REPORT ON

ENHANCING SEA TURTLE NESTING SURVIVAL

DATABASE STUDY ON THE EFFECTIVENESS OF EX-SITU CONSERVATION - 2025

IN THE COLOMBO DISTRICT OF SRI LANKA

By The Pearl Protectors

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Thinuli Ruvinya

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Thisanda Ayodhya

Thisuri Yahampath

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Udara Wijesekara

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THE PEARL PROTECTORS

The Pearl Protectors is a volunteer-based and non-profit marine conservation organization in Sri Lanka. Established in 2018, The Pearl Protectors seek to mitigate the impacts of anthropogenic activities on the marine environment, reduce plastic pollution and promote sustainable practices through youth engagement, volunteerism, awareness and advocacy.

Projects undertaken by The Pearl Protectors over the years entail launching of the 'Pearl Protector Approved' Accredited Standardization Certificate to promote a plastic-free dining culture; the annual construction of a Christmas tree out of discarded plastic bottles to highlight single-use plastic pollution; school education programs; eco-brick workshops; coastal cleanups including the Nurdle Free Lanka Initiative; Cleaner Seabed for Sri Lanka Underwater cleaning expedition; World Oceans Day through Art competition; and social media campaigns to inspire action towards protecting the marine environment.

The purpose of this report is to highlight the impact through the conservation efforts undertaken during the sea turtle nesting season of 2025 by the volunteers of The Pearl Protectors through patrolling the shorelines of Colombo district. The report also analyzes the nesting data collected to determine effective practices of conservation and way forward.

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The Pearl Protectors

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Summary

The 2025 Turtle Patrol initiative by The Pearl Protectors aimed to safeguard sea turtles across Dehiwala and Mount Lavinia beaches. Volunteers patrolled nightly for 84 days, identifying nesting sites, deterring poaching, and relocating eggs with support from the Sri Lanka Coast Guard. Objectives included conserving 18,000 turtle eggs and raising awareness about sea turtle conservation. As a result of these efforts, a total of 202 sea turtle nests were identified and conserved. With an average of approximately 106 eggs per nest, the initiative successfully safeguarded an estimated 21,389 sea turtle eggs, contributing significantly to the protection and sustainability of local sea turtle populations. This outcome exceeded the original target of conserving 18,000 eggs, marking a notable achievement in the conservation effort.

Introduction

Sea turtles are among the oldest living marine reptiles, having existed for over 100 million years. Globally, they occupy different ecological functions, including maintaining viable seagrass beds and coral reefs, which the biodiversity and productivity of the ocean require. Conservation of sea turtles in Sri Lanka is necessary since the populations are declining due to threats like bycatch and poaching (Ranasinghe & Gunawardena, 2024). Of the seven species discovered, five inhabit the seas surrounding Sri Lanka's coastline: the Green turtle (*Chelonia mydas),* Olive Ridley (*Lepidochelys olivacea*), Hawksbill (*Eretmochelys imbricata*), Loggerhead (*Caretta caretta*), and Leatherback (*Dermochelys coriacea*). According to the IUCN Red List, the Hawksbill is classified as Critically Endangered, the Green Turtle as Endangered, and the Leatherback, Olive Ridley, and Loggerhead Turtles are listed as Vulnerable, highlighting the urgent need for targeted conservation efforts.

Southern, southwestern, and eastern coastlines of Sri Lanka are major nesting grounds for these species. However, sea turtle survival in these areas are threatened by a variety of anthropogenic pressures including habitat destruction, egg poaching, coastal pollution, unsustainable tourism, and impacts of climate change. Coastal development, artificial illumination, plastic debris, and fishing line entanglement have further amplified the threats to adult turtles and hatchlings. These threats have led to plummeting populations across most parts of the country, calling for preventive and responsive conservation strategies.

Ex-situ conservation, the conservation of species in habitats other than where they occur naturally, has proven to be a valuable tool in the conservation of biodiversity, particularly for gravely threatened species due to human impacts. For sea turtles, ex-situ conservation generally involves the relocation of eggs from natural nesting beaches to protected hatchery environments where temperature, moisture, and avoidance of predation and human disturbance can be better controlled.

While in situ protection is ideal, ex-situ approaches may serve as crucial stopgap measures, especially in areas with high poaching or habitat loss. However, poorly managed ex-situ conservation sites can lead to skewed sex ratios (due to temperature-dependent sex determination), disease transmission, and loss of genetic diversity.

Although the Sri Lankan Department of Wildlife Conservation (DWC) enforces legislation under the Fauna and Flora Protection Ordinance, persistent egg collection and trade in turtle meat and shells continue in some coastal areas. The Government of Sri Lanka, in cooperation with NGOs and local community associations, has endeavored to address these threats through awareness campaigns, protected area management, and hatchery-based conservation

Despite these efforts, significant data gaps remain regarding nest success rates, hatchling viability, and long-term survival of individuals released from hatcheries. Little is known about the social dynamics influencing local engagement in turtle conservation, including how cultural beliefs, economic incentives, and tourism impact conservation efforts.

Awareness programs were also conducted, with a particular focus on schools attended by children from coastal communities around Dehiwala. These initiatives aimed to raise awareness about the importance of sea turtle conservation, the threats faced by sea turtles, and the critical role local communities play in protecting these endangered species and their habitats.

Figure 1: Conducting Awareness programmes for School Children

Relocating turtle eggs to artificial nests presents a promising strategy to enhance hatching success and mitigate natural threats such as predation and environmental fluctuations as well as human induced threats. However, the efficacy of this method remains to be thoroughly evaluated in the context of Sri Lanka's unique coastal ecosystems. Additionally, the impacts of urbanization, weather patterns, lunar phases, and tidal cycles on nesting behaviors and survival rates necessitate detailed investigation.

This report analyzes the common nesting locations within the three key locations and the influence of environmental factors such as lunar phases, light pollution and tidal cycle on nesting success.

Through comprehensive data analysis, this report evaluates the effectiveness of volunteer-led patrols. By understanding the complex interplay between environmental factors and conservation efforts, the study aims to inform evidence-based strategies for the protection of sea turtles in Sri Lanka and beyond.

Methodology

Duration and Frequency of Patrolling:

The sea turtle patrolling was conducted over a span of 84 days, from the 6th of January and to the 31st of March 2025. Daily patrols were conducted, except during adverse weather conditions (e.g., heavy rainfall) that made patrolling impractical. Throughout the duration, a total of 210 volunteers actively participated in the patrolling efforts.

Volunteer Allocation and Training:

Volunteers were divided into 21 groups, each assigned to one of three key locations: Dehiwala North, Dehiwala South, and Mount Lavinia during the sea turtle nesting season of 2025. To ensure efficiency, effectiveness, and safety, each area was assigned at least four patrollers, and overseen by designated site and group leaders. Prior to the commencement of the patrolling season, all volunteers underwent a comprehensive training, comprising three compulsory sessions. These included: (1) an online Turtle Patrolling module, (2) online discussion meetings covering patrolling fundamentals, and (3) an in-field practical training session. Additionally, volunteers were integrated into a dedicated WhatsApp group to facilitate effective communication.

Patrolling Procedure:

Patrols were initiated at 10 p.m. and extended until approximately 2 a.m., although some patrols extended beyond this timeframe. Patrollers walked along the coastline searching for nesting activity, hatchlings, turtle tracks, and turtles. When encountering nests, hatchlings, or turtles, patrollers documented precise locations using Google Maps and shared them in the dedicated WhatsApp group.

Nest Extraction and Artificial Renesting:

In instances where nests were discovered, the Sri Lanka Coast Guard is immediately notified via phone call to come collect the nest. Then they were carefully extracted from their original locations and relocated to the nearest Sri Lanka Coast Guard point within the designated areas. These relocated nests are placed within a net-fenced and separated turtle conservation area to protect the eggs and hatchlings from animals and other dangers. Each nest within this conservation area is marked with a board indicating the date of nesting, the number of eggs in the nest, the expected date of hatch, and the turtle species. This process of artificial renesting was carried out with utmost care to ensure the safety and viability of the eggs. Conversely, hatchlings found during patrols were collected and released into the ocean. Until the Sri Lanka Coast Guard arrives, the patrollers diligently protect the nest from poachers and any other potential threats, ensuring the safety of the eggs and hatchlings.

It's important to note that the assistance of coastguards during this process was crucial due to legal regulations in Sri Lanka. According to the Fauna and Flora Protection Ordinance (FFPO, 1938 amended in 2009), it is strictly prohibited for civilians to capture, kill, injure, or possess sea turtles or their eggs. Therefore, as the patrollers were civilian volunteers, they did not have the authority to handle eggs, hatchlings or turtles.

Data Collection and Documentation:

At the conclusion of each patrol, detailed records of the day's activities were recorded by each group using a standardized Log Form. The patrol logs included comprehensive details, including the date and day of patrol, location, team attendance, number of patrol rounds and types of situations encountered such as turtle sightings, nesting activity or hatchlings. In addition, they documented key data points such as: whether a turtle was found, egg laying time, turtle species, egg count, number of deformed eggs, general observations, egg and hatchling locations, hatchling count and descriptions, hatchling emergence time, observations on hatchlings, patrol end time as well as other remarks or thoughts recorded by the patrolling teams.

Limitations:

The data collection methods followed had several limitations. Firstly, patrollers were sometimes unable to patrol due to adverse weather conditions. As a result, 3 days during the patrolling period yielded no data. Although the patrols took place between 10 pm and 2 am, turtles have been recorded nesting from 8 pm until 5 am. This meant that any turtles nesting outside the patrol times were not included in the data. In addition, as patrollers patrolled from one end of the beach to the other, they could miss sighting turtles that were some distance away. As poachers were around the beach, tracks could have been erased before patrollers arrived. A final limitation to the data collection was the log. On several occasions, logs were not entered for patrols, while on others errors were made.

Results

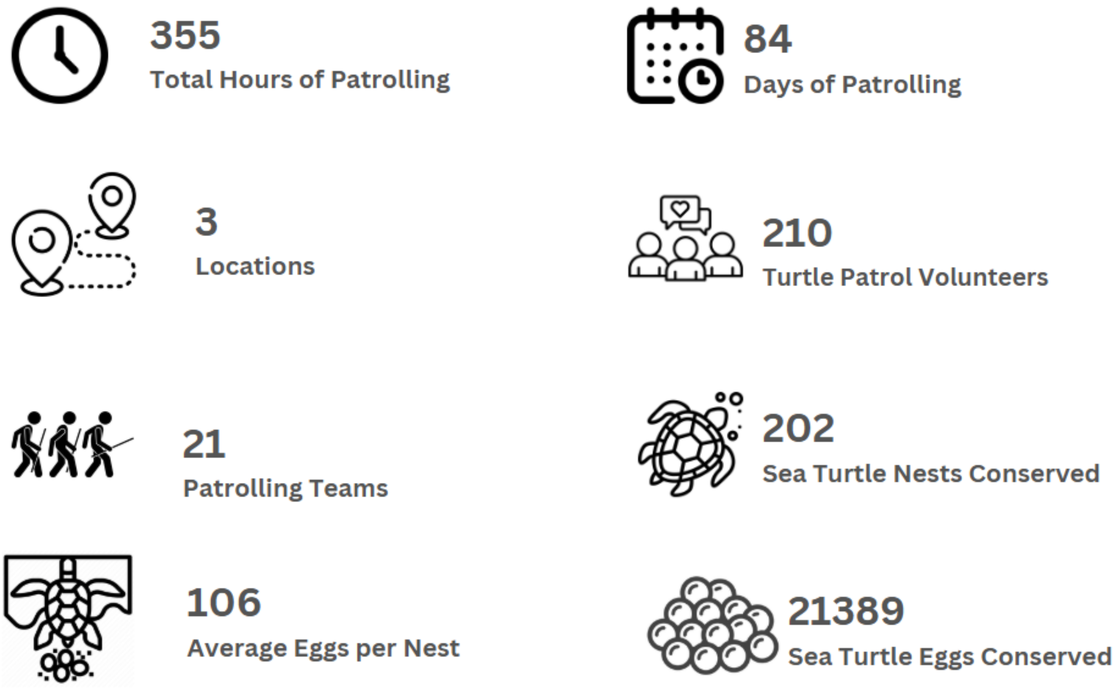

Figure 2: Impact of the 2025 turtle patrol efforts, nesting statistics and conservation outcomes

As a result of these efforts, a total of 202 sea turtle nests were identified and conserved. With an average of approximately 106 eggs per nest, the initiative successfully safeguarded an estimated 21,389 sea turtle eggs, contributing significantly to the protection and sustainability of local sea turtle populations. This outcome exceeded the original target of conserving 18,000 eggs, marking a notable achievement in the conservation effort.

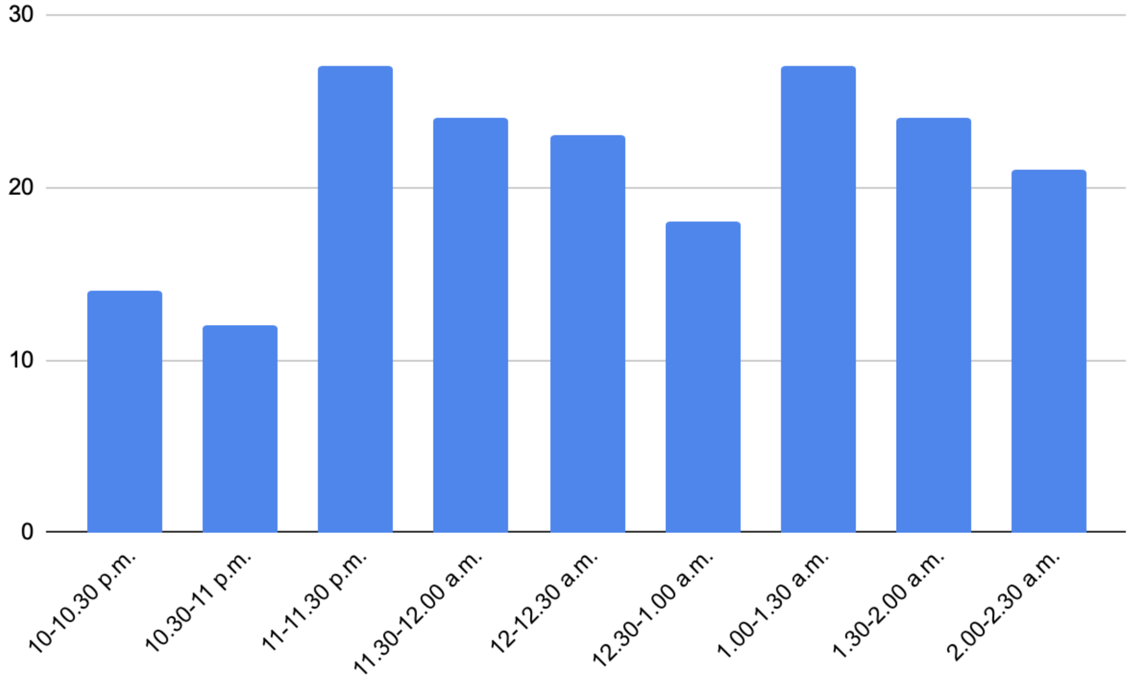

Figure 3: Distribution of turtle nests according to half-hour time intervals

Time windowed nesting observations during the 2025 nesting season reveal a clear temporal distribution in Olive Ridley turtle activity along the Dehiwala–Mount Lavinia coast. Nesting frequencies progressively increased after 10:00 p.m., peaking notably between 11:00–11:30 p.m. and again at 1:00–1:30 a.m. Moderate nesting activity was observed during 11:30–12:00 a.m., 1:30–2:00 a.m., and 12:00–12:30 a.m. The lowest nesting activity was noted between 10:00–10:30 p.m. These results indicate a bimodal nesting pattern, with the majority of nesting activity concentrated in the late-night hours.

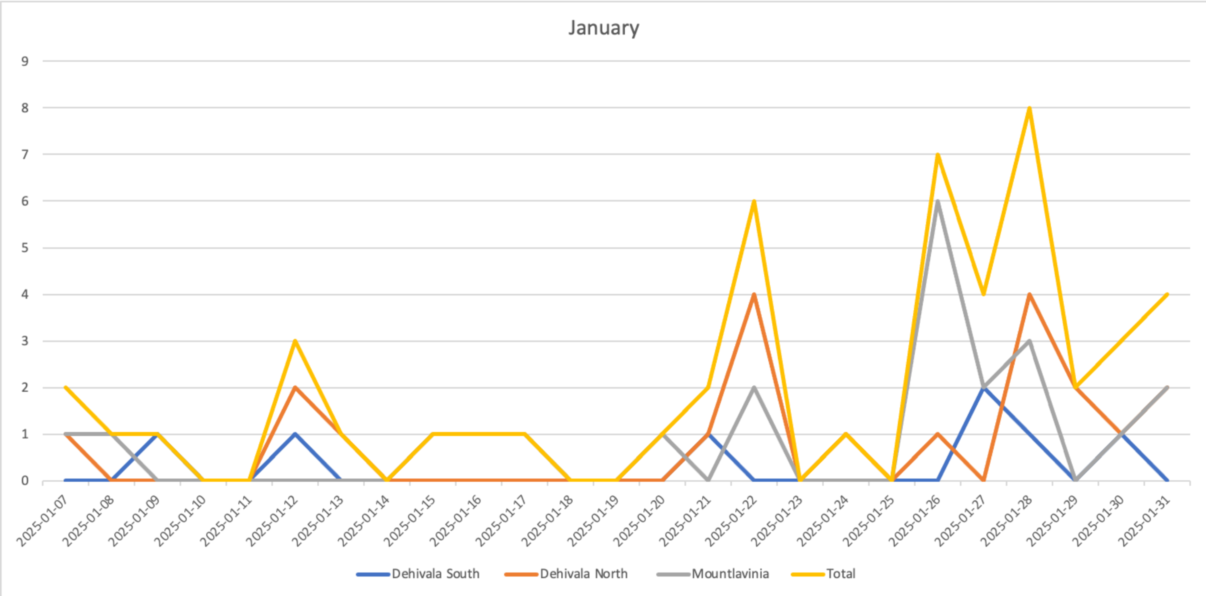

Figure 4: The distribution of sea turtle nests across the month of January.

At the beginning of January, a relatively low number of turtle nests was recorded. An increase in nesting activity was observed toward the end of the full moon phase. This upward trend continued into the first quarter moon phase, However, a noticeable decline in nesting was recorded during the new moon phase, suggesting reduced activity under minimal moonlight.

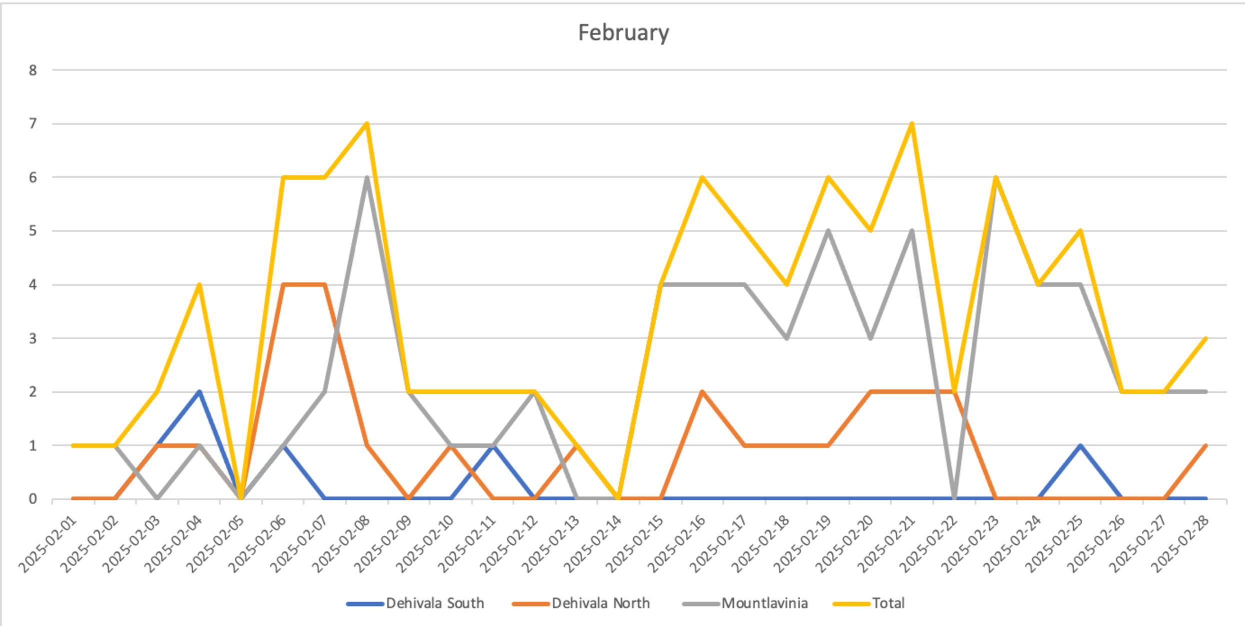

Figure 5 :The distribution of sea turtle nests across the month of February.

During the initial days of February, turtle nesting activity remained low, coinciding with the new moon phase. A significant increase in the number of nests was observed following the third quarter phase, which continued through the full moon and into the first quarter of the lunar cycle. Toward the end of February, a decline in nesting activity was recorded, aligning with the onset of the new moon phase.

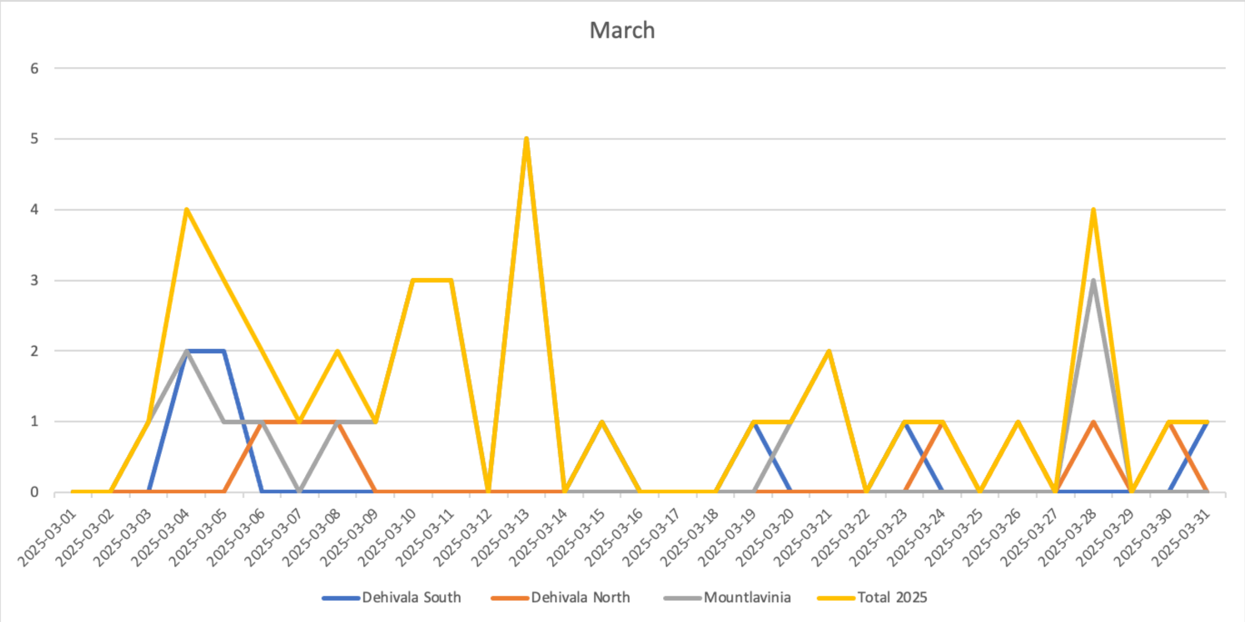

Figure 6: The distribution of sea turtle nests across the month of March.

At the beginning of March, a gradual increase in nesting activity was noted, corresponding with the concluding days of the new moon phase. A high number of turtle nests was observed leading up to the full moon phase, indicating that the peak nesting period extended into early March. However, a sharp decline in nesting activity occurred shortly afterward, marking the end of the primary nesting season. Interestingly, a final spike in nesting activity was recorded during the first quarter moon phase at the end of March, potentially indicating a short-lived secondary nesting peak.

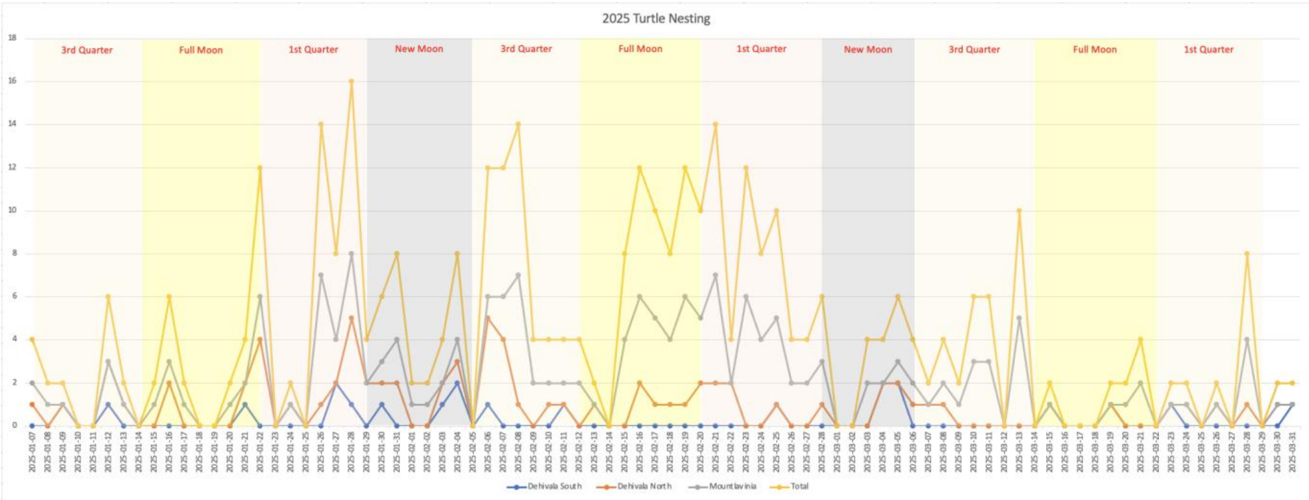

Figure 7: The distribution of sea turtle nests across various lunar phases throughout the entire turtle patrolling period.

A relatively low number of turtle nests was recorded at the beginning of the nesting season. A noticeable increase was observed during the first full moon phase, after which the number of nesting sites continued to rise. Distinct spikes in nesting activity were evident during full moon phases, and particularly during the first quarter phases. In contrast, significantly fewer nests were recorded during new moon phases. Following the third week of March, there was a substantial decline in nesting activity, despite a brief increase observed during the final first quarter moon phase.

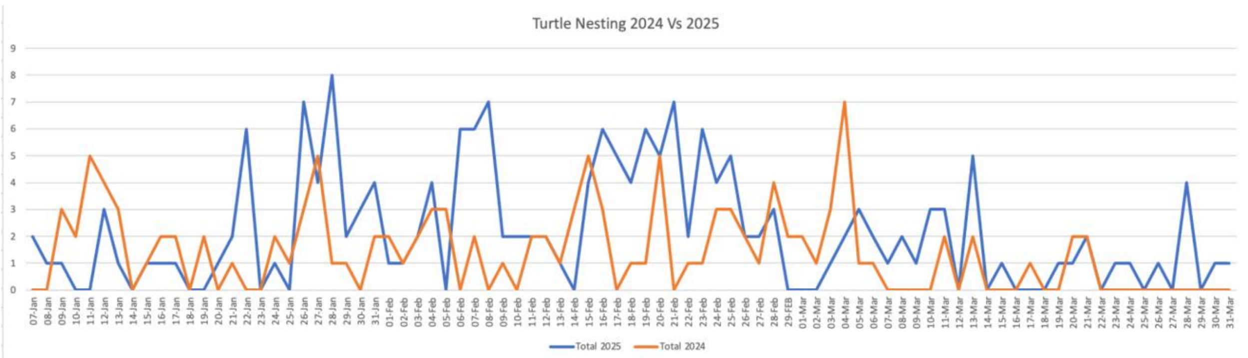

Figure 8: Comparison of nesting data distribution between the 2024 and 2025 Turtle Patrolling (Blue – 2025, Red – 2024)

A comparative analysis of sea turtle nesting data from January to March reveals a notable increase in nesting activity in 2025 compared to 2024. In early January 2024, nesting was minimal, whereas 2025 showed a steady rise, with multiple peaks observed toward the latter part of the month. February 2025 experienced consistently higher nest counts, especially during the full moon and first quarter phases, indicating a stronger correlation with lunar cycles than in 2024. Although March 2024 recorded slightly higher nest numbers during the first week, 2025 maintained a more extended nesting period into late March, with visible activity even as the season tapered off. Overall, the 2025 data suggest both an increase in total nest numbers and a broader distribution across lunar phases and dates, pointing to potentially more favorable nesting conditions or improved patrolling efforts.

Distribution of nesting density

A map was created using the data log Google Map links, the map was divided into Zones A to K, each zone measuring approximately 250 metres in distance, to compare environmental impacts and sea turtle nesting density across the different beach segments.

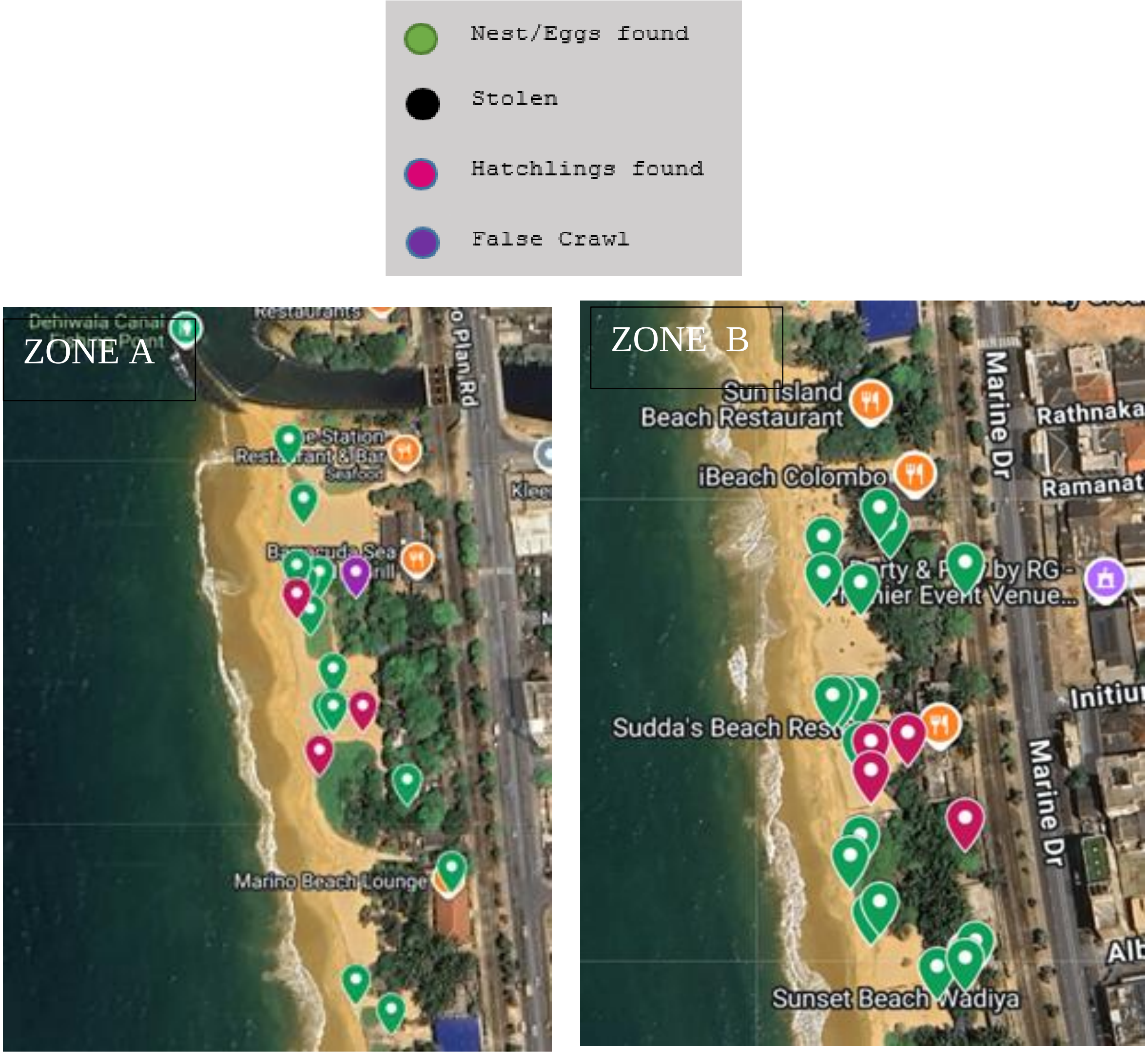

Figure 9: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone A and B

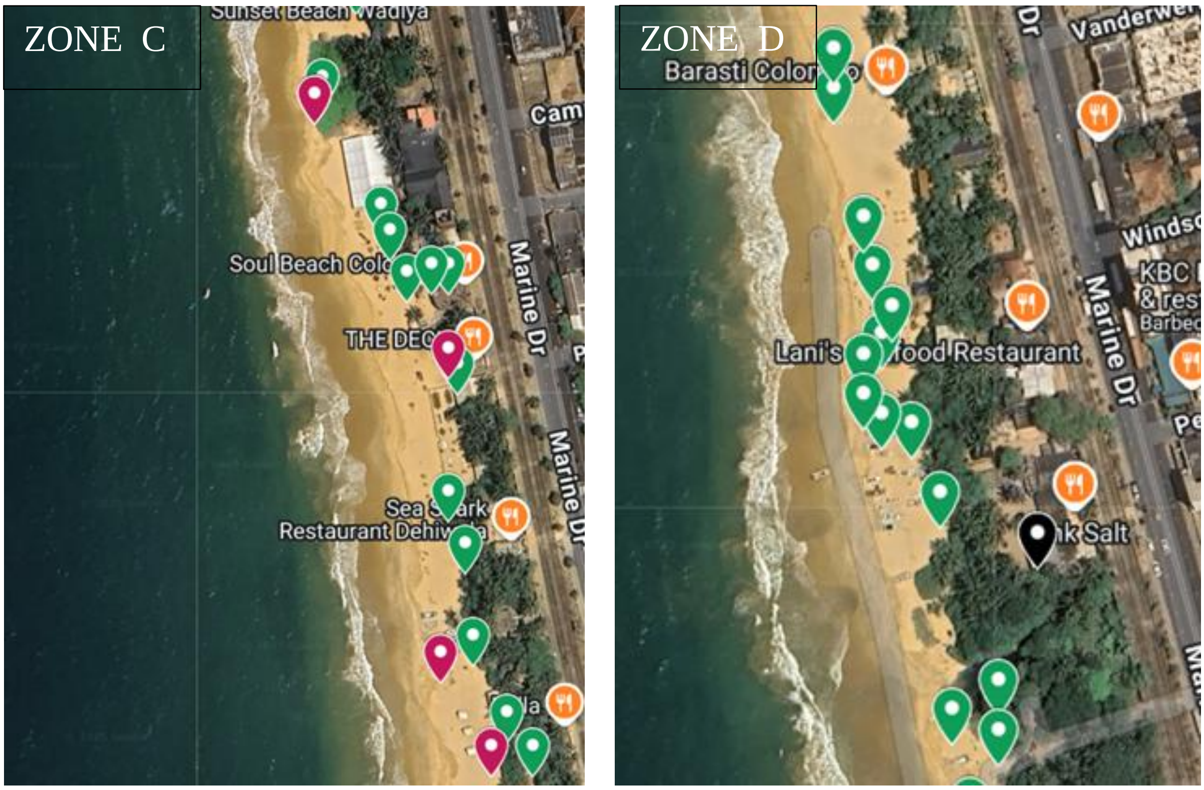

Figure 10: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone C and D

Zone A, B, C & D : Google Map visualization demonstrating the relationship between nesting density and environmental factors in Dehiwala North: High nesting density is observed in areas with reduced human activity, minimal artificial lighting and limited urban development. Satellite imagery of the zone shows a higher presence of vegetation and fewer restaurants, which correlates with increased sea turtle nesting activity.

Figure 11: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone E.

Zone E: Google Map visualization highlights the relationship between nesting density and environmental factors, showing a noticeable decrease in sea turtle nests towards the fishing villages in Dehiwala South and Mount Lavinia, likely due to increased human foot traffic, boat activity and other disturbances.

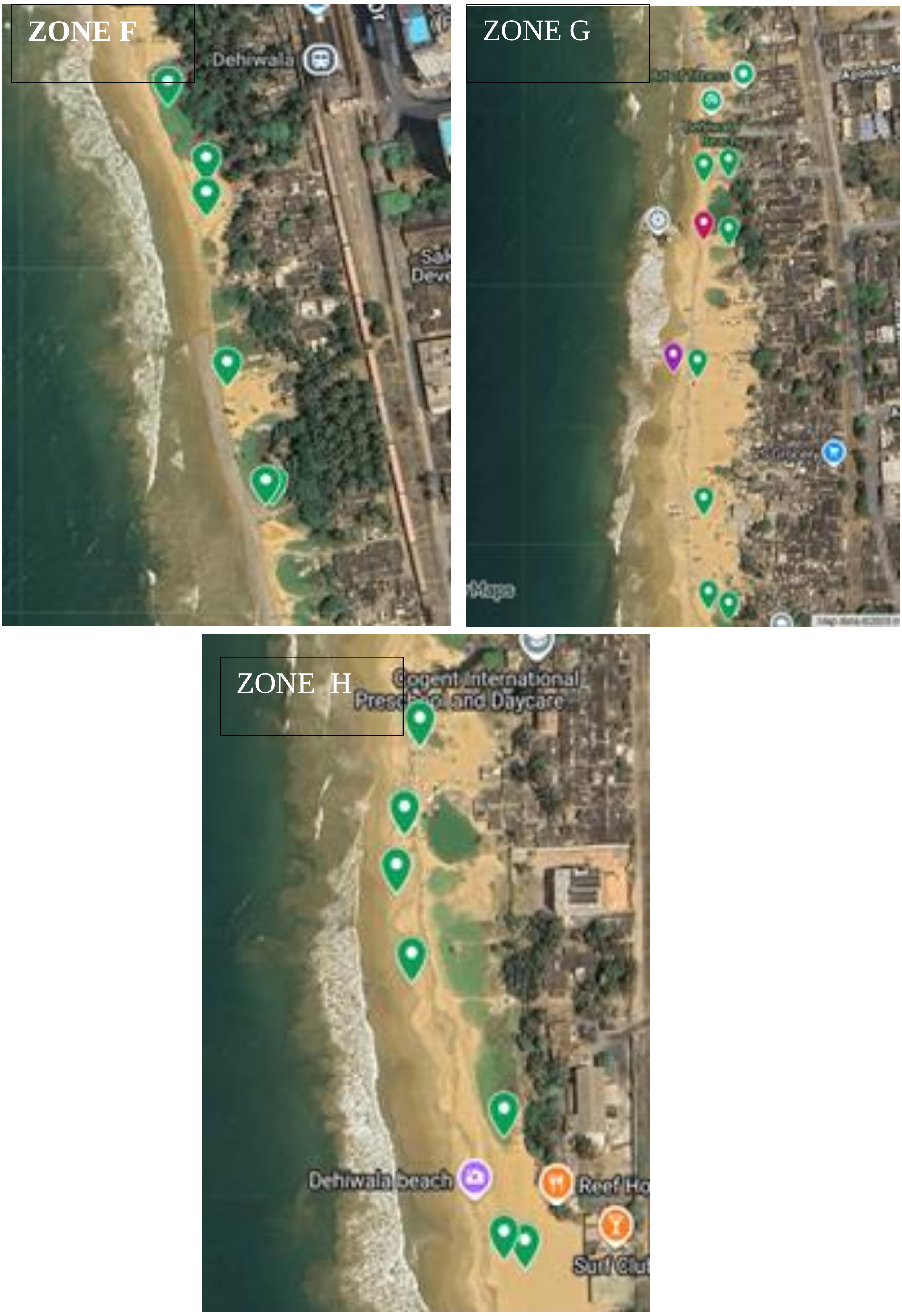

Figure 12: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone F, G and H.

Zone F, G and H: Google Map visualization demonstrating the relationship between nesting density and environmental factors in the fishing villages in Dehiwala South and Mount Lavinia: Reduced Nesting due to factors such as increased human foot traffic, boat activities, and other disturbance

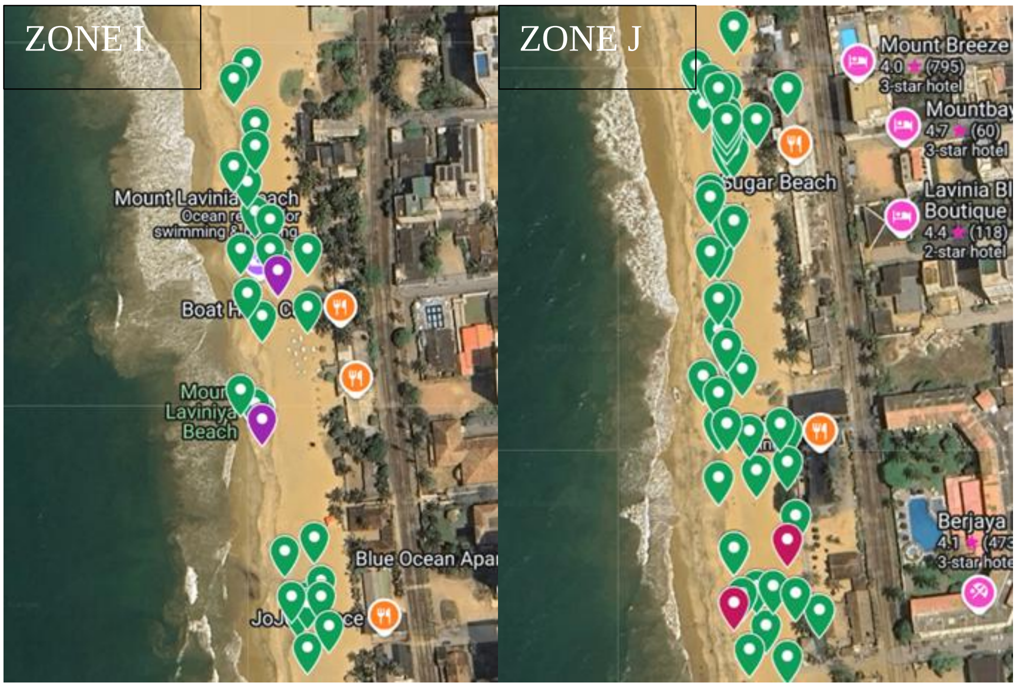

Figure 13: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone I and J.

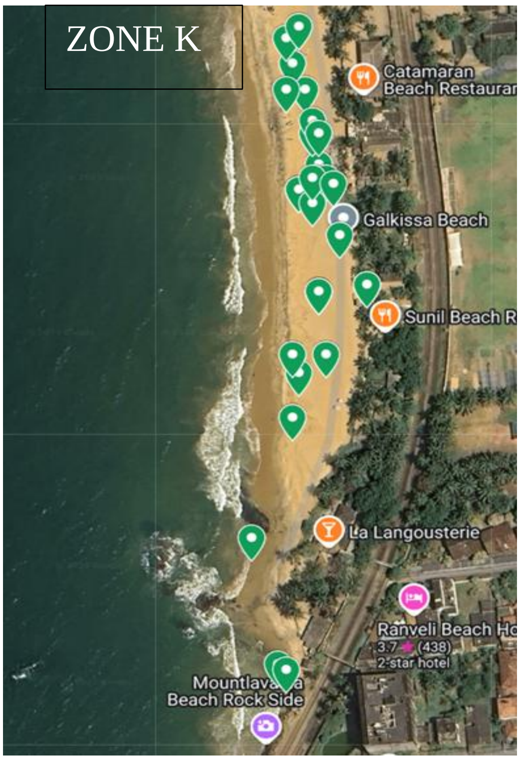

Figure 14: Google Map visualization demonstrating the relationship between nesting density and environmental factors in zone K.

Zone I, J and K : Google Map visualization demonstrating the relationship between nesting density and environmental factors with areas of higher nesting presence suggesting a spatial correlation between reduced human activity and increased turtle nesting. Some zones show variable nesting density, with certain sections indicating signs of recovery or sporadic nesting activity. This beach features wider sandy areas and flat surfaces, which provide suitable nesting conditions and correlate with higher sea turtle nesting density observed in this region.

Discussion

When compared to the 2024 data, the 2025 nesting season shows a clearer alignment with lunar phases especially around the full moon and first quarter. In 2024, nesting appeared to take place across all phases of the moon, including surprisingly high activity during new moons. However, in 2025, there was a noticeable drop in nesting during new moon phases and a strong increase during periods of greater moonlight.

This trend supports previous research suggesting that lunar illumination plays a role in helping sea turtles orient themselves and choose nesting sites (Pike, 2008; Madden et al., 2008). Brighter moonlight likely serves as a natural navigational guide for female turtles as they come ashore. The higher tides that come with both full and new moons may also help turtles reach the beach more easily (Ekanayake et al., 2009). In addition, melatonin levels closely tied to both the body's internal clock and the moon's cycle are believed to influence when turtles feel ready to nest, since most nesting happens during nighttime hours (Zhou et al., 2020).

The differences between the two years might also reflect natural changes in the environment or more effective monitoring during 2025. Overall, these patterns add to growing evidence that the moon's light and gravitational pull play a key role in shaping when and how sea turtles nest.

Looking at Figure 2, we can see that most nesting activity in 2025 took place between 11:00 and 11:30 p.m. and again from 1:00 to 1:30 a.m. This lines up with what researchers have observed in the past, turtles tend to nest during these late-night hours when melatonin levels are higher, which helps trigger nesting behavior (Zhou et al., 2020). These times also likely offer the most favorable conditions, with cooler temperatures, fewer predators and less human activity on the beach (Hendrickson, 1958; Miller, 1997).

There is a small dip in activity around 12:30 to 1:00 a.m., followed by a second rise. This could be due to spacing strategies among the turtles or changes in moonlight that affect how they navigate while staying hidden from threats (Madden et al., 2008). Interestingly, the peak nesting times also overlap with high levels of human activity such as noise and lights from beachfront restaurants especially on weekends. This could disturb the turtles and disrupt successful nesting.

These insights highlight the importance of implementing beach management strategies that are sensitive to turtle nesting behavior, particularly during known peak hours. Reducing light and noise pollution during these windows can go a long way in supporting successful nesting and long-term conservation.

As for the nesting season itself, while Olive Ridley turtles began nesting in late November 2024, a significant rise in activity was only seen from late January 2025, following the start of organized patrolling. Peak nesting occurred in February and early March, with a notable night in which nine nests were recorded across both beaches. However, sightings declined toward the end of March, and the smallest recorded nest had only three eggs. Following the three-month ex-situ sea turtle conservation project in Dehiwala, Wellawatta, and Mount Lavinia, it is clear that while much has been done, there are still some important directions in which we can improve and continue these efforts.

Establishing a centralized, holistic digital database would be one of the most effective approaches to enhancing data management and conservation efforts. This system would provide conservationists with a means of recording and monitoring valuable information such as nesting locations, number of eggs, hatching success, and environmental conditions. Such a database would allow for more informed decision-making and enable the detection of patterns and priorities for action.

Another important direction is the upscaling and establishment of ex-situ Conservation Locations. The ex-situ Conservation sites must be temperature and humidity controlled so that they better resemble nature and reduce exposure to foes such as predation, flooding, and manhandling. For scientific uniformity at different sites, future programs should also invest in developing standard conservation procedures. This includes instructions for relocating nests, egg manipulation, incubation observation, and hatchling release, all of which assist in reducing variability and enhancing reliability.

The turtle conservation initiative has shown promising growth in 2025 compared to 2024, reflecting increased commitment from volunteers and improved coordination across patrolling teams. One of the most significant improvements observed this year is in the number of sea turtle eggs conserved, which rose from 14,204 eggs in 2024 to 21,389 eggs in 2025, an increase of over 7,000 eggs. This also aligns with the increase in the number of sea turtle nests conserved, which went up from 130 nests in 2024 to 202 nests this year, indicating more effective identification and protection of nesting sites. Volunteer engagement has been a key strength this year. In 2024, there were 130 turtle patrol volunteers. That number grew to 210 volunteers in 2025.

Patrolling activity remained consistent in terms of total hours 352 hours in 2024 compared to 355 in 2025. However, the number of days patrolled increased slightly from 79 to 84 days, which may have contributed to the higher nest and egg conservation numbers. The average number of eggs per nest was slightly lower in 2025 (106) compared to 2024 (110). This variation falls within a normal biological range and does not significantly impact the overall success of the conservation efforts.

Scientific research will still be vital to guide conservation. Future efforts should incorporate genetic analysis to monitor genetic diversity and research into environmental factors like sand temperature, pollution levels, and coastal erosion. An understanding of how these factors impact nesting success will allow us to design more effective intervention strategies. Similarly, comparative analyses between in-situ and ex-situ nests can yield valuable information regarding which method is best suited under different circumstances.

Community outreach has been one of the most successful aspects of the initial conservation efforts. Moving forward, this engagement should be formalized and expanded through structured training sessions, educational programs in schools, and organized volunteer initiatives. By turning local citizens, especially youth, into environmental stewards, we can build a solid grassroots foundation for long-term conservation.

Climate change poses a severe threat to sea turtle nesting. Future ex-situ conservation site designs must incorporate adaptive elements such as shaded area and humidity management to mitigate against these effects. In the meantime, the use of predictive models derived from historical data may allow for the forecasting of climate-driven issues and inform anticipatory management strategies.

Finally, broader collaboration and policy support are required. Building partnerships with government departments, universities, and NGOs will enable upscaling of effective strategies to the rest of Sri Lanka. Advocacy for stronger coastal defense legislation and the inclusion of turtle conservation in regional planning mechanisms will go further to institutionalize our activities. Replication in other areas using methodology and outcomes documentation from Dehiwala, Wellawatta, and Mount Lavinia will serve as a model.

In conclusion, the future of sea turtle protection in the Colombo District is in a balanced mix of people participation, research, adaptive infrastructure, and prolonged policy support. By developing and improving our current efforts, we can ensure that we have an even more sustainable and efficient means of protecting these threatened marine species.

Observations

Emergence of new restaurants:

The increase in the number of new restaurants over the past four (04) years along the beach, particularly in Dehiwala, and the resulting increased footfall along the beach, and light and sound pollution factors that are likely to deter olive ridley sea turtles from nesting along the beaches. There were 6 new restaurants established recently.

With the rise in the number of restaurants along the beach, there was a noticeable increase in human activity in the area. Several instances were observed where Olive Ridley Turtles nested next to restaurant customers who were seated at tables and chairs laid out on the beach. This often led to excited customers using flash photography to take pictures of the turtles. In some cases, the nesting Olive Ridley Turtles were even touched by these customers.

Similarly, when hatchlings were discovered near restaurants, excited customers moved around without caution, paying little attention to where they stepped. On one occasion, a customer accidentally stepped on a hatchling as it crawled toward the sea. There were also instances where such customers picked up and examined hatchlings as they made their way to the sea.

The expansion of restaurants onto the beach has reduced the space Olive Ridley Turtles have to nest along the beach. The effect of such expansion was acutely observable in the Dehiwala beach, which had a relatively narrow beach. Whilst most restaurants both along Dehiwala and Mount Lavina beaches set out tables and chairs regularly in the evening close to such restaurant’s beach front entrance some restaurants, set out right up to the foreshore. This significantly reduced the free space Olive Ridley Turtles have to nest along the beach.

Nevertheless, on a positive note, there were multiple instances where restaurant employees took it upon themselves to discourage visitors and passers-by from disturbing nesting Olive Ridley Turtles, advising them to observe the turtles from a reasonable distance.
Some restaurants have constructed fixtures and structures straight up to the foreshore, the former, a large tent and the latter, multiple temporary and permanent fixtures, that extend up to the foreshore.

Figure 15- Outdoor temporary structures on the beach disrupting sea turtle nesting

Noise pollution:

It was observed that whilst typically most restaurants close business at or around midnight every day, some few restaurants remain open until early hours of the next day, sometimes even past 2.00 a.m, with loud music being played throughout the night

Figure 16 - Beach restaurants playing loud music in the coastline

Light pollution:

Light pollution along the beach was observed to have increased compared to the nesting season in 2024, particularly along the Dehiwala beach. This increase may be primarily attributed to the increase in new restaurants.

An increase in light pollution along the beach was observed on Fridays and Saturdays, coinciding with the increase in footfall to restaurants along the beach.

In certain instances, as in front of some restaurants, large flood lights which were facing the sea had been installed.

It was also observed that in certain instances disco/party lights, particularly in front of some restaurants, had been deployed and such disco/party lights were kept on until early hours of the next morning. Such disco/party lights were also flashed on to the sea.

Multiple instances were observed where turtle hatchlings had crawled towards the light emitted from restaurants, instead of the sea.

It was also observed that dim red lights hand been installed in front of Sri Lanka Coast Guard point in Dehiwala, in an effort create a conservation friendly environment in front of the Sri Lanka Coast Guard point Dehiwala.

Figure 17 Fireworks , party lights on the beach specially in the weekends which disrupts the turtle nesting behavior

Dumping and burning of garbage:

It was observed that restaurants along the beach either bury or burn most of their waste and garbage on the beach. Certain instances were observed where the nesting sites of Olive Ridley Turtles beside the locations where restaurants had buried their waste/garbage.

It was also observed that there were large open pits which were approximately two (2) to three (3) feet in depth that had been dug out to bury garbage. Such pits posed a risk to turtles, as they could fall in without any means of escape.

Figure 18 During nesting , a volunteer cleaning the beach polluted due to the human activities

Discharge of wastewater to the sea:

It was observed that certain restaurants along the Dehiwala beach discharged their wastewater onto the foreshore via pipes which thereafter flowed into the sea. An instance was observed where an Olive Ridley Turtle got stuck in a depression created by the wastewater onto the foreshore.

Figure 19 : A turtle trapped in wastewater discharge from a restaurant to the beach, attempting to escape.

Poaching:

There were two (02) instances where the patrollers encountered individuals with eggs from Olive Ridley Turtle nests. The eggs in their possession were retrieved and handed over to the Sri Lanka Coast Guard. There was an instance where a nest had been poached during patrolling hours. The said incident was reported to the Sri Lanka Coast Guard, and the Dehiwala Police were also appraised of the same. An instance was observed along the Mount Lavinia beach where an Olive Ridley Turtle's path was obstructed by a partially buried small iron pole protruding from the beach (which presumably was installed to act as the base of a flagpole.

Figure 20: A poacher identified while attempting to steal turtle Eggs.

Fishing village and boats:

It was observed that numerous fishing boats had been parked along the beach next to the fishing village, extending from the Southern section of the Dehiwala beach to the Northern section of the Mount Lavinia beach. It was also observed that multiple finishing boats were also parked along the beach around 'Pink Salt', reducing the nesting area. It was also noted that most fishermen are at sea in the night and return to the beach in the early hours of the morning of the next day.

There were a few instances along the Southern section of the Dehiwala beach where Olive Ridley Turtles were observed to nest right next to fishing boats that had been parked along the beach.

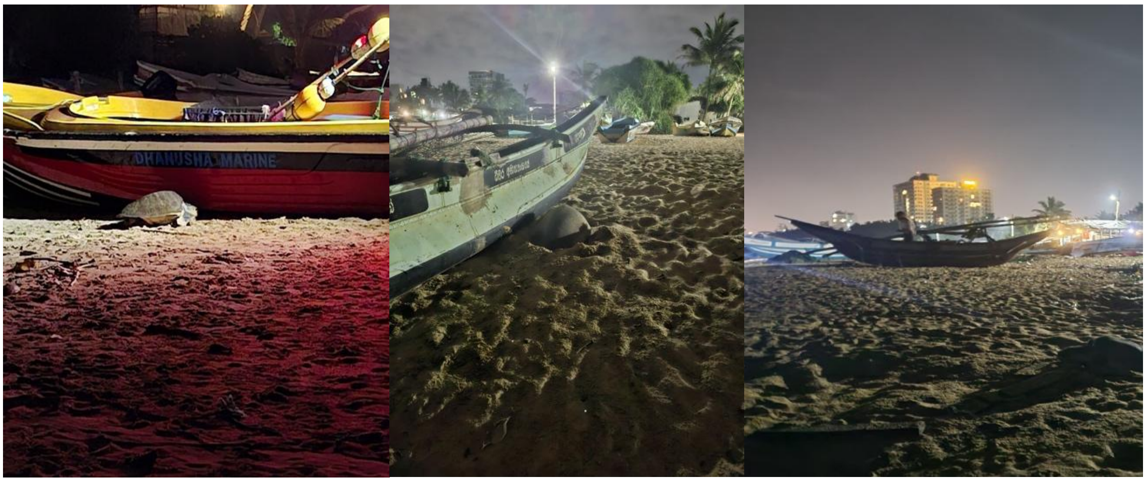

Figure 21- Boats in the fishing village disrupting the turtle nesting behavior

Dead hatchlings:

An instance was observed where approximately 20 dead hatchlings were found approximately 300 meters North of Gale Pansala. Puncture wounds on their heads were observed (Figure 20A), suggesting they were attacked by crabs. This incident has informed to the Wildlife Department and they have collected specimens for the Post mortem.

Figure 22 - Dead hatchlings

Dead sea turtles

Finding dead sea turtles on the beach is a concerning indicator of marine ecosystem distress. These deaths may result from entanglement in fishing gear, ingestion of plastic, boat strikes, or disease. Each discovery highlights the urgent need for stronger conservation efforts and pollution control to protect these vulnerable species and maintain ecological balance.

Figure 23 A dead and swollen sea turtle fund near "Gale Pansala"

Heavy coastal erosion:

We observed significant coastal erosion in several areas, which severely hinders sea turtle nesting. The eroded beaches create steep slopes and unstable ground, making it difficult for turtles to access suitable nesting sites. This not only disrupts their natural reproductive behavior but also threatens the survival of future generations, in some cases there are reports that turtle nests were reported closer to the tides due to the heavy erosion.

Figure 24: Heavy Erosion observed in the Dehiwala south beach

Deformed eggs

Deformed eggs in sea turtle nests were observed with irregular shapes, sizes, or structural abnormalities such as collapsed shells or multiple yolks. These deformities often result from environmental stress, contamination, or poor maternal health. Deformed eggs may fail to develop properly, reducing hatching success and posing a threat to overall reproductive success and population sustainability

Figure 25 - Deformed eggs

Highlights in pictures – Turtle Patrol

Figure 26: Initial volunteer training session

Figure 27: Warning sign installation at the beach

Figure 28: Handing over the signboard to the Sri Lanka Coast Guard

Figure 29: Awareness programs conducted for school students

Figure 30: Turtle Patrollers besides a nesting sea turtle

Figure 31: Sri Lanka Coast Guards ex-situ conserving sea turtle eggs at the Sri Lanka Coast Guard point.

Figure 32: Volunteers while patrolling

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