# Olive Ridley (*Lepidochelys Olivacea)* Nesting Across North Goa

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**ABSTRACT**

The investigation delves into the behavioral patterns and life cycle of Olive Ridley turtles, emphasizing the crucial implications for their conservation. The revelations, particularly highlighted during the recent global pandemic, underscore the significance of integrating these findings into conservation efforts. Examining the period from 2019 to 2021, the research indicates a noteworthy surge in Olive Ridley nesting pits on beaches as a result of the temporary halt in tourism and fishing activities imposed by the pandemic. This unanticipated outcome necessitates a reassessment of conservation strategies to safeguard the ongoing health and survival of these turtles.

## INTRODUCTION

The exclusive nesting activity of the Olive Ridley sea turtle along the Goa coast is a distinctive characteristic, as identified by Kar and Bhaskar(1982). The comprehensive study under consideration encompasses a survey conducted from September 2020 to August 2021. Situated at coordinates 15.496777 latitude and 73.827827 longitude in India, Goa serves as a crucial habitat for these turtles. The Olive Ridley turtles, typically spotted off the Goan coast, migrate to the shores for nesting, with the serene Morjim beach being the primary location for this nesting phenomenon.

## MATERIAL AND METHOS

Selecting the appropriate location for a turtle hatchery is crucial for ensuring the successful and low-mortality hatching of turtle eggs. Once a suitable site is determined, the nesting pits of turtles are located by tracking the distinctive marks left by the turtles on the sand, as detailed by Kurian, A., and Nayak, V. N. (2003).

After pinpointing the nesting pits, a dedicated hatchery pit is meticulously constructed. Following this, each egg is delicately placed into a plastic bucket or tub, with the bottom filled with sand to a depth of approximately two finger widths. This method is employed to provide stability to the eggs during the incubation process.

**Prevention of predators from entering the Hatchery:**

**Mesh for Hatchery**

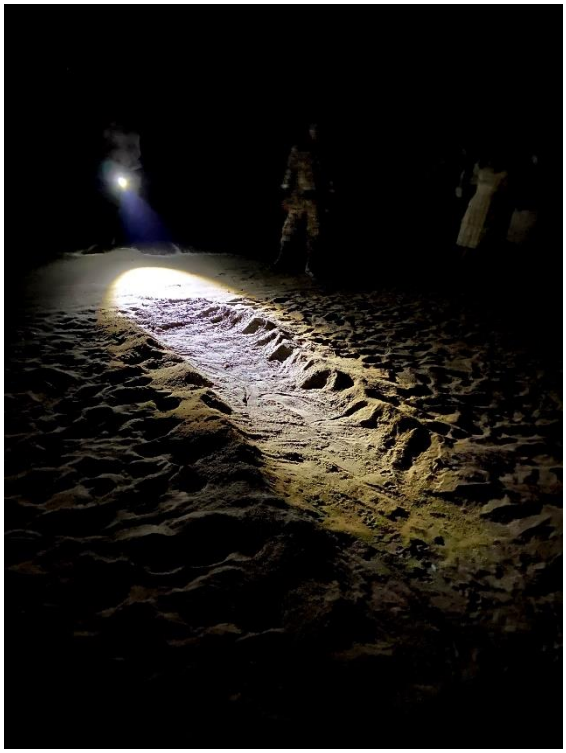
A protective mesh is employed in the hatchery construction to prevent predation. According to certain research, hatchlings exhibit sensitivity to the Earth's magnetic field, and there is evidence suggesting that they might utilize this magnetic field as a navigational cue during their movement in the sea. By Valverde, R. A., & Plante, C. J. (2015).

**Hatching Process**

The hatchery underwent regular monitoring, with checks conducted every hour in the late afternoon and more frequently, at intervals of at least every 30 minutes. Observing a few hatchlings that had already emerged from a nest and were making a scratching/shuffling motion with their flippers in the loose sand sometimes served as a catalyst to encourage the remaining hatchlings to "erupt."

**Releasing the Hatchlings**

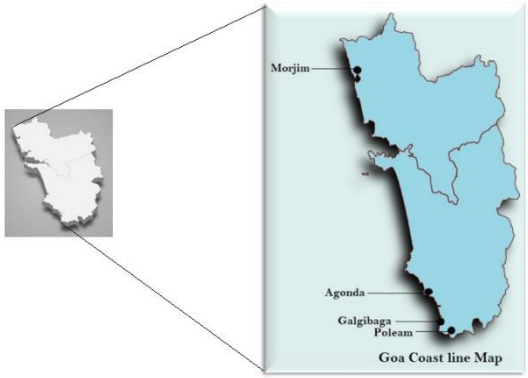
Each hatchling that emerged underwent a comprehensive assessment to evaluate its readiness for release. Once confirmed as ready, they were counted and gently moved to a basin. To minimize disturbance, the use of flashlights was avoided during this process. This precaution was taken because bright lights have been observed to stimulate hatchlings, leading to more vigorous movement that could potentially deplete their energy.



If a nest did not hatch after 65 days, it was promptly excavated, and the contents were documented.

**RESULTS**

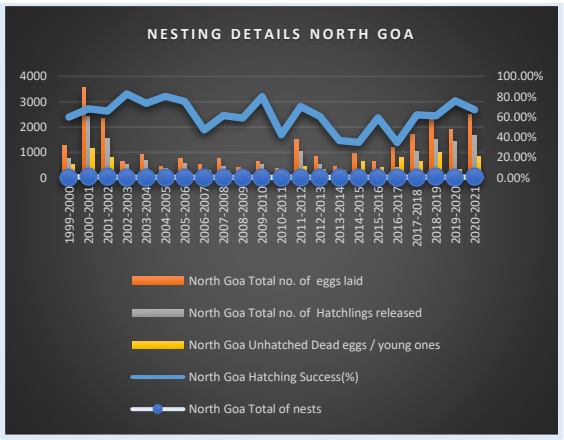
The comprehensive study documented a survey conducted from September 2020 to September 2021. The geographical coordinates for Goa, India, are 15.496777 latitude and 73.827827 longitude. Panaji, Goa, India, falls within the Cities category and is positioned at 15° 29' 48.3972" N latitude and 73° 49' 40.1772" E longitude.




**Map-1: Locations of Surveyed Sea Turtle Habitats in Goa**

| Turtle Nesting details of North Goa | | | | | | |
|---|---|---|---|---|---|---|
| S. No. | Year | No. of Pits | No. of eggs laid | No. of young ones released | No. of eggs Unhatched/Dead | Hatching Success (%) |
| 1 | 2002/03 | 6 | 643 | 532 | 111 | 82.74 |
| 2 | 2003/04 | 9 | 904 | 662 | 242 | 73.23 |
| 3 | 2004/05 | 4 | 449 | 360 | 89 | 80.18 |
| 4 | 2005/06 | 6 | 737 | 554 | 183 | 75.17 |
| 5 | 2006/07 | 5 | 530 | 250 | 280 | 47.17 |
| 6 | 2007/08 | 6 | 741 | 454 | 287 | 61.27 |
| 7 | 2008/09 | 4 | 388 | 228 | 160 | 58.77 |
| 8 | 2009/10 | 5 | 640 | 512 | 128 | 80.00 |
| 9 | 2010/11 | 3 | 342 | 145 | 197 | 42.40 |
| 10 | 2011/12 | 14 | 1489 | 1045 | 444 | 70.18 |
| 11 | 2012/13 | 7 | 831 | 501 | 330 | 60.29 |
| 12 | 2013/14 | 4 | 441 | 162 | 279 | 36.74 |
| 13 | 2014/15 | 8 | 951 | 331 | 620 | 34.81 |
| 14 | 2015/16 | 6 | 641 | 255 | 386 | 58.97 |
| 15 | 2016/17 | 11 | 1206 | 417 | 789 | 34.58 |
| 16 | 2017/18 | 14 | 1695 | 1050 | 645 | 61.94 |
| 17 | 2018/19 | 22 | 2499 | 1522 | 977 | 60.90 |
| 18 | 2019/20 | 15 | 1895 | 1437 | 339 | 75.83 |
| 19 | 2020/21 | 24 | 2496 | 1674 | 822 | 67.00 |

**Table 1: Turtle Nesting details of Olive Ridley at North Goa**




**Graph 1: Graph representing Turtle Nesting trend of Olive Ridley in North Goa**

Goa is privileged to host beaches favored by sea turtles, particularly Olive Ridley turtles, for egg-laying. Consequently, it is imperative for the relevant authorities to exert every effort in maintaining these beaches undisturbed and in their pristine state, as emphasized by the National Green Tribunal. This preservation goal was notably facilitated this year due to the global pandemic.

Through careful observation, one can discern an upward trajectory in the formation of turtle nesting pits during the period

from 2020 to 2021.

**DISCUSSION**

The recent global pandemic has provided valuable insights that should be integrated into turtle conservation strategies. Over the period from 2019 to 2021, the suspension of tourism and fishing activities along beaches, a result of pandemic-induced measures, led to a noteworthy increase in Olive Ridley nesting pits. Consequently, there was a substantial surge in the hatching rate, reaching 67% during this timeframe.

To bolster turtle conservation efforts, it is advisable to implement continuous awareness programs for fishermen and the general public in coastal areas, moving away from one-time initiatives. Furthermore, conducting a prolonged study on the impact of human activities on turtle nesting would contribute to a more comprehensive understanding of the status of various turtle species.

It is evident that human activities exert a significant influence on turtle nesting and hatchlings. Taking steps to minimize pollution and reduce human intervention in natural habitats will help mitigate the adverse effects on the environment.

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