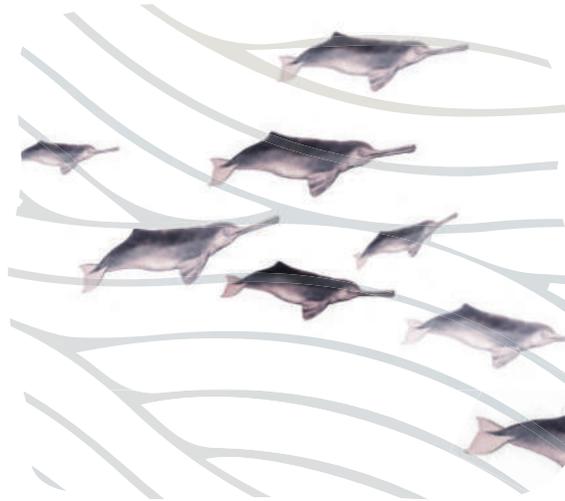
## *Biology and Ecology:*

Ganges River Dolphins are usually grey or light brown and sometimes may have a pinkish tone to their belly. Their dorsal fins are very small—usually only a few centimetres high and are in the form of a low, fleshy lump on their back. Ganges River Dolphins have steep foreheads and flexible necks with unfused vertebrae, allowing them to turn their heads from side to side. Their snouts are elongated and can move slightly in an upward direction. They have small sharp teeth that are visible even when their mouths are closed. The species is functionally blind and relies heavily on echolocation in order to navigate the river

waters and hunt for food. Externally the eye is the size of a pinhole thereby restricting passage of light to the retina. There is no lens and their optic nerves are very narrow, leading scientists to believe that despite being unable to form a clear image, their eyes still serve as light receptors. They feed on small to medium sized fish and crustaceans. It is believed that they use echolocation clicks to sense prey from up to 20 metres away and electroreception to scan prey that occurs close to the riverbeds. These dolphins have developed a unique side-swimming technique, which is an evolutionary



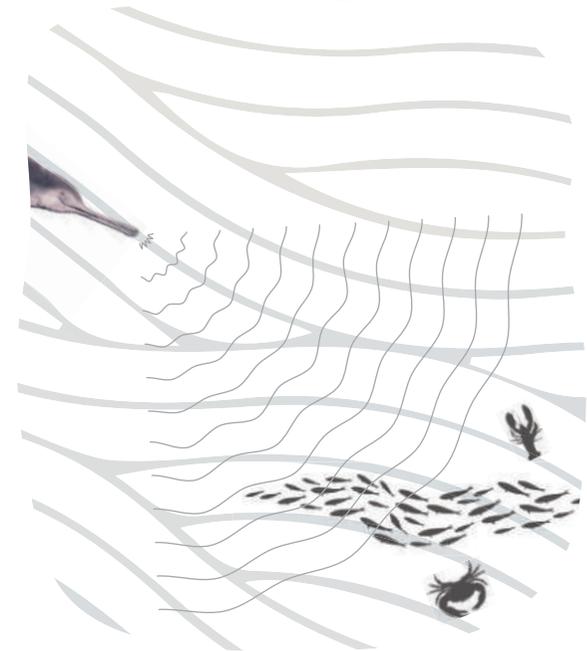
The Ganges River Dolphin has been listed as 'Endangered' by the International Union for Conservation of Nature (IUCN)'s Red List Assessment, 2021. The population is currently declining.



adaptation to help them navigate through shallow waters.

Like their cousins from other species, Ganges River Dolphins use echolocation for navigation, but given the complex nature of their river terrain, also emit sound almost constantly—giving rise to their local name, *susu*. They are almost always solitary but can occasionally be spotted in groups of up to 10 individuals at the confluences of tributaries.

Weigh 150 - 170 kg  
 Length 7 - 8.9 feet  
 Live in freshwater  
 Solitary creatures  
 Occasional groups of 10  
 Largely blind  
 Hunt through echolocation  
 Eat small fish, crabs, shrimp, prawns





*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar island in the Hooghly River, West Bengal*



*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar, West Bengal*

# The Indus River Dolphin

The Indus River Dolphin or *Platanista gangetica minor* is one of the most endangered cetaceans in the world and as its name suggests, is mostly found in the lower parts of the Indus river flowing through Pakistan.

Since 2007, very small numbers have also been observed downstream in the Beas River in the Harike wetlands in Indian Punjab. Historically these dolphins swam freely through roughly 3500 kilometres of



the Indus River system—from the foothills of the Karakoram Mountains, through the plains, to the Indus estuary. Current estimates put their number at around 1900 in Pakistan and a mere six to ten individuals in India.

The Harike Barrage was built in 1952 to dam the Sutlej River, redirecting its waters through a canal to provide water to over 7,500 villages in Rajasthan. However, the blocked waters from the reservoir spilled

into the surrounding areas, submerging at least three districts creating north India's largest wetland—Harike.

Spanning 41 square kilometres, Harike is not only a notified wildlife sanctuary, but also a declared Ramsar Convention site. Ramsar Convention is a convention that took place in Ramsar, a town in Iran in 1971, to deliberate on the protection of wetlands and natural resources. A Ramsar site denotes a wetland of international importance. Punjab falls on the Central Asian Flyway, one of the nine routes that migratory birds take from their central Asian breeding grounds to non-breeding or wintering sites in West and South Asia and the Indian Ocean, with Harike being one of the largest stopovers en-route. Ironically, this wetland that took birth as a fallout of the dam's construction, is perhaps one of the most bio-diverse habitats in the Punjab, home to 400 species of resident and migratory birds as well as a number of mammals such as the smooth-coated otter and seven species of rare freshwater turtles.

### *Biology and Ecology:*

Indus River Dolphins are usually a light brownish-grey, exhibiting lighter tones on their underbelly sometimes. Having small dorsal fins, Indus River Dolphins have flexible necks, large flippers and flukes.

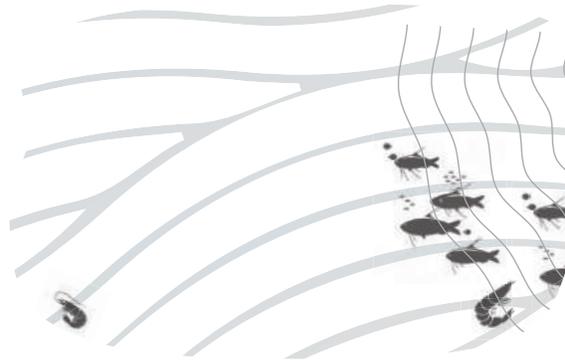


*The Indus river dolphin is marked 'Endangered' by the International Union for Conservation of Nature (IUCN)'s Red List Assessment, 2021. The population numbers are gradually increasing.*

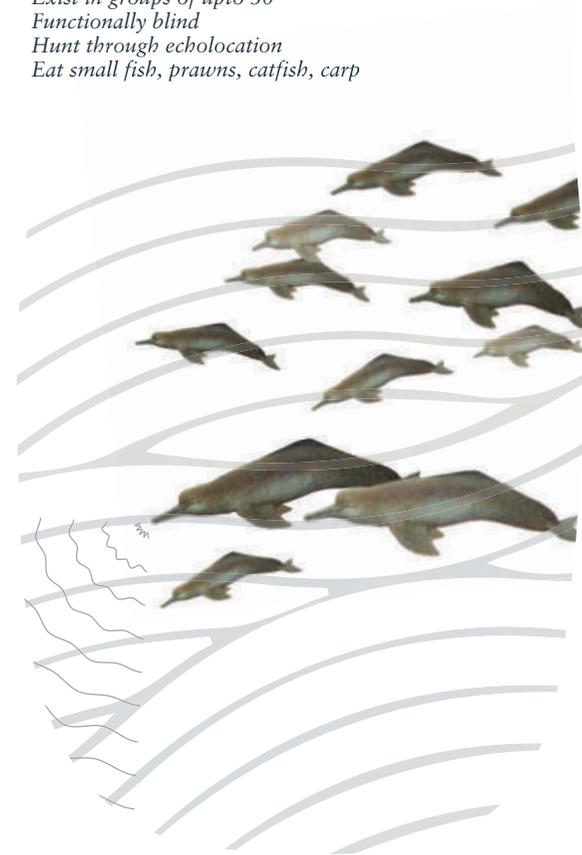
Like their cousins residing in the Ganges they have also developed a unique side-swimming behaviour, which allows them to navigate shallow waters. The species is functionally blind and relies heavily on echolocation in order to navigate the river waters and hunt for food. Externally the eye is the size of a pinhole thereby restricting passage of light to the retina. There is no lens and their optic

nerves are very narrow, leading scientists to believe that despite being unable to form a clear image, their eyes still serve as light receptors. Indus River Dolphins feed on small to medium sized fish and crustaceans.

Like most other cetaceans, Indus River Dolphins also use echolocation for navigation, but given the complex nature of their river terrain, also emit sound almost constantly. Individuals surface for only about one second at a time and then dive back in for about one minute. Although these dolphins have been observed in groups of up to 30 individuals, they are mainly solitary creatures.



*Weigh 70 - 110 kg  
Length 8.2 feet  
Live in freshwater  
Solitary creatures  
Exist in groups of upto 30  
Functionally blind  
Hunt through echolocation  
Eat small fish, prawns, catfish, carp*





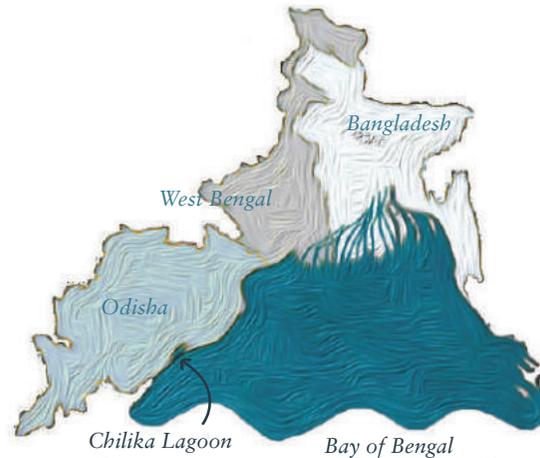
*Photo Credit: Gitanjali Kamwar, WWF India  
Indus River Dolphin shot in the Beas river, Punjab*



*Photo Credit: Gitanjali Kamwar, WWF India  
Indus River Dolphin shot in the Beas river, Punjab*

# The Irrawaddy Dolphin

In India, Irrawaddy dolphins or *Orcaella brevirostris* are observed mainly in Chilika lagoon in the state of Orissa, as well as in the Sunderbans, which lies in both India and Bangladesh. Globally they exist in pockets across Asia ranging from India in south Asia to Myanmar, Cambodia, Thailand, Laos, Malaysia, Indonesia and the Philippines in southeast Asia. The Irrawaddy dolphin is a facultative dolphin, that occupies rivers, estuaries, brackish water lagoons and bays and also coastal stretches, and is not a true river dolphin like its cousins the Ganges and the Indus River dolphin which can survive only in



freshwater habitats. It comes under the category of oceanic dolphins but is only found in inshore waters, avoiding deep offshore waters. Mangrove channels, sheltered coastal bays, river mouths, and lagoons provide the ideal habitat for these shy marine mammals.

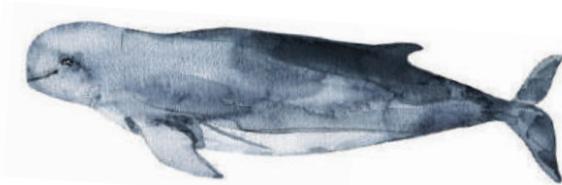
Spread across 1165 square kilometres, Chilika lagoon is yet another Ramsar Convention site. Seawater from the Bay of Bengal mixes with the freshwater of the 52

rivers and rivulets that drain into the lagoon, resulting in a fine saline balance that supports a wealth of microbiotic life, plankton richness, aquatic plants and animal life. Over 200 species of migratory and resident birds inhabit the lagoon, along with fish, crustaceans, and reptiles, but it is the endangered Irrawaddy dolphin that is the flagship species with the most recent 2021 census placing their count at 156 individuals.

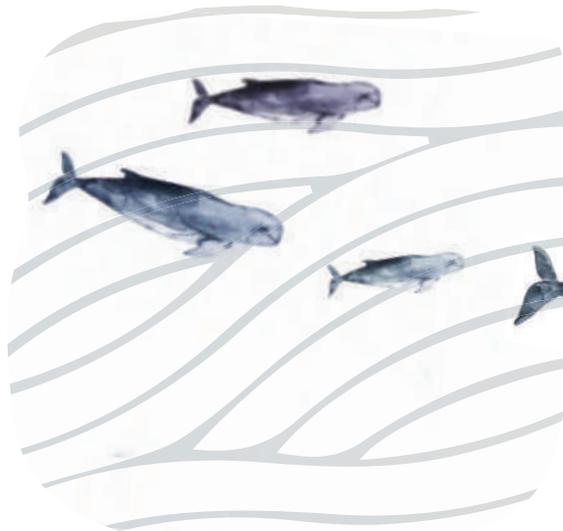
## *Biology and Ecology:*

Irrawaddy dolphins are slate-hued and resemble baby Beluga whales although they are more closely related to the killer whale or orca. Unlike true river dolphins, they do not have long beaks, and are instantly recognisable by their round melon-shaped heads, short beaks and smile-like facial expression. Irrawaddy dolphins have a snub shaped dorsal fin, a large well-defined tail and broad flippers to aid movement and navigation. They often spit spouts of water near the surface, which scientists believe might aid them in hunting by confusing their prey.

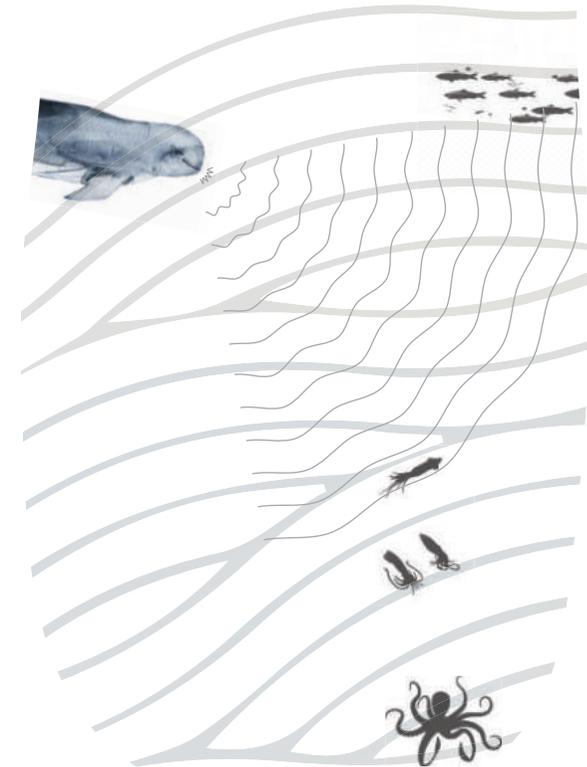
Unlike the Ganges River Dolphin and the Indus River Dolphin, Irrawaddy dolphins often indulge in “spy-hopping” behaviour wherein they rise and hold a vertical position partially out of the water; a characteristic more commonly observed with larger species of whales. Spy-hopping is a slow and controlled movement and its duration depends on how curious the dolphin is about what it is viewing. Another distinct behavioural pattern is “lob-tailing” when the dolphin lifts its flukes outside of the water and then brings them down hard and fast on the surface of the water to create a slapping sound.



*The Irrawaddy dolphin has been listed as 'Endangered' with the population only decreasing, by the International Union for Conservation of Nature (IUCN)'s Red List Assessment, 2017.*



*Weigh 90 - 200 kg  
Length 5.9 - 9 feet  
Live in marine & freshwater  
Usually live in groups of 6  
Hunt through echolocation  
Eat fish, octopus, squids*



This action is rarely exhibited in true river dolphins. Irrawaddy dolphins are also highly social, communicating with each other through a series of whistles; and using clicks and buzzing sounds for foraging and navigation. They usually live in family groups of about six individuals, but more may get together to feed in deep pools. Their favourite foods include fish like mullet (which abound in Chilika), along with cephalopods and crustaceans.



*Photo Credit: Aditya Panda  
Irrawaddy Dolphin shot at Chilika Lagoon, Odisha*



*Photo Credit: Aditya Panda  
Irrawaddy Dolphin shot at Chilika Lagoon, Odisha*

# The Threats

Riverine dolphins across the Indian subcontinent face a similar set of problems and challenges. Although, they found protection under Schedule I of the Wildlife (Protection) Act, 1972, poaching continued unchecked due lack of proper policing and awareness. Habitat fragmentation due to hydropower and infrastructure projects, unsustainable fishing methodology, human activity and pollution are other key factors that have lead to river dolphin populations facing an existential crisis on an almost daily basis.

## *1) Habitat fragmentation:*

(Hydropower and Infrastructure)

Habitat fragmentation is the prime threat to freshwater dolphins in south Asia. This is the prime reason that has driven the

Yangtze River Dolphin to extinction in China and severely impacts both the Indus River Dolphin in the Indus river basin and the Ganges River Dolphin in the Ganges-Brahmaputra-Meghna river basin. The Partition in 1947 had not only tragic human consequences, but also impacted our wildlife in ways that had not been calculated, especially where India's dolphins were concerned. Both Punjab in the west and Bengal in the east were carved out of India in order to create the new nation of West and East Pakistan that straddled both sides of India.



Fig. 7 - Harike Barrage in Punjab.

Punjab and its rivers have a deeply emotional connect. Named after five rivers (“Punj” means five, and “ab” means water)—Jhelum, Chenab, Sutlej, Beas, and Ravi—all tributaries of the mother river, the mighty Indus, which has its source in Himalayas—after Partition, the state now lies in both Pakistan and India. The newly divided nations had to share the waters that once flowed freely across the country, but now crossed the newly drawn-up international borders to flow into Pakistan. Through intense negotiations, rights over these waters were reassigned. Today, India retains control over the waters of the Sutlej, Ravi, and Beas, while Pakistan has rights over the Chenab and Jhelum. After Partition, all five rivers were strategically dammed in order to benefit the country to which they were assigned.

Practically every major river along with its tributaries in Punjab in the west and similarly in the Ganges - Brahmaputra - Meghna river basin from the north moving eastwards was dammed in order to provide water for irrigation canals and to generate

electricity through hydropower projects. The major threat to both the Ganges Dolphin and the Indus River Dolphin has been caused by water-related infrastructure such as dams, barrages and diversions, which cause flow regulation and habitat fragmentation. Dams and barrages reduce dolphin population connectivity thereby isolating individuals in river sections. This is glaringly demonstrated in Harike where a tiny number of animals have been cut off from the larger population present in the Indus flowing through Pakistan.



Fig. 8 - Sluice gates of Teesta Barrage in West Bengal.

Similarly in the Ganges - Brahmaputra - Meghna river basin, in the 1970s and '80s, a number of sluice gates and embankments were built as flood control measures. There are more than 30 sluice gates and 800 kilometres of embankments in the rivers and channels connecting the rivers to the wetlands in the Barak River system. These structures prevent exchange of aquatic fauna between the two water bodies, which in turn causes the gradual decline in fish prey numbers. Sluice gates decrease water flow, depth and width, preventing dolphins from entering other rivers and water bodies subsequently squeezing potential dolphin habitats and foraging grounds. As a result, today the Barak River system is totally devoid of any dolphins, where once they were a common sight.

## *2) Unsustainable fishing:*

Most riparian communities that reside along the banks of these river and wetland systems are mostly dependant on the water for their livelihoods, and fishing is their primary source of income. The situation has only been accentuated by a manifold

increase in population. This is true in the case of all three dolphin habitats. Dolphins and fisherman share a similar taste in habitat and the fish that they both seek. This is noticeably the case in Chilika Lagoon, where local fisherman share that the Irrawaddy Dolphin quite often literally almost “herds” fish towards the nets, so as to partake of the fishy feast! In order to increase the haul, fisherman resort to various fishing techniques that have proved to be not just unsustainable but also downright dangerous for all river dolphins. This is true not just for the Indian subcontinent, but for freshwater dolphins globally. Commonly used fishing gears include monofilament gill nets, double boat operated nets, *hazaari* hooks, which translates to 1000 hooks that are tied to a line that is then installed from one river bank to the other and lastly, cast nets. Gill nets are the most popular as they are the cheapest and the least labour intensive. From Chilika Lagoon to the river systems that house the Ganges Dolphin, this practice became immensely popular from the 1970s. The use of gill nets, not only



*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar island in the Hooghly River, West Bengal*

causes depletion of fish prey base but also increases by-catches; i.e. the unintentional catching of certain marine and freshwater species while fishing commercially for market-bound ones. The victims are more often than not dolphin calves. Most of these gears come with smaller mesh sizes that are not specific to any particular type or size of fish. Most dolphins depend primarily on echolocation for all activities such as navigation, communication and foraging rather than on visual cues. This is especially true for dolphins with reduced visual abilities like the Ganges and the Indus River Dolphin that have evolved in order to exist in their specific riverine habitats. Since their eyes act only as light receptors, they are unable to discern objects like gill nets, commonly causing entanglement or by-catching, frequently with lethal results. Dolphin mortality rates have been extremely high, especially as local fishermen share that dolphins often come to feed on the fish caught in the nets and end up getting entangled themselves, without any hope of escape.



*Fig. 9 - Corpse of a Ganges River Dolphin put to rest in Nayachar, West Bengal—killed as a result of entanglement of its snout in a fishing net and successive starvation.*

### 3) *Human activity:*

The Ganges and its tributaries drain into the Sunderbans in the Bay of Bengal, an extremely large—almost one million square kilometres—fertile basin that supports one of the world's highest human population densities. Almost half of India's population lives on one-third of the landscape within a 500-kilometre range of the Himalayas along the Gangetic plain. Since most freshwater dolphin habitats traverse some of the most densely populated regions of the country, they are most vulnerable to human activity. The most common activities that take place along riverbanks are agriculture, sand mining, dredging and transportation via motorboat ferries. Local communities are largely dependant on the rivers to meet their fresh water requirements for agricultural and domestic purposes. This demands extraction of river water, which in turn depletes the river depth. Water extraction, further increases fishing pressures and by-catch, as well as the depletion of prey base. Since there is a



*Fig. 10 - Boats waiting to be loaded with illegally mined sand on the banks of the Sone River in Bhojpur, Bihar. Sand mining destroys the river's counter-current which is vital for dolphin habitat.*

direct correlation between river depth and dolphin sustainability, many smaller rivers especially in the Ganges - Brahmaputra - Meghna river basin are no longer viable dolphin habitats.

Sand mining is a common practice along most river systems. Used for construction and other activities, sand mining has proven to be not only ecologically

unsound, but has also impacted the environment adversely. Sand mining destroys the counter-current, which in turn disturbs the ecology of the river. Since the prevalence of counter-current is vital for dolphin habitat, widespread sand mining is proving disastrous for freshwater dolphins in the sub-continent.

Motor-driven and manually operated boats are very common in the Ganges-Brahmaputra-Meghna river basin especially in the Barak River system. They are used for transportation, sand mining and fishing. Motorboats, which were introduced for transportation in the 1980s, produce a loud and high frequency noise that interferes with the navigational ability of dolphins. Further, transportation of large rafts of bamboo through the rivers is a common phenomenon in the many river systems. In addition, most rivers especially in the northeast are used for domestic, agricultural and transportation purposes. Human interference and high river traffic have negative correlations with dolphin presence.

Dredging is also proving a big challenge for the Ganges Dolphin. In 2016, the Government of India passed the National Waterways Act that sought to link various river systems to create an economical transportation alternative. In order to link and create these waterways, rivers need to be dredged to make them navigable. Among the rivers that have already been linked are the Ganges, Brahmaputra, Bhagirathi, and Hooghly—all, important habitats for the Ganges River Dolphin.



Fig. 11 - A dolphin spotted near a motorboat carrying tourists in Goa.

The Ganges - Brahmaputra - Hooghly Waterway, which falls largely in the Ganges - Brahmaputra - Meghna basin, is the longest of these measuring 1620 kilometres. The Barak River Waterway too, has been extended and now connects the Kolkata port in West Bengal to Bangladesh.

Dredging removes bottom fauna, woody debris and sand, and thus disturbs the ecology of the rivers. Dolphins are particularly vulnerable to this since they are largely dependent on the bottom fauna. Furthermore, the noise produced by dredgers, and the large vessels, which operate in these river systems, jeopardises the survival of the dolphins because it interferes with their echolocation process. Consequently, the dolphins fail to catch prey, try to avoid fishing gears and transport vessels thereby incurring injuries and even death. Moreover, changes in their behaviour, including surfacing rate, have been reported, as dolphins are known to avoid places with high decibel noise levels. These developments may prove to be the



Fig. 12 - A dredging vessel. Dredging is the removal of sediment and other materials from the bottom of a body of water, usually done to keep waterways and ports navigable, as well as for coastal redevelopment.

last straw for the dolphin. Even as over 100 waterways have been notified across India, paradoxically, it is the large scale waterway development and associated dredging operations, poaching and damming that were the primary factors contributing to the extinction of the Yangtze River Dolphin in China.

The problem is not limited to just the Ganges-Brahmaputra-Meghna river basin. Dredging has impacted Chilika Lagoon as well. Between 1992 and 1997, the depth of

the Chilika Lagoon declined from 3.4 metres to 1.4 meters and the accumulation of sediments caused the opening channel to shrink, leading to a dramatic decline in salinity levels. A new channel dredged in the northern portion of the lake in 2000 is thought to have mitigated some of the problems caused by sedimentation. Maintenance dredging now maintains the water-flow in and out of the lake, although the opening of the lake to the sea is continually shifting, which in turn affects shifts in dolphin distribution.

#### *4) Pollution:*

The Ganges alone hosts about 30 cities, 70 towns and thousands of villages along its banks. Nearly all the sewage from these population centres—over 1.3 billion litres per day—passes directly into the river along with thousands of animal carcasses, mainly those of cattle. Industrial presence is also highly concentrated in this area, with a large number of factories and industries that produce sugar, chemicals, fertilisers, small-scale engineering, pulp, cotton and tanneries. An estimated 260 million litres

of industrial wastewater, largely untreated, is discharged directly or indirectly into the river. Runoff from agricultural fields is another major pollutant. An estimate suggests that a staggering 9,000 tonnes of pesticides and more than 6 million tonnes of chemical fertilisers are used annually within the basin. In Chilika Lake too, high levels of heavy metal contamination have affected its waters.

#### *5) Poaching:*

Incidents of poaching river dolphins were rampant in the second half of the 20<sup>th</sup> century; hunted primarily for their meat and for the oil that was extracted from their blubber. The oil was used for both medicinal purposes as well as a relatively cheap source of fuel for using in oil lamps. Despite the fact that dolphins fell under the purview of the Wildlife (Protection) Act, 1972, the lack of proper river policing and the limited awareness of actual population figures due to the absence of any census methodology, proved hugely detrimental for these cetaceans.



*Fig. 13 - Carcass of a dolphin that starved to death, after having a plastic bottle seal stuck on its snout.*

*Fig. 14 - Gutted carcass of a freshwater dolphin found near Halda river in the Chittagong sanctuary in Bangladesh. Layers of its body fat – from which oil is extracted for use in traditional medicines – were missing.*



*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar island in the Hooghly River, West Bengal*

# What We Can Do

The first major step towards river dolphin conservation was the announcement of Project Dolphin on 15<sup>th</sup> August 2020 by Prime Minister Narendra Modi. Set up under the aegis of the Wildlife Institute of India, an autonomous body of the Ministry of Environment, Forest and Climate Change, Project Dolphin has been modelled on Project Tiger and aims to emulate its success. The Ganges River Dolphin was declared India's National Aquatic Animal and 5<sup>th</sup> October designated as National Dolphin Day. In the first phase, a dolphin-breeding centre for the Ganges Dolphin was planned for the Bengal region, specifically on the stretch of the Ganges River between Farraka and Gangasagar which is already home to about 650 individuals of the species.



Fig. 15 - The WWF-India team leading a 2018 census on the Indus River dolphin in the river Beas in Punjab, India.

A comprehensive census methodology has also been announced that will conduct a count of individuals of all three species of dolphins extant in India, every three years. The first census was conducted in 2021, but various stakeholder states like Orissa—

home to Chilika Lake and the Irrawaddy Dolphin—conduct the census on an annual basis. The latest survey in January 2024, revealed the presence of 174 individuals of which 154 were Irrawaddy Dolphins and 19 were Bottlenose Dolphins.

The experts gathered at the talk hosted by Mobius Foundation, “Diving Deep with Dolphins”, lauded the initiatives taken by the central government, hailing it as a vital first step in the right direction towards saving endangered dolphins in not only the Indian subcontinent, but elsewhere in the world as well. At the end of the thought-provoking and insightful panel discussion, the eminent group proposed a number of practical suggestions, that if given due consideration could go a long way in conserving not only river dolphins, but the riverine eco-systems that they inhabit as well.

#### *1) Habitat improvement:*

##### *a) Revival of tributaries and distribution range improvement:*

The dolphin population in India, especially that of the Ganges and Irrawaddy Dolphins, has stabilised since 2010 and has even shown a moderate increase in some stretches. However, the focus should now shift from merely increasing dolphin numbers to expanding their geographical distribution range. There is a lot of scope



Fig. 16 - Granite outcrop within the Vikramshila Dolphin sanctuary range at Kabalgaon, Bihar.

for widening their distribution range in the tributaries of the Ganges and Brahmaputra basins. Tributaries such as the Ken, Betwa, Son, Chambal, Gandaki, Rapti, Sarda and Kosi in the Ganges basin where dolphins were once abundant in the past can once again become fertile grounds for expanding their geographical range. The rejuvenation of these tributaries will increase the number of dolphins naturally in the long term.

##### *b) Identifications of critical stretches as conservation zones:*

Currently there is only one dolphin sanctuary in India—the Vikramshila Dolphin Sanctuary in Bhagalpur in the state of Bihar. Set up way back in 1991, it is home to between 150 and 200 cetaceans. There is an acute need to identify more stretches for conservation. Instead of merely notifying sanctuaries, many more ‘conservation zones’ can be identified for conserving specific species, whereby a particular species and the threats they face get special attention. In these conservation zones, other human activities detrimental to dolphins have to be restricted.

For example, the following stretches can be developed as conservation zones:

- Bijnor to Narora.
- Prayagraj to Varanasi.
- Farakka to Hooghly.

The Ghagra, Gandaki and Rupnarayan in the Ganges-Brahmaputra-Meghna river basin and the Barak River system, part of the Brahmaputra basin, could also become sanctuaries. These critical stretches in the rivers need to be declared fishing-free zones where gill nets are prohibited in order to prevent poaching and unintended by-catch. To offset these prohibitions, riverine wetlands and other inland water bodies such as ponds, tanks etc., can be improved and rejuvenated for fishing communities to use as alternate fishing grounds.

### *c) Maintaining ecological flow (e-flow) in the rivers:*

The environmental flow in main rivers and tributaries needs to be maintained in order to sustain dolphin population. Experts suggest that a minimum water depth of between 3 and 5 feet in rivers is necessary for dolphins populations to thrive.



Fig. 17 - Shri U.P. Singh, Ex-secretary, Water Resources, River Development and Ganga Rejuvenation, offering "Shramdan", under Swachhta Pakhwada organised by the WAPCOS, at Chhat Ghat, near ITO bridge, banks of river Yamuna.

### *d) Improvement of quality of water:*

Freshwater dolphins are riverine mammals that require water of good quality in order to survive. Therefore establishing and maintaining a healthy water regime is vital. Water quality in rivers deteriorates when untreated urban and industrial sewage water enters the main flow. Although there

are several sewage treatment plants in both the Ganges and Brahmaputra basins, they fall woefully short. More sewage treatment plants need to be urgently established to ensure that only treated sewage water mixes with river water. In the Ganges basin approximately 12,000 million litres per day (mld) of sewage is generated, for which



*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar island in the Hooghly River, West Bengal*

currently there is a treatment capacity of only around 4,000 mld. The stretch of the Yamuna near Delhi, which earlier used to host dolphins, is severely polluted now. Improvement in the quality of water will naturally expand the distribution range of dolphins as well as other aquatic fauna.

### *2) Training and capacity building:*

Technical knowledge and methodologies aimed at different departments for conservation and management, needs to be enhanced through rigorous and frequent training programmes and capacity-building sessions. From forest guards, foresters, regional wildlife officers, staff members of the various fishery, and water resources departments as well as their officials, all need to be regularly trained and upskilled in protection and management strategies.

### *3) Promoting cutting edge research:*

A few institutes in Bihar such as Patna University, T.M. Bhagalpur University and the Wildlife Institute of India in Dehradun, Uttarakhand, are involved in research on Ganges River Dolphins.

Interestingly, it was a research team from Patna University that was part of the larger academic research group that demonstrated that the Ganges River Dolphin and the Indus River Dolphin were in fact two different species and changed their taxonomy—earlier they were clubbed together as South Asian River Dolphins. More research needs to be conducted on



Fig. 18 - The National Dolphin Research Center (NDRC) building—part of the Patna University—in Bihar, inaugurated on March 4, 2024.

the entire distribution range of these dolphins. Research on topics related to river dolphins needs to be mainstreamed in Indian academia. Government-sponsored fellowships will encourage young scholars to take up research on dolphins—not just on the scientific aspects of these cetaceans—but also on their social aspects. There is also a need for a centralised repository of scientific literature, reports and data on dolphins in India.

### *4) Community awareness and involvement:*

Community involvement is of utmost importance if dolphin populations in India are to not only survive but to thrive. In Chilika Lake, programmes such as ‘Dolphin Mitras’ and ‘Community Based Dolphin Watch’ have already been initiated in order to sensitise local communities towards the Irrawaddy Dolphin. The Wildlife Institute of India has created the ‘Ganga Prahari’ initiative which reaches out by educating resident communities on the importance of the conservation and protection of the Ganges River Dolphin.

Given the large expanse of the Ganges - Brahmaputra - Meghna river basin, a host of other local stakeholders need to be involved in the conservation efforts in order to make them successful. Through the entire distribution range of river dolphins in India, traditional fishing and other communities living close to river banks have to be invested with a sense of ownership and made more aware of dolphins and their importance. For example, local fishermen can be made



Fig. 19 - Community education session on dolphins and aquatic animals, conducted by Centre for Environment Education (CEE) in rural districts around the Ganges river, under the Namami Gange Programme.

aware of more sustainable fishing techniques instead of simply resorting to the use of nylon nets. Local fishing communities can be made ambassadors of dolphin conservation, working in tandem with the authorities, by encouraging them to become recorders and reporters of dolphin sightings or any other related information. Mass-scale awareness programs should be organised involving fishermen and the local community to educate them on the existing laws and encourage them to immediately release dolphins that get caught in their nets.



Fig. 20 - A Ganges River Dolphin caught in a gill net.

### 5) *Enforcement of laws:*

The Wildlife (Protection) Act 1972 has to strictly be enforced. Use of fishing equipment such as gill nets and double boat-operated nets should be minimised if not completely stopped, especially during the winter congregation sites. While the deliberate hunting and killing of river dolphins is believed to have declined, some instances of dolphin poaching are still being reported in Bihar, West Bengal and Assam—mainly for extracting blubber oil and for its meat. There must be a total stop to poaching with the help of different government agencies.

### 6) *Trans-boundary treaty for conservation:*

The distribution of river dolphins on the Indian subcontinent occurs over different international boundaries. The Ganges and Brahmaputra basins where Ganges River Dolphins are found, are spread across India, Nepal and Bangladesh. Irrawaddy Dolphins are found in the Sundarbans, which straddles both India and Bangladesh, while Indus River Dolphins are found in

both Pakistan and India. Mechanisms need to be put into place under which efforts are synergised by the three stake-holding nations to work towards establishing trans-boundary conservation areas for river dolphins. For example, the distribution of Ganges Dolphins in the Ghaghra River spreads over India and Nepal, hence a trans-boundary conservation zone on the river could be established. Similar types of conservation zones are needed in the rivers where Ganges Dolphins are present in the India and Bangladesh frontier zones. Trans-boundary conservation initiatives require cooperation among different state, national and international agencies. The platform of the South Asian Association for Regional Cooperation (SAARC) could be effectively utilised for establishing and accelerating such conservation efforts, thereby creating ‘Dolphin Diplomacy’!

### *7 New age tech solution:*

Most cetaceans are extremely sensitive to sound. Riverine dolphins, the Ganges Dolphin and the Indus River Dolphin in particular, which are both functionally



*Fig. 21 - Fisherman casting a net with a pinger attached.*

blind and rely heavily on echolocation in order to navigate their surroundings, are particularly vulnerable to threats from commercial fishing such as gill nets etc. Adopting modern mechanical solutions such as underwater acoustic ‘pingers’—devices that are attached to fishing nets, which emit sound waves that can repel

dolphins from fishing nets—can be effectively used for their protection. Several experiments by WWF India and ICAR-Central Institutes of Fisheries Technology have shown promising results in saving dolphins from by-catch, net entanglement and also reducing damage to the fishing gear of the fishermen.



*Photo Credit: Sandeep Behera  
Ganges River Dolphin*



*Knowledge & idea sharing at the 'Diving Deep with Dolphins' talk.*

*Clockwise from top: 1. Mr. G. Asok Kumar, Director General, National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, Government of India.*

*2. Mr. Sanjay Upadhyay, Supreme Court Advocate, Founder and Managing Partner of India's First Environmental Law Firm, Enviro Legal Defence Firm.*

*3. Mr. Suresh Babu SV, Senior Director, Ecological Footprints, WWF-India.*

*4. Ms. Jessica Gill, Senior Research Associate, Mobius Foundation.*

*5. Dr. M.K. Ranjitsinh, former Chairman of the Wildlife Trust of India; former Dir-Gen CAPART, former Dir. and Regional Co-ordinator WWF Tiger Conservation Programme.*

*6. Audience member interacting with the panellists.*

# Mobius Initiatives

For Mobius Foundation, the driving ethos behind events like “Diving Deep with Dolphins”, is to raise awareness about the environmental dilemmas that challenge each and every one of us across the globe. Through the medium of engaging, interactive sessions, the aim is to start the conversation. Climate Change is a very real phenomenon and one that needs to be addressed on a war footing. And the soldiers in this war are our young—children, students, researchers and scholars of the country.

These sessions create a platform to bring together luminaries in the field of conservation, policy makers and the influencers of tomorrow—our future conservationists and environmental

warriors. In the long run, it will influence the policies and act as a push for more comprehensive efforts for the protection and conservation of biodiversity in the river ecosystems in India. Furthermore, it will result in a deeper understanding of the conservation of endangered species and the rejuvenation of riverine ecosystems, fostering the aim of a more sustainable and resilient planet.



*Mr. Pradip Burman felicitating panellists. Dolphin badges as souvenirs for all the guests.*



# *The Personhood Status of Dolphins in India*

As already established, dolphins hold a unique place in our collective conscience. Scientists and researchers who have conducted extensive research on dolphin behaviour, suggest that their intelligence is second only to humans—more than any other creature on this planet. This unusually high intelligence; as compared to other animals has led many experts to urge



*Fig. 22 - A pair of Irrawaddy dolphins playing in the Mekong River in Kratie province, Cambodia.*

that dolphins be seen as ‘non-human persons’ and, as such, are entitled to having their own specific rights.

In 2010, an International Declaration of Rights for Cetaceans was formulated at a conference held in the Finnish capital of Helsinki. The main directive was to give cetaceans and specifically dolphins and whales the right to life and “legal personhood”. This essentially deemed

dolphins as “persons” to be afforded “non-human rights”, including freedom of movement and residence and to not be killed, captured, bred, or enslaved. Well before the creation of Project Dolphin in 2020, India—one of the early signatories in Helsinki—proved to be a forerunner in the implementation of dolphin rights back home. As far back as 2013, the Ministry of Environment, Forest and Climate Change, recognising cetaceans as having high levels



Fig. 23 - Representatives from 9 countries in Asia and South America sign the Global Declaration for River Dolphins in Colombia, on October 24, 2023.

of intelligence and complexity of life, announced a total ban on waterparks, dolphinariums, or aquariums stating that, “Cetaceans are highly intelligent and sensitive and hence it is morally unacceptable to keep them captive for entertainment purposes”.

Declaring cetaceans worthy of personhood obviously doesn’t mean that these mammals are in fact human. According to

some cetacean rights experts, “the more technical answer is that a ‘person’ is any being, no matter what their species, who has the traits that imply a high level of intellectual and emotional sophistication.”

“Personhood” as a concept or identity is an idea that has been hotly debated since time immemorial. From the ancient Greek philosopher Socrates to modern day psychologists and theologians, identity

remains a controversial idea—one that is philosophical rather than biological. In ancient Hindu philosophy, the concept of a person is “that of an embodied soul.” Personhood manifests the unity of the spiritual and the corporeal in human existence and thereby, is an essential characteristic of the human species. Buddhist wisdom, on the other hand, famously denies the existence of a self; distinguishing between *selves* and *persons*.

### *Why "Personhood" status?*

Cetaceans have been granted this status not only for their high cognitive abilities and complex thinking but also because their existence is vitally important for their respective ecosystems, whether marine or riverine. Countless studies prove dolphins' intelligence. Some of the most widely documented observations are:

#### *Sophisticated communication:*

Like humans, dolphins use physical and visual contact to communicate with each other (e.g. a gentle nuzzle versus an aggressive bite or vigorous head bobbing movements). They can also understand linguistically sophisticated concepts such as syntax and differentiate themselves from others by emitting a characteristic whistle that serves as a name.

#### *Sense of community:*

Much like humans, these cetaceans form cultural communities amongst themselves. Dolphins—as do elephants—also have amongst the longest social memory of all non-humans. They can remember

individuals for as long as 20 years after their last interaction as a result of the close social bonds they establish. Furthermore, they transfer knowledge across generations; a trait formerly believed was exclusive to the human race.

#### *Higher order brain function / self-awareness:*

Experts have concluded after years of research that dolphins and whales have large, complex brains and exhibit strong human-like levels of self-awareness. This basically means that just like humans who are able to recognise their own image in a mirror; so too can dolphins!

### *Legal impact of "Personhood" status in India*

While dolphins fall under the purview of the Wildlife (Protection) Act, 1972; granting them "personhood" status with "non-human rights", from 2013 onwards, has provided our dolphin species with an extra layer of protection. Other countries like Pakistan (home to the Indus River

Dolphin), the US, Spain, Germany, and Argentina and a host of others, have also given rights to these animals, some through constitutional amendments. More recently, in April 2024, Pacific Island nations like New Zealand, Tonga, Tahiti and the Cook Islands also granted "personhood" status to dolphins, whales and porpoises.

Taking inspiration from this, "Personhood" has become a widely discussed topic with a number of Indian states and other bodies seeking to extend these rights to various other animals. The Federation of Indian Animal Protection Organisations (FIAPO) for instance, has been pressuring courts to give "Personhood" status to elephants which are considered amongst the most intelligent animals on the planet.



*Photo Credit: Ganesh Chowdhury  
Ganges River Dolphin shot at Nayachar island in the Hooghly River, West Bengal*

# River Dolphins on Postage Stamps

Postage Stamps offer a window into significant moments and themes of their era. They are used by governments to convey a message to the general public. Today, stamps play an important role in celebrating as well as promoting a country's national heritage by crossing borders and travelling miles. Dolphins, too, have become emblematic figures featured on countless envelopes, journeying across continents.



Fig. 24  
India - Issued on 1991-03-04  
Endangered Marine Animals series  
4 Indian rupee  
1,00,000 prints

Fig. 25  
Nepal - Issued on 2003-11-19  
10 Nepalese rupee

Fig. 26  
Indonesia - Issued on 1996-11-05  
Flora and Fauna series  
300 Indonesian rupiah  
24,000 prints  
Representation could be of an  
albino specimen

Fig. 27  
India - Issued on 2009-11-16  
Under India-Philippines Diplomatic  
Relations  
25 Indian rupee  
74,000 prints  
Designed by Kamleshwar Singh



Fig. 28  
 Indonesia - Issued on 1979-11-24  
 Wildlife series  
 125 Indonesian rupiah  
 1,000,000 prints

Fig. 29  
 Pakistan - Issued on 1982-04-24  
 Wildlife Protection series  
 40 Pakistani paise  
 Designed by Adil Salahuddin  
 10,000,000 prints

Fig. 30  
 Indonesia - Issued on 2009-11-05  
 Provincial Flora and Fauna series  
 2,500 Indonesian rupiah  
 150,000 prints

Fig. 31  
 Laos - Issued on 2004-03-29  
 Designed by Cambodia Post  
 1,500 Lao kipt  
 25,000 prints

Fig. 32  
 Papua New Guinea - Issued on 2005-08-31  
 Protected Species series  
 2 Kina

Fig. 33  
 Thailand - Issued on 1998-07-19  
 Released for International Year of the Ocean  
 2 Thai baht  
 20,000,000 prints



*Photo Credit: Ishan Jyotibora  
River Brahmaputra shot at Hatibila, Guwahati, Assam*

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