

Irrawaddy Dolphin and Cetacean (Whales, Dolphins, and Porpoises) Surveys and Conservation Measures in Myanmar, 2002-2024

Introduction

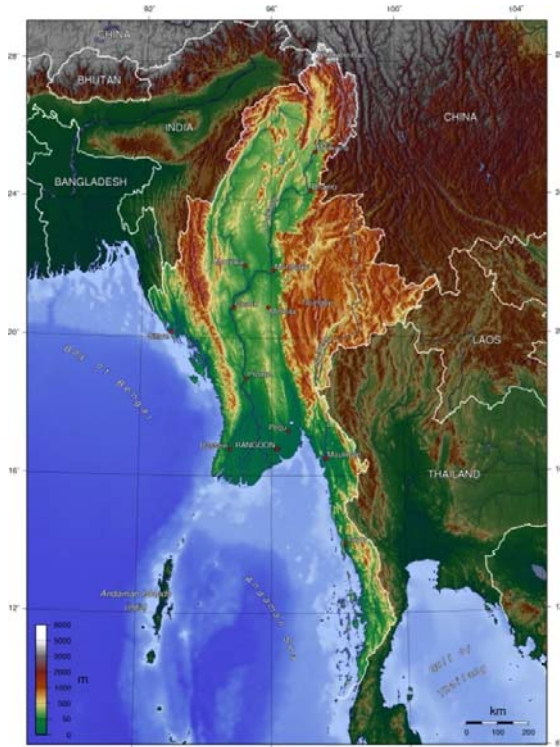


Image: Wikipedia

Myanmar located in Southeast Asia with a 676577 km² of the mainland, bordered by China to the north and northeast, Laos to the east, Thailand to the southeast, the Andaman Sea and Bay of Bengal to the south and southwest with a coastline of 2832 km long, Bangladesh to the west, and India to the northwest. The Ayeyarwady River is a major river in Myanmar, the source of the river comes from the confluence of the N'mai and Mali rivers which

originate from glaciers in the high and remote mountains of northern Myanmar. It is about 2170 km long and flows from North to South through the center of the country emptying into the Andaman Sea. The Ayeyarwady River is a long, wide river, with a variety of ecosystem and rich biodiversity, in which include Ayeyarwady dolphin, a species of aquatic mammal. Irrawaddy dolphin patchily distribute throughout the shallow coastal water especially river mouths and estuaries, mangrove forests areas, brackish water, and also occur far upstream in the Ayeyarwady River.

According to the survey data, species list stranded in the coast, and description with the distribution map of cetacean on the world, it is estimated that distribution of 24 species or more of whales, dolphins and porpoise can be found in the Myanmar's marine water. In addition, *Dugong dugon*, Sirenian that is another group in marine mammals is found in the Myanmar's coastal water.

Survey, Material & Method, and population in Myanmar

Department of Fisheries-DoF in collaboration with Wildlife Conservation Society-WCS conducted Cetacean (Whales, Dolphins, and Porpoises) survey, and Irrawaddy dolphin survey in Coastal area and Ayeyarwady River, with a visual vessel/boat based survey method.

Rakhine Coast: Irrawaddy dolphin survey were conducted near shore of, between Rathedaung and Sittwe-Pauktaw and Myebon including inlets of May-yu River, Kaladan River, and lay-myo River, where is a part of Rakhine Coast, in 2010, and 65 Irrawaddy dolphins were sighted. (See table-1)

Ayeyarwady Delta Region: Irrawaddy dolphin survey in near shore of Ayeyarwady delta region in 2010, 4 species of dolphin: Irrawaddy dolphin, Indo-Pacific Hump-backed dolphin, Bottlenose dolphin and *Stenella* sp: (*Stenella attenuata*) were sighted.

In 2016, in the survey on Irrawaddy dolphin around Main-ma-hla Island inside of the Ayeyarwady delta region, public awareness activities for Irrawaddy dolphin and other Cetacean conservation: awareness talk to the public, erecting conservation awareness poster, and distribution awareness pamphlets, wall poster and school exercise books, were also conducted in the 5 villages where stakeholders from 16 villages attended to this program. In 2018, the 2nd survey around Main-ma-hla Island inside of the Ayeyarwady delta region, and 19 individual Irrawaddy dolphins were observed. (See table-1)

Gulf of Mottama: there is no Irrawaddy dolphin survey in the Gulf of Mottama yet, but according to reports of accidental captures or stranding, and post in its page on social media of Myanmar Coastal Conservation Lab organization, it can be confirmed that Irrawaddy dolphins are widespread in the area.

Taninthari Coast: Near shore between Myeik and Kawthaung Irrawaddy dolphin survey in 2011 were conducted, 59 Irrawaddy dolphins were sighted. These surveys could not cover the whole coastal area, and some parts of the coast still remain to be explored. Therefore, it is considered that the number of Irrawaddy dolphin in coastal area may be higher than that. (See table-1)

Table -1

NO.	Year (Survey)	Coastal Region	No. of Irrawaddy dolphin	Remark
1	2010	Upper part of Rakhin Coast	65	
2	2018	Main-ma-hla Island in Ayeyarwady delta region	19	
3	2011	Myeik to Kawthaung in Taninthari Coast	59	



Irrawaddy dolphin survey in Rakhine Coast



Irrawaddy dolphin survey in Taninthari Coast

Irrawaddy Dolphin Survey and Population in Ayeyarwady River: In 2002, Ayeyarwady dolphin pilot survey in Ayeyarwady River with the continuous visual boat-based survey method was conducted along river, from source to mouth. Although survey was made along the river, Irrawaddy dolphin groups were found in upstream river segment, where is between Bhamo and Mandalay, 400 km in a distance. Based on result of the 2002 survey, since 2003, annual Irrawaddy dolphin census survey has been conducted only between Mandalay and Bhamo river segment, where can be considered to this segment as current their distribution range. The last survey was conducted in 2020, 79 individuals Irrawaddy were sighted, this number is highest among the annual surveys. (See table-2)



Irrawaddy Dolphin group in Ayeyarwady River



Survey design and vessel in Ayeyarwady

Table-2

No.	Year (survey)	River segment	Season (survey)	No. of Irrawaddy dolphin	Remark
1	2002	Along the River	winter	37	The first experience for Myanmar researchers
2	2003	Mandaly to Bhamo	Winter	59	
3	2004	Mandaly to Bhamo	Winter	72	
4	2005	Mandaly to Bhamo	-	-	Pilot activities for establishment of Irrawaddy Dolphin Protected Area (I)
5	2006	Mandaly to Bhamo	Winter	58	
6	2007	Mandaly to Bhamo	Rainy	31	
7	2008	Mandaly to Bhamo	Winter	-	Conducted public awareness to the villages in along the river segment.
8	2009	Mandaly to Bhamo	Winter	-	Conducted public awareness to the villages in along the river segment.
9	2010	Mandaly to Bhamo	Winter	69	
10	2011	Mandaly to Bhamo	Winter	72	
11	2012	Mandaly to Bhamo	Winter	67	
12	2013	Mandaly to Bhamo	Winter	51	There was a situation in the upper river segment that made it impossible to conduct research
13	2014	Mandaly to Bhamo	Winter	63	
14	2015	Mandaly to Bhamo	Winter	58	
15	2016	Mandaly to Bhamo	Winter	65	Public awareness was Conducted in villages along the river segment where we stopped overnight.
16	2017	Mandaly to Bhamo	Winter	69	
17	2018	Mandaly to Bhamo	Winter	76	establishment of Irrawaddy Dolphin Protected Area (II)
18	2019	Mandaly to Bhamo	Winter	72	
19	2020	Mandaly to Bhamo	Winter	79	

Cetacean Survey in Taninthari Coast: between Myeik and Kawthaung, a part of the Taninthari Coast, cetacean survey (Whales, Dolphins, and Porpoises) in 2005 was conducted, 7 species of whale, dolphin, porpoise, one of Unidentified balaenopteridae sp: and one of Unidentified delphinidae sp: were found, they were Bryde's Whale, Indo-Pacific bottlenose dolphin, Indo-Pacific humpback dolphin, Long-snouted spinner dolphin, Pantropical spotted dolphin, Irrawaddy dolphin and Finless porpoise. In this survey trip, long-snouted spinner dolphin groups that included hundred individuals were

sighted, there are around 500 individuals in total at the end. The second most observed species of the trip was the Indo-Pacific Bottlenose dolphin, estimated at over 200 individuals. A pair of Bryde's Whale with a calf, that is one of the baleen whale species was found, expert Brian.D.Smith (Wildlife Conservation Society-WCS) commented that it might be their breeding ground. (See table-3)



Sighting Bryde's Whale in Taninthari Coast



Sighting Bottlenose dolphin in Taninthari Coast

Table-3

No.	Species: Scientific name	Species: Common name	Total No.	Remark
1	<i>Sousa chinensis</i>	Indo-Pacific Humpbacked dolphin	37	
2	<i>Tursiops truncatus</i>	Indo-Pacific Bottlenose Dolphin	225	
3	<i>Balaenoptera edeni</i>	Bryde's Whale	3	
4	<i>Stenella longirostris</i>	Long-snouted Spinner dolphin	495	
5	<i>Stenella attenuata</i>	Pantropical Spotted dolphin	-	This species was included inside Long-snouted Spinner dolphin groups (495)
6	<i>Neophocaena pocaenoides</i>	Finless porpoise	6	
7	<i>Orcaella brevirostris</i>	Irrawaddy dolphin	12	
8	Unidentified balaenopteridae sp:	Unidentified balaenopteridae sp:	1	Unidentified balaenopteridae sp:
9	Unidentified delphinidae sp:	Unidentified delphinidae sp:	10	Unidentified delphinidae sp:

Protective Measure for Irrawaddy Dolphin and Cetacean

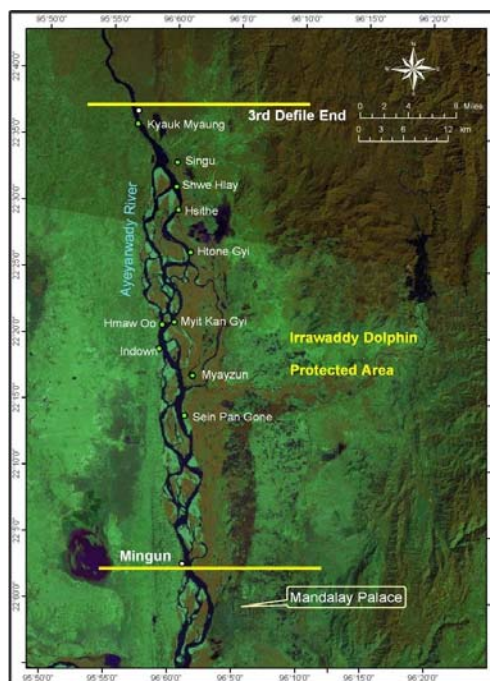
In Myanmar, Department of Fisheries has protected to Irrawaddy dolphin in Ayeyarwady River by defining the Protected Areas, in accordance with Inland Fishery Law, and to Irrawaddy dolphin subpopulation in coastal areas by issuing Directive

letters No.1/2018 and No. 5/2020 in which 12 Marine Mammal Species are listed, according to Myanmar's Marine Fishery Law. Irrawaddy dolphin was rated a species of completely protected wild fauna in the wild animals list that are protected due to the risk of extinction throughout Myanmar by the Conservation of Biodiversity and Protected Areas Law of Forestry Department, which is the leading department in Myanmar regarding CITES. Therefore, other marine mammal species such as Whale species, Long-snouted spinner dolphin, Pantropical spotted dolphin, Striped dolphin, Indo-Pacific bottlenose dolphin, Indo-Pacific humpback dolphin, Finless porpoise and Dugong were also rated as the completely protected wild fauna.

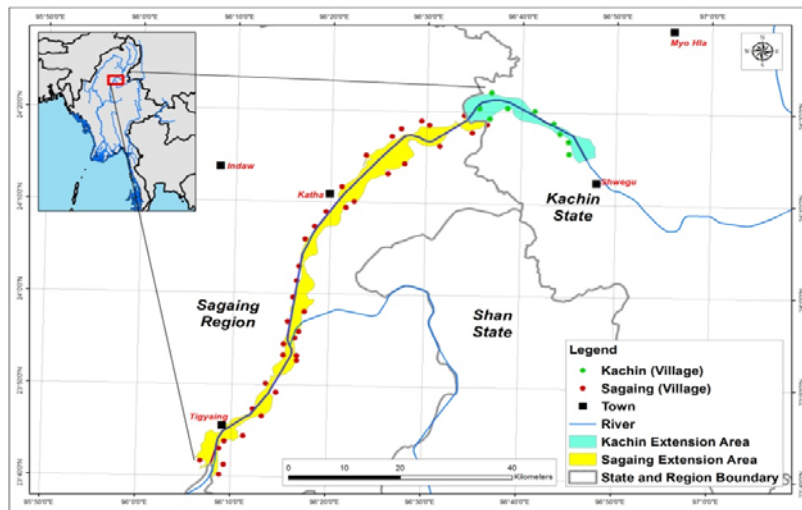
The 2 Protected Areas for Irrawaddy Dolphin have been already defined within their habitat range in the Ayeyarwady River. The first Protected Area was defined in 2005, where is in downstream river segment of their distribution range, and it is around 72 km long. The second Protected Area in 2018, and is in upstream river segment of their distribution range, and it is 118.5 km long. Department of Fisheries and Wildlife Conservation Society formed a joint team, and conducted patrols twice a month in the Protected Areas carried out data collection, public awareness, and law enforcement related to Irrawaddy dolphin and fisheries resources conservation.



Public awareness poster for marine mammals



Map of Irrawaddy dolphin Protected Area-I in the Ayeyarwady River



**Map of Irrawaddy dolphin Protected Area-II
in the Ayeyarwady River**

In the first Protected Area, Mandalay/Mingun to Kyaukmyaung of a 72 km stretch, there is a most unique tradition between dolphin and humans, and mean and call Cooperative Fishing Practice between Irrawaddy dolphins and cast net fishermen. This fishing practice has existed for many years ago, and became a favorite attraction among traveller and tourist, starting more than a decade ago. Aiming to involve not only fishermen and other villagers in local community, DoF and WCS introduced Community based Ecotourism including showing this traditional fishing practice since 2011.



Fluke waving signal of Irrawaddy dolphin



Throwing Cast-net of fishermen to the signal point

Public Awareness Program for Irrawaddy Dolphin Conservation in Ayeyarwady River: A joint team of DoF and WCS conducted patrols twice a month inside the Protected Areas until 2020, and carried out raising public awareness on Irrawaddy dolphin and fisheries resources conservation, law enforcement on illegal fishing activities, elevating awareness of community on fisheries resources

conservation, and sharing experience, providing discussion and recommendation and needs regarding on Community Based Ecotourism. As for the raising public awareness process, Educative talk to the public, Erecting conservation awareness poster, Distribution conservation awareness pamphlets, wall poster, school exercise books, and T-shirts, Showing documentary films, Displaying conservation awareness gallery on patrol vessel and at exhibition events, Organized workshop with educational institutions and societies, and training, course to local community on Irrawaddy dolphin conservation. As for the elevating awareness in community on fisheries resources conservation, released fish fingerling to river segment of Irrawaddy Dolphin Protected Areas (IDPA) together with students, fishermen, and villagers, and introduce small fish culture (fish and eel) to fishery community within IDPA by providing fish fingerling to fisherman groups.



Educative talk to the public, and erecting conservation awareness poster in Ayeyarwady River

Public Awareness Program for Cetacean and Dugong: Department of Fisheries, in line with its vision, is focusing on the conservation of fisheries resources for sustainable development of the fisheries sector and also implementing as a program to conserve endangered aquatic animals. Department of Fisheries has been conducting fisheries resources conservation by setting multi rule and regulations such as defining closed season and area for fishing, defining fish protected area, and prohibiting fishing gears/method/species and mesh size etc, in addition, accelerating the conservation of fish resources through public awareness activities.

Region, State, District and Township Fisheries Departments had conducted public awareness on fisheries resources 176 times/places in 9 Regions and States during March 2022 to March 2023, 130times/places in 4 Regions and States during April 2023 to March 2024, 49 times/places in 4 Regions and States during April 2024 to November

2024. To create awareness among coastal communities about marine mammal conservation, Regions and States in coastal area: Ayeyarwady Region, Mon State and Tanintharyi Region, Fisheries Departments from these Regions and States also conducted public awareness activities aimed at marine mammal conservation, 8 times/places in 2022 and 17 times/places in 2024.



Educative talk to the public, and erecting conservation awareness poster in coastal area

Activities to release stranded marine mammals back into the sea

Ever year, Whales, Dolphins and Porpoises often strand dead or alive on Myanmar's coast for various reasons. Additionally, sometimes small Cetacean species are also caught by in certain types of fishing gear. Department of Fisheries in collaboration with Wildlife Conservation Society-WCS conducted cetacean survey, and also has collected records of whales, dolphins, and porpoise stranded in coastal areas to identify the species present and to conduct conservation awareness activities. As a result of the continuous awareness-raising efforts of the Department of Fisheries and his partner conservation organizations/societies (NGO and INGO), strengthening the cooperation of local communities in conservation, the programs that were cetacean species stranded in alive back into the sea have developed. In recent years, with the participation of local people, rescues of the number of 20 whales and dolphins at 6 times which were stranding in coastal areas and accidentally caught in fishing net were successfully carried out. Those were 1 dolphin species at beach of No. 3 Ward, Shwethaung-yan Town, Patheingyi District, Ayeyarwady Region on 28 June 2020, 1 Bottlenose dolphin (*Tursiops aduncus*) at beach of Wartaw village and Kan Aung village, Kawa Township, Pago District, Pago Region on 31 May 2022, 1 dolphin species at beach of

Mi-lauk village, Kawa Township, Pago District, Pago Region on 1 June 2022, 1 whale species at Chaung-tha beach, Shwe-thaung-yan Township, Patheingyi District, Ayeyarwady Region on 20 August 2023, 15 Hump-backed dolphins (in the beach-seine net) at Maw-tin-Swan beach, Higyidon, Nga-pu-taw Township, Patheingyi District, Ayeyarwady Region on 12 March 2024, 1 dolphin species, at beach of Ma-gyi village, Shwe-thaung-yan Township, Patheingyi District, Ayeyarwady Region on 27 April 2024. On 5 October, 2024, Biodiversity and Nature Conservation Association – BANCA together with members of Mupon village local conservation society and members of Mon State fishermen group rescued Finless Porpoise with her calf, which trapped inside the beach outside Kyun-thayar village of Zokali village group, Bilin Township, Mon State in the Gulf of Mottama Area, by boat and released them back into the deep sea.



Bottlenose Dolphin stranded in alive back into the sea in Bago Region, the part of Gulf of Mottama

Conclusion and Recommendation

The Ayeyarwady Dolphin study and conservation program in the Ayeyarwady River has been continuously implemented from 2002 to 2020, progress has been made. If we can resume the research and conservation process that has been stalled, we can continue to maintain the improved situation. In coastal area, the survey has not yet been able to cover the entire coastline, more work is still needed. Although we have previously conducted awareness-raising activities on fisheries resources and marine mammal conservation, this has been accelerated in recent years. As conservation awareness has spread widely among the public, we have received reports of cetacean being stranded and released back to the sea. Therefore, it is necessary to continuously carry out conservation and awareness activities. When releasing back into sea, it is necessary to educate the public about the precaution to be taken when handling them. To achieve

further progress in marine mammal conservation in Myanmar, fishing nets should be equipped with materials or devices that reduce the incidental capture of marine mammals. Incidental capture (by catch) in fishing nets and gill nets are described as serious threat to small cetacean around the world, and seine nets and gill nets represent main threat in the near Myeik and Dawei in Taninthari coast, Myanmar. There is limited information available on incidental capture of cetacean in fishing nets from the coast of Myanmar. Therefore, it is necessary to urgently to obtain information on accidental catches in fishing nets, as well as sharing information from research groups will greatly assist in the process of reducing the incidental capture of cetaceans in fishing nets. In conclusion, installing and using materials or devices to reduce the by catch of marine mammals in fishing nets, Myanmar marine mammal conservation efforts should be strengthened by sampling to member countries of SEAFDEC, and deploying effective tools or methods.

Environmental and Endangered Aquatic Animal Conservation Unit,
Research and Development Division,
Department of Fisheries.

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