

Man-Made Threats to Spinner Dolphins (*Stenella Longirostris*) in the Tamil Nadu Coast, India

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ABSTRACT

Spinner dolphins (*Stenella longirostris*) are one of the most common and widely distributed cetacean species in the Indian Ocean. They are found in both the coastal and offshore waters of the Indian Ocean, ranging from the eastern coast of Africa to the western coast of Australia. In the Indian Ocean, spinner dolphins are known to form large social groups or pods that can number in the hundreds or even thousands of individuals. These pods are often composed of smaller subgroups, which can include adult males, females, and juveniles. Spinner dolphins are also known to associate with other cetacean species such as bottlenose dolphins, humpback dolphins, and pilot whales. Spinner Dolphins (*stenella longirostris*) is a popular attraction for tourists in the Tamil Nadu coast of India. However, human activities in this region are causing significant harm to these animals, including habitat degradation, noise pollution and fishing practices. In this study, we review the various man-made threats, faced by spinner dolphins in the Tamil Nadu coast and suggest measures to mitigate them.

INTRODUCTION

Spinner dolphins (*Stenella longirostris*) are a species of small cetaceans that are widely distributed in tropical and subtropical waters around the world. While spinner dolphins are not currently considered a threatened species, their populations are vulnerable to a range of anthropogenic threats, including fisheries bycatch, habitat loss, and disturbance from human activities such as boating and tourism. In this article, we will discuss the conservation efforts aimed at protecting spinner dolphins [1].

Spinner dolphins in the Indian Ocean are opportunistic feeders, feeding on a variety of small pelagic fish such as sardines, anchovies, and mackerel, as well as squid. They have been observed to forage both individually and in groups, using various hunting techniques such as herding and corralling their prey [2].

The Tamil Nadu coast is home to a rich diversity of marine life, including spinner dolphins. These dolphins are known for their acrobatic displays and are a popular attraction for tourists. However, human activities in this region are putting these animals at risk. To better understand the distribution and population dynamics of spinner dolphins in the Indian Ocean, researchers have conducted numerous studies, including visual surveys, acoustic monitoring, and genetic analysis. These studies have provided important insights into the ecology, behavior, and conservation of this iconic species in the Indian Ocean [3-7].

CHARACTERISTICS OF SPINNER DOLPHINS

Physical Appearance: Spinner dolphins have a slender body shape, with a long and thin beak. They have a distinct tri-color pattern on their body, with a light gray dorsal side, a darker gray side, and a white or light gray belly.

Size: Adult spinner dolphins can reach lengths of up to 2.7 meters (8.9 feet) and weigh up to 80 kg (176 pounds). Females are generally smaller than males.

Behavior: Spinner dolphins are social animals that often travel in large groups of up to several hundred individuals. They are known for their aerial acrobatics and can spin up to seven times in a single leap. They are also active swimmers and can reach speeds of up to 37 km/h (23 mph).

Distribution: Spinner dolphins are found in tropical and subtropical waters around the world, including the eastern Pacific, the Indian Ocean, and the western Atlantic.

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Diet: Spinner dolphins are opportunistic feeders and primarily feed on small pelagic fish, such as anchovies, sardines, and mackerel, as well as squid.

Communication: Spinner dolphins use a variety of vocalizations, including whistles, clicks, and burst-pulse sounds, to communicate with each other and locate prey.

Conservation Status: Spinner dolphins are listed as a species of "Least Concern" by the International Union for Conservation of Nature (IUCN). However, they are still threatened by fisheries bycatch, habitat loss, and disturbance from human activities such as boating and tourism.

PROBLEMS FACED BY SPINNER DOLPHINS

Despite their wide distribution and abundance, spinner dolphins in the Indian Ocean face a number of threats to their survival. One of the biggest threats is accidental entanglement

in fishing nets, known as bycatch. Other threats include habitat degradation, pollution, and disturbance from human activities such as boating and tourism.

1. Habitat Degradation

The construction of ports and other infrastructure projects along the Tamil Nadu coast has led to the destruction of the natural habitat of spinner dolphins. This has resulted in a decline in the population of these animals.

2. Noise Pollution

The increasing number of boats in the Tamil Nadu coast has led to high levels of noise pollution. Spinner dolphins use echolocation to communicate and navigate, and the noise from boats can interfere with this process. This can lead to confusion and disorientation, making it difficult for these animals to find food and avoid predators (**Figure 1**).



Figure 1. Rescuing Stranded Spinner Dolphin (*Stenella longirostris*) in Neelankarai Beach - Tamil Nadu.

3. Fishing practices

The use of unsustainable fishing practices, such as gill nets and trawlers, has also had a negative impact on spinner dolphins. These animals can become entangled in the nets and drown, or they can be injured by the propellers of trawlers.

CONSERVATION PLANS

Fisheries Management: Spinner dolphins are particularly vulnerable to accidental entanglement in fishing nets, known as bycatch. To reduce bycatch, fisheries management measures, such as gear modifications, time and area closures, and education and outreach programs, have to be implemented where spinner dolphins are known to occur.

Protected Areas: Protected areas, such as marine reserves and sanctuaries, can play an important role in the conservation of spinner dolphins by providing a safe haven for the species. Hence the occurrence of Spinner dolphins' coast can be declared as protected areas.

Ecotourism: Spinner dolphins are a popular attraction for ecotourism activities such as dolphin watching and swimming. While ecotourism can provide economic benefits to local communities and promote conservation awareness, it can also have negative impacts on the dolphins if not managed properly. To minimize the impacts of ecotourism, regulations, such as limiting the number of boats have to be implemented in areas where the Spinner dolphins occur.

Research and Monitoring: Research and monitoring are essential for the effective conservation of spinner dolphins. By studying the species' behavior, ecology, and population dynamics, scientists can identify threats and develop conservation strategies. Acoustic monitoring and genetic analysis are two commonly used techniques for studying spinner dolphins.

Public Education: Public education and outreach programs can raise awareness about the importance of protecting spinner dolphins and their habitats. These programs can target a range of audiences, from school children to fishermen to tourists, and can include activities such as talks, workshops, and field trips.

CONCLUSION

The man-made threats faced by spinner dolphins in the Tamil Nadu coast are a cause for concern. Measures need to be taken to mitigate these threats and protect these animals. In conclusion, while spinner dolphins are not currently considered a threatened species, their populations are vulnerable to a range of anthropogenic threats. Effective conservation efforts, such as fisheries management, protected areas, ecotourism regulation, research and monitoring, and public education, are essential for the long-term survival of this iconic species.

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