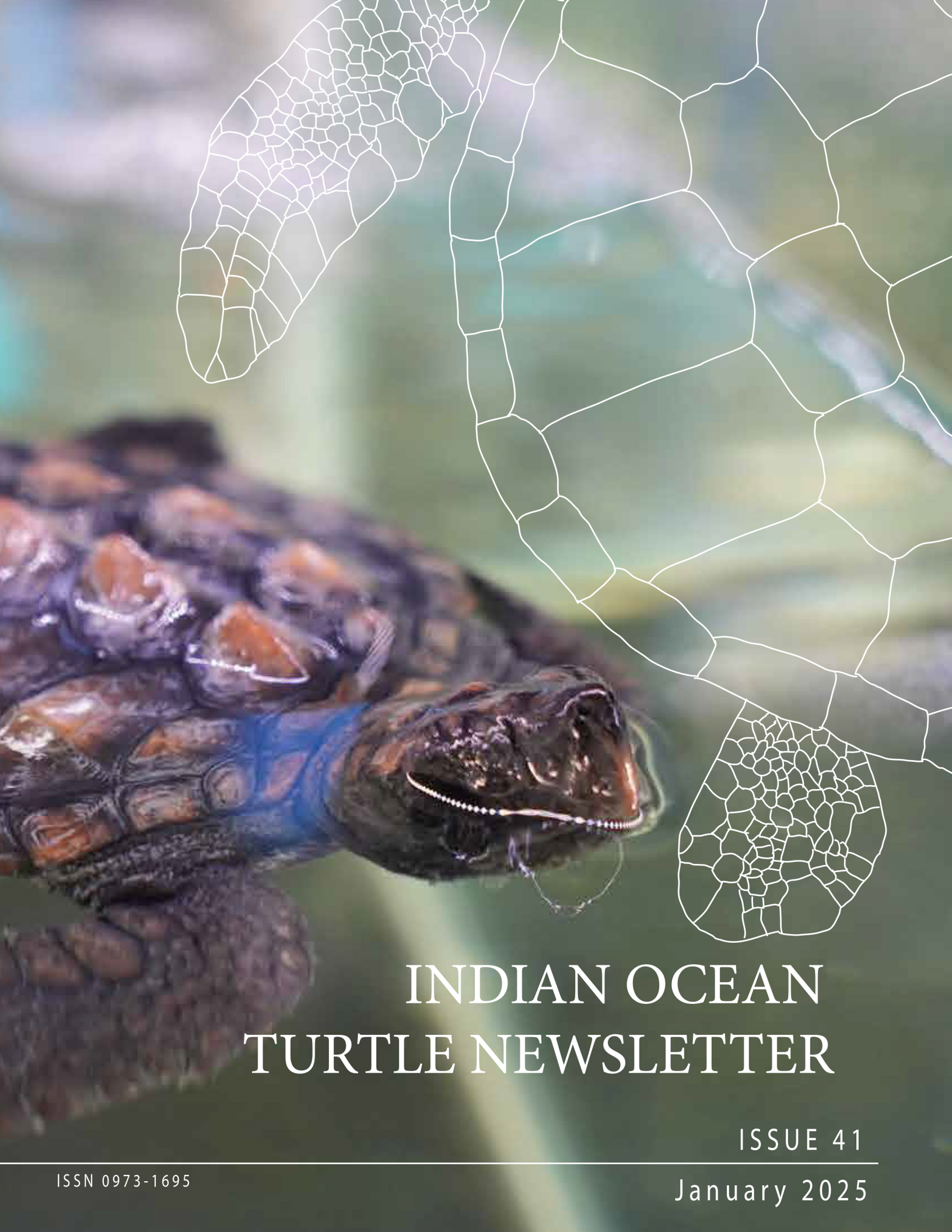

# INDIAN OCEAN TURTLE NEWSLETTER

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The Indian Ocean Turtle Newsletter was initiated to provide a forum for exchange of information on sea turtle biology and conservation, management and education and awareness activities in the Indian subcontinent, Indian Ocean region, and south/southeast Asia. The newsletter also intends to cover related aspects such as coastal zone management, fisheries and marine biology.

The newsletter is distributed free of cost to a network of government and non-government organisations and individuals in the region. All articles are also freely available in PDF and HTML formats on the website. Readers can submit names and addresses of individuals, NGOs, research institutions, schools and colleges, etc. for inclusion in the mailing list.

**This issue was produced with support from:**

**Cover photograph:** A post-hatchling loggerhead turtle at the Turtle Conservation Centre, Two Oceans Aquarium, South Africa
Photo Courtesy: Devin Trull

**IOTN is available online at www.iotn.org**

EDITORIAL

# EDITOR'S NOTE

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I am pleased to introduce this joint issue of IOTN and the MedTurtle Bulletin (MTB) which focuses on the rescue and rehabilitation of sea turtles. The co-ordinated special issue highlights work being carried out by rescue organisations and rehabilitation centres across both the Indian Ocean and Mediterranean regions, bringing our collective attention to the numbers of turtles being treated and the range of impacts they are experiencing, and to promote the huge potential that operating rescue and rehabilitation centres have for raising awareness about the biology and conservation of sea turtles and the marine environment.

With this objective, IOTN41 highlights practices during the crisis management of stranded loggerhead post-hatchlings in South Africa, analysis of two decades of rehabilitation data from Reunion Island, and rescue of turtles from ghost gear in Indian waters. In the absence of a stranding network in India, we also continue to present data about stranded turtles which can contribute to future understanding of causes of mortality and potentially inform the treatment of live, injured and/or bycatch turtles. IOTN readers are encouraged to also read the complementary issue of MTB which includes articles on the establishment and operation of rescue centres in the Mediterranean region, environmental enrichment for turtles under rehabilitation, experiences with turtles under rehabilitation, adaptation to life in the open sea of sea turtles released with flipper amputations.

IOTN41 also includes the President's Report for the 42nd Annual Symposium on Sea Turtle Biology and Conservation held in Pattaya, Thailand, in March 2024. A second report summarises the discussion and recommendations from the Decolonising Sea Turtle Conservation working group who met for the first time at the same symposium in Thailand. Further discussion on this topic is sure to occur at the upcoming 43rd International Sea Turtle Symposium in Accra, Ghana, in March 2025 (see announcement in IOTN40)

Finally, I would like to introduce the new co-editor of IOTN, Seh Ling Long from Malaysia. Please join me in welcoming Seh Ling to the IOTN team; she will be reaching out to many readers soon to encourage submissions for future issues.

## CALL FOR SUBMISSIONS

The Indian Ocean Turtle Newsletter was initiated to provide a forum for the exchange of information on sea turtle biology and conservation, management and education and awareness activities in the Indian subcontinent, Indian Ocean region, and south/southeast Asia. If you would like to submit a research article, project profile, note or announcement for Issue 42 of IOTN, please email material to iotn.editors@gmail.com before 31st March 2025. Guidelines for submission can be found on the last page of this newsletter or at http://www.iotn.org/submission/.

ARTICLES

# DISASTER MANAGEMENT DURING A MASS STRANDING OF LOGGERHEAD POST-HATCHLINGS ALONG THE SOUTHERN COAST OF SOUTH AFRICA

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South Africa is home to two species of nesting sea turtles, the leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) turtle. Nesting occurs along the northeastern coastline during early summer (October to December). After hatching, neonates are carried southward by the warm Agulhas Current. As this warm current slows and retroflects at the southern tip of Africa, it pushes eddies of warm water into the Atlantic Ocean and becomes more influenced by coastal winds. Young turtles at the mercy of the current are easily displaced by such winds, undergoing cold shock from the stark change in temperature (from 25°C to 12°C). With this cold shock, the onshore winds, and often injury, post-hatchling loggerhead turtles are routinely stranded along the southern coast of South Africa between March and June.

The Two Oceans Aquarium Foundation (TOAF), through its Turtle Conservation Centre (TCC), has been actively rehabilitating stranded sea turtles for the last 15 years. Situated at the southern tip of Africa, the TCC is strategically located to receive post-hatchling loggerhead turtles needing care. Over 1,300 sea turtles have been successfully rehabilitated and released through this programme.

In April 2024, unseasonably severe swell and onshore winds around the southern coast of South Africa resulted in the mass stranding of loggerhead post-hatchlings. Over just four days, more than 240 post-hatchlings were received at the TCC (Figure 1), making up a third of over 600 loggerhead post-hatchlings received during the 2024 stranding season (April to May). The unprecedented influx of turtles far exceeded the usual capacity of our rehabilitation facility, and therefore, crisis management was required. This article describes the actions taken in this crisis situation.

**Figure 1. A group of post-hatchling loggerhead turtles rescued off the beach and transported in cardboard box with towel. (Photo credit: Two Oceans Aquarium Foundation)**

## AN ACTIVE TURTLE RESCUE NETWORK

The Turtle Rescue Network, from Lamberts Bay to Gqeberha, was managed telephonically via WhatsApp by one contact person. They would alert the entire community to stranding hotspots and weather predictions and advise action in real-time stranding situations. Coastal community members were actively searching for stranded turtles, and through the Turtle Rescue Network, these turtles were transported to the TCC. This network grew from 800 to 2000 individuals

over the season.

## PHYSICAL CAPACITY

The TCC's existing capacity for 120 post-hatchlings required serious supplementation. With the assistance and support of the Two Oceans Aquarium workshop team, we were able to transform two operational areas of the Aquarium (the boat store and the roof of the *I&J Ocean Exhibit*) into housing for an additional 168 turtles (Figure 2). Ice-cream containers (20cm x 15cm and 8cm deep) in shared tanks were used to house weak individuals (Figure 3), increasing our capacity to almost 400 turtles.

Our national sea turtle rehabilitation partners, the South African Association of Marine Biological Research (SAAMBR) and BayWorld Oceanarium, supported the TCC by accepting turtles from our facility for continued rehabilitation and eventual release. Between April and October, SAAMBR accepted seven shipments from us, comprising 161 turtles for continued rehabilitation and 173 for release in total. BayWorld Oceanarium received one shipment of 40 turtles for continued rehabilitation. The pre-existing national communication structure for turtles was an incredible support and crucial to our ability to respond to this crisis.

**Figure 2. The boat house converted into a temporary turtle rehabilitation space, increasing capacity by 124 individuals. (Photo credit: Two Oceans Aquarium Foundation)**

**Figure 3. Post-hatchling loggerhead turtles being held at shallow water levels in ice-cream containers. (Photo credit: Two Oceans Aquarium Foundation)**

## HEALTH PARAMETERS

The initial arrivals of 2024 hatchlings were in good body condition and stronger than expected. As the stranding season progressed, the clinic started receiving weaker individuals who exhibited more typical stranding admission findings, such as predation wounds, emaciation, and signs of systemic disease.

Upon examination of physical and blood parameters, some interesting differences were found between the individuals of the 2024 stranding season and previous seasons. As part of our admission protocol, blood was collected for haematocrit and blood glucose readings from the subcarapacial sinus (0.05mL blood with a 0.3mL insulin syringe).

On average, this 2024 subset presented with higher haematocrit and blood glucose values than would have been expected based on previous stranding season data. Little published data exist with what is considered a normal haematocrit range in stranded loggerhead post-hatchlings. Most of the stranded individuals are classified as medically compromised, due to the presence of systemic disease or traumatic injuries. As a result, it is expected that admission blood parameters will differ from what is considered a normal range in healthy loggerhead hatchlings. Of the 333 hatchlings sampled (where a full data set was available), the number of turtles who presented with a haematocrit higher than 20.0% (range 5.0%-8.5%) was double that of the preceding years. Turtles with a haematocrit lower than 12.0% were injected with iron dextran (5mg/kg). Red blood cell values were monitored weekly, and iron dextran injections were repeated until they improved to a value higher than 15.0%.

In addition to the difference in haematocrit values, a shift in average admission blood glucose values were also observed. Most of the 2024 hatchlings presented with normo- or hyperglycaemia (range 0.7-12.6mmol/L), while data from previous years had more individuals identified with hypoglycaemia. It appeared as if hatchlings with higher haematocrits were also more likely to present with normo- or hyperglycaemia, although statistical analysis was not performed on the data.

We assume that many of the 2024 hatchlings were in a healthier and less compromised physical state when stranding occurred. We postulate that the unusually rough ocean conditions likely resulted in individuals washing up that would, under normal conditions, have been able to avoid stranding.

## MEDICAL APPROACH

Due to the high volume of turtles received, intensive critical care for the weak and sick hatchlings proved challenging. Triaging was key to managing all our patients. Turtles were triaged upon admission according to mental alertness, physical strength/weakness, respiratory capabilities, the presence of wounds, blood values (haematocrit and blood glucose), and body condition scores. Turtles were then colour-coded (red, yellow, or blue) and individually marked and housed accordingly. Triage data was also noted on intake data. The turtles would then, through veterinary discretion, be moved between triage levels depending on progress or deterioration.

*Red: Critical care*

These turtles were housed in the intensive care unit (ICU) or indoor quarantine areas. Upon admission, many of these individuals spent time in our ICU under near-constant watch until deemed stable enough to be placed in our quarantine unit. These patients were weighed daily and received relevant tube-feeding (Hill's a/d with fish oil) or hand-feeding (white mussel) multiple times per day. Based on energy and strength, these patients would receive supervised swims and shallow baths (2cm deep). Severely compromised individuals were housed in a veterinary incubator with heating, moisture, and supplemental oxygen. They also received intravenous or intracoelomic fluids (0.45% NaCl, with/without 2.5% glucose) and other relevant medications (antibiotics, pain relief, vitamin supplementation). Some individuals remained in such an ICU set-up for multiple days. Veterinary examination would occur twice weekly or as needed for weaker individuals in the ICU.

*Yellow: Stable, on treatment*

These turtles were housed in the indoor boat house, allowing ease of access for veterinary treatments. Turtles were weighed weekly and had food dropped (gel food or protein) into their tank twice daily. If less than 50% of food was consumed during drop feeds, the turtles would also receive supplementary tube feeds (Hill's a/d with fish oil). Individuals were housed in deeper water (30-40cm) and received weekly veterinary examinations.

*Blue: Stable, off treatment*

These turtles were housed outdoors. These turtles were weighed weekly and received drop feeds (gel food or protein) twice daily. If less than 50% of food was consumed, they would also receive supplementary tube feed (Hill's a/d with fish oil). Individuals were in deeper water and received weekly veterinary examinations.

## LEVERAGING A COMMUNITY

The power of sea turtles to inspire action and connect people was unmistakable during this time. Requests for volunteers and necessary items to house, feed, and treat turtles (ice-cream containers, consumables, equipment) were shared amongst our small existing volunteer group. The news spread quickly, and within days, we had received thousands of containers, months' worth of supplies, and hundreds of offers to volunteer. The Two Oceans Aquarium Foundation started a crowdfunding campaign to account for the many unplanned costs, and within just two months, 33,000 USD was raised.

## LEARNINGS

With a changing climate and increased community awareness, the team at the Turtle Conservation Centre expect to see more extreme stranding events like these in the future. This crisis was a catalyst for improved medical triaging and forced us to systemise our rehabilitation processes to a greater extent. We will now be more prepared when similar situations arise in the future.

We are reminded of the power of sea turtles to unite, engage, and galvanise a community, and we are committed to further nurturing our swiftly growing community of turtle rescuers, supporters, and volunteers.

# TWO DECADES OF REHABILITATION DATA REVEAL THREATS FACED BY SEA TURTLES IN REUNION ISLAND

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Sea turtles face a range of anthropogenic and natural pressures that threaten their survival globally (Wallace *et al.*, 2011). All seven species of sea turtles are listed on the International Union for Conservation of Nature Red List (IUCN, 2024) with habitat destruction, climate change, marine debris, bycatch, and diseases among the primary challenges (Bolten *et al.*, 2010; Donlan *et al.*, 2010). Since 2006, Kelonia, the Marine Turtles Observatory on Reunion Island, has led conservation efforts by integrating public education, scientific research, and rehabilitation.

Four of the five species inhabiting the southwest Indian Ocean - loggerhead (*Caretta caretta*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and olive ridley (*Lepidochelys olivacea*) turtles - are regularly admitted to the Kelonia Care Centre, where the primary goal is to rehabilitate sick or injured turtles for release back into the wild when and if their condition allows (Bluvias & Eckert, 2010; Feck & Hamman, 2013).

Between 1998 and 2023, Kelonia admitted 558 sea turtles, with annual admissions increasing from an average of 22 cases (1998–2019) to over 43 cases per year since 2020 (Figure 1). This rise is primarily attributed to Kelonia's recognition as a rehabilitation centre in 2009, extensive outreach initiatives, and consistent engagement of professional longline fishermen. Both live and deceased turtles are systematically transported to Kelonia.

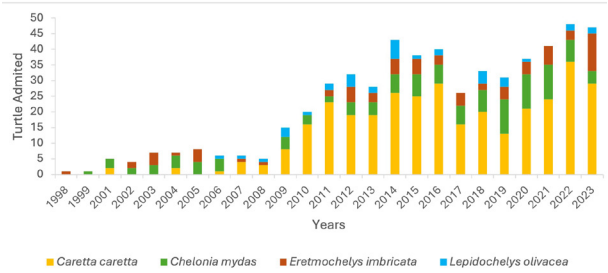


**Figure 1. Annual sea turtle admissions by species (n=558).**

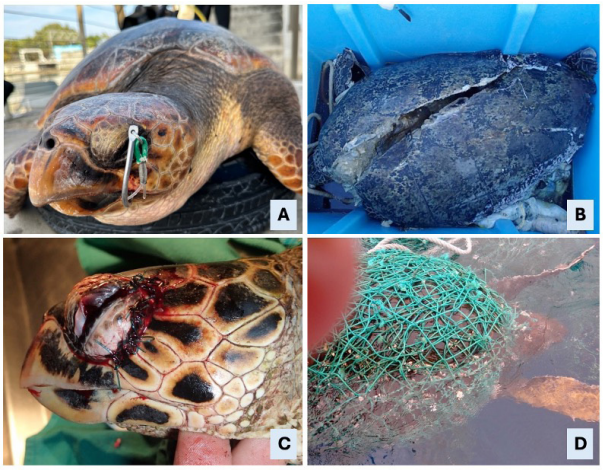


**Figure 2. Examples of injuries observed upon admissions. (A) Bycatch injury on a loggerhead with a hook embedded in the oral cavity; (B) A severe carapace fracture typical of foil strikes on a green turtle; (C) Head trauma observed following the removal of a harpoon that had pierced the eye of a hawksbill; (D) A loggerhead entangled in ghost fishing gear. (Photo credits: Mathieu Barret (A, B and C); Alain Bourrel (D))**

## REASONS FOR TURTLE ADMISSIONS AND SPECIES DISTRIBUTION

Admissions were classified into four main categories—hook ingestion, trauma, entanglement, and debilitation (Table 1; Figure 2)—based on a framework adapted from Orós *et al.* (2016). Data collection included biometrics, clinical examinations, advanced diagnostics (e.g., radiology, blood tests, bacteriology, parasitology, histopathology), and findings from necropsies.

Hook ingestion accounted for 398 cases (71.5%), predominantly resulting from bycatch in longline or traditional handline fishing. Loggerhead turtles represented 82% of these cases, followed by olive ridley (9%), green (5%), and hawksbill (4%) turtles. Radiographic examinations revealed that some hawksbill turtles had ingested multiple hooks, with up to three detected in a single individual.

Trauma, another significant cause of admissions, primarily resulted from vessel strikes, predation, and

**Table 1: Rehabilitation and overall survival rates by cause of admission and species during the period 1998-2023. Rehabilitation success and comprehensive survival rates below 50% are highlighted in bold on the figure.**

| Primary Cause of Admission | Details | Turtle | # Individuals | Admitted Alive In Care | Rehabilitation Success Rate (%) | Comprehensive Survival Rate (%) |
|---|---|---|---|---|---|---|
| Hook ingestion | Longline | Loggerhead | 326 | 307 | 80 | 75 |
| | | Green | 14 | 6 | 66 | **28** |
| | | Hawksbill | 2 | 2 | 100 | 100 |
| | | Olive ridley | 2 | 2 | **36** | **22** |
| Trauma | Traditional fishing | Green | 7 | 7 | 85 | 85 |
| | | Hawksbill | 14 | 11 | 63 | 50 |
| | Vessel strike | Green | 40 | 13 | **38** | **12** |
| | | Hawksbill | 6 | 0 | - | **0** |
| | Predation | Green | 6 | 2 | 100 | **33** |
| | | Hawksbill | 8 | 3 | 67 | **25** |
| Entanglement | Hunting | Loggerhead | 2 | 1 | **0** | **0** |
| | | Green | 3 | 2 | **0** | **0** |
| | | Hawksbill | 7 | 5 | **40** | **28** |
| | | Green | 22 | 14 | 78 | 50 |
| | | Hawksbill | 17 | 14 | 57 | **47** |
| Debilitation | | Loggerhead | 7 | 7 | **42** | **42** |
| | | Green | 16 | 11 | 54 | **37** |
| Unknown | | Hawksbill | 7 | 5 | **40** | **28** |
| | | Green, Hawksbill | 25 | 11 | 82 | **36** |

poaching. Green turtles were the most impacted by vessel strikes (40 cases). Collision frequency increased significantly since 2015, reaching an average of 6 cases per year, with injuries evolving from propeller marks to foil-induced cuts. Predation injuries (15 cases), included shark bites, also contributed to trauma admissions, with three requiring flipper amputations. Poaching, although rare (10 cases), involved harpoon injuries, with the latest incident recorded in 2022.

Entanglement in ghost fishing lines or nets affected 38 turtles, primarily green turtles, with some cases requiring amputations. Most injuries, however, were less severe. Thirty-two turtles were categorised as debilitated, showing symptoms such as poor body condition, cachexia, lethargy, algae overgrowth, and infectious disease confirmed by microbiological or histopathological analyses. These cases indicated underlying health issues, with no visible external injuries. Other causes of admission included oil pollution (3 cases) and 25 unexplained cases where no clear cause could be identified.

A final cause of admission can be attributed to the rescue of 208 hatchlings, referred to as live in nest, nest bottoms or stragglers, trapped in sand columns in nests due to

weakness, injuries, or deformities. Monitoring efforts are highly active due to reproductive challenges on Reunion Island, where sea turtle nesting activity remains critically low (Ciccione & Bourjea, 2006). Since 2004, only two green females have been documented nesting on the island (Lauret-Stepler *et al*., 2023). These cases were excluded from survival rate analyses due to their high specificity.

## CHARACTERISTICS OF RESCUED TURTLES

Among the 558 admitted turtles, 10.2% were stranded, 19.5% recovered at sea, and 70.3% brought in directly, primarily by fishermen. Notably, 20.8% were already deceased upon arrival. Mean curved carapace length (CCL) varied by species. Most individuals were juveniles, although adults were occasionally recorded (Table 2). Secondary conditions, such as buoyancy disorders, anorexia, and parasitic infections, were common, particularly in turtles found near the coastline. Plastic ingestion was particularly prevalent in loggerheads with a 70% occurrence rate (Hoarau *et al*., 2014; Thibault *et al*., 2023).

### Trends in rehabilitation and survival rates

The rehabilitation success rate, as defined by Baker *et al*. (2015), represents the proportion of turtles that either died in rehabilitation, were euthanised, were successfully released, or were permanently kept in captivity. To provide a broader perspective, a comprehensive survival rate was introduced, accounting for 116 turtles that died before admission. This metric offers deeper insight into the impact of specific threats on turtles in the coastal waters of Reunion.

### Disparities in rehabilitation and survival rates across threats

Average comprehensive survival rate (57%) is lower than rehabilitation success rate (71%) underscoring our limitations in addressing certain threats, emphasising the importance of timely intervention, proper handling of turtles before their arrival, and an effective rescue network. Outcomes vary significantly by threat type and species (Table 1).

Hook ingestion (longline) cases showed the best results, with loggerhead turtles achieving 80% success and hawksbill turtles 100%. However, olive ridley (36%) and green turtles (22%-28%) were particularly vulnerable. Vessel strikes, one of the most lethal threats, resulted in 0% survival for hawksbill and 12% for green turtles. Predation led to low survival rates, with 0% for loggerhead and 25%-33% for green and hawksbill turtles, often attributed to severe injuries or significant blood loss. Entanglement was less fatal but still challenging, with green turtles achieving 50% survival and hawksbill turtles 47%. Debilitation showed moderate rehabilitation success (40%-54%), but comprehensive survival rates remained low (28%-37%).

### Species-specific vulnerabilities

Hawksbill and loggerhead turtles demonstrated greater resilience, particularly in hook ingestion cases. though hawksbill turtles were vulnerable to vessel strikes and predation. Conversely, green turtles and olive ridleys were consistently more vulnerable. Green turtles have low survival rates for vessel strikes (12%), though they fare better in entanglement cases (50%). Olive ridley turtles

**Table 2. Characteristics of sea turtles admitted to Kelonia Care Centre between 1998 and 2023 (n=531), including morphometrics and maturity stages across four species. CCL: curved carapace length; SD: standard deviation.**

| Turtle | Biometrics | | Life stage | | |
|---|---|---|---|---|---|
| | Weight (kg) Mean±SD (Range) | CCL (cm) Mean±SD (Range) | Juvenile (n) | Sub-adult (n) | Adult (n) |
| Loggerhead (n=332) | 45.3±10.7 (0.8-76.2) | 70.0±7.4 (18.5-85.0) | 205 | 126 | 1 |
| Green (n=101) | 34.4±43.5 (0.3-170.0) | 58.4±24.0 (14.5-119.0) | 71 | 12 | 18 |
| Hawksbilll (n=63) | 12.6 ± 13.6 (2.6-74.9) | 45.9±11.9 (31.0-85.5) | 59 | - | 4 |
| Olive ridley (n=35) | 20.8±8.6 (5.5-41.3) | 56.5±8.1 (35.0-68.0) | 26 | 6 | 3 |

are also vulnerable, with only 22% survival in longline bycatch.

## REHABILITATION ACHIEVEMENTS AND AWARENESS EFFORTS

Veterinary care at rehabilitation facilities has become an increasingly integral aspect of sea turtle conservation, aiding outreach and education (Norton & Walsh, 2012). Since 1998, Kelonia has rehabilitated and released 316 turtles (71.5%) into the wild, while 119 (26.9%) have died during rehabilitation. Public releases, involving children and local communities, serve as educational opportunities. Seven turtles (1.6%) with severe impairments (e.g., missing flippers, blindness), remain in captivity, playing a key role in raising public awareness about the challenges faced by sea turtles (Feck & Hamann, 2013).

## KEY THREATS AND CONSERVATION RECOMMENDATIONS

Some threats severely limit survival, while others can be mitigated with early intervention. Vessel strikes (<15% survival) represent the most critical threat, underlying a critical issue: some injuries result in immediate mortality or are so severe that they prevent any possibility of rehabilitation. Preventive measures, including speed regulations in turtle habitats, are therefore crucial. Additionally, fishing-related threats also pose significant risks. Entanglement in ghost nets or fishing lines necessitates removal efforts and awareness campaigns involving fishermen. While bycatch remains the primary cause of turtle admissions, two decades of collaboration with fishermen have led to improved handling practices by longliners, which are considered crucial for mitigating sea turtle mortality (Parga, 2012). Lastly, although rare, cases of illegal take (1.7%) require continuous monitoring and enforcement.

Systematic data collection by care centres provides valuable complementary insights for research and conservation strategies. Thus, Kelonia collaborates with key stakeholders, including local authorities, scientists, fishermen, and the public, to implement various initiatives such as regulatory measures, long-term partnerships, habitat protection, citizen science, and public outreach. Together, these initiatives support a dynamic and adaptive approach to sea turtle conservation.

## CONCLUSION

The findings highlight the severe threats faced by sea turtles at Reunion Island, with vessel strikes emerging as the most lethal. Survival outcomes depend on the nature of the threat, rescue efficiency, and species-specific characteristics. While hook ingestion cases demonstrate the best outcomes with prompt care, debilitation and entanglement remain persistent challenges. A holistic conservation strategy integrating preventive measures, public awareness, and specialised care -data-driven approaches, skilled personnel, and sustained investment- is essential for mitigating threats, improving survival rates and ensuring the long-term preservation of sea turtle populations in the region.

## ACKNOWLEDGEMENTS

We are grateful to Réunion des Musées Régionaux for their funding support. We thank the Vetorun staff and the dedicated technicians at Kelonia's care centre for their invaluable efforts in the rehabilitation of injured sea turtles. Special thanks are given to the longline fishermen of the Reunion fleet for their active involvement in sea turtle conservation. The care centre operates under authorisations no. 09-1405/SG/DRCTCV and no. DEAL/SEB/UBIO/2019-13, both issued by the Reunion Island prefecture.

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Notes

# RESCUE OF TWO SEA TURTLES FROM ABANDONED, LOST, OR OTHERWISE DISCARDED FISHING GEAR DURING SURVEY OF THE SOUTHEAST COAST OF INDIA

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Abandoned, lost, or otherwise discarded fishing gear (ALDFG) poses a significant threat to marine wildlife, particularly endangering sea turtles, fish, and marine mammals worldwide (Macfadyen *et al.*, 2009; Wilcox *et al.*, 2013; Azevedo-Santos *et al.*, 2021; Gunasekaran *et al.*, 2024). Fishing gear is typically made of non-biodegradable materials like polyamide (PA), polyethylene terephthalate (PET), and high-density polyethylene (HDPE) (Gunasekaran *et al.*, 2024). Once lost or discarded, it can persist in the environment for years to decades (Battisti *et al.*, 2019; Gilman *et al.*, 2022; Thomas *et al.*, 2023) and result in "ghost fishing".

During a marine mammal survey cruise by the Central Marine Fisheries Research Institute (CMFRI) on 20th February 2024, three olive ridley turtles (*Lepidochelys olivacea*) were found entangled in ghost nets. Two turtles were entangled in one net and the third turtle in a different net. The entangled turtles were observed on the southeast coast of India, at the locations 11.9565° N, 80.0059° E and 12.2180° N, 80.1433° E (Figure 1). Two of the three entangled turtles were alive, and the third was dead. The water depth at both locations ranged from 30 to 40 metres, and the water temperature was between 30 and 32°C.

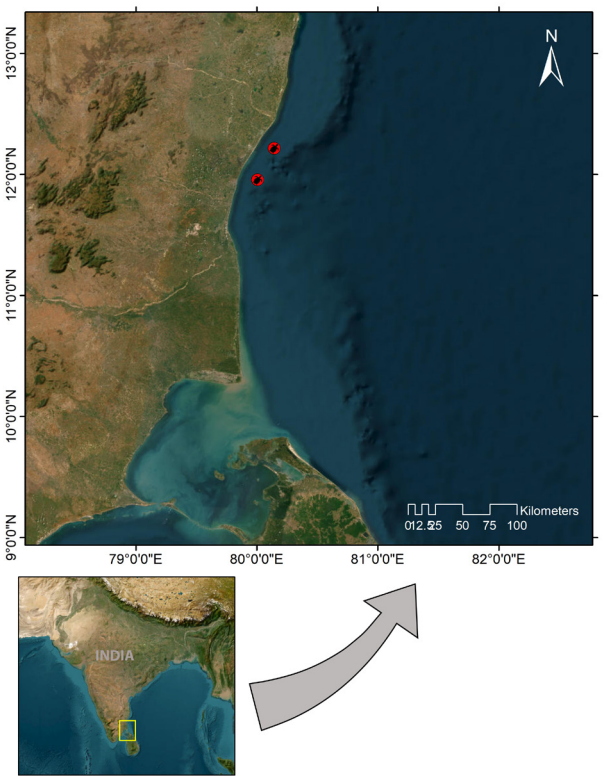


**Figure 1. The location of olive ridley turtles entangled in ALDFG off the Tamil Nadu coast of India.**

The first observation was of two turtles entangled in the same ALDFG, which included cans, bamboo poles, trays, broken buckets, and dead fish. Some plastic bottles were tied together in the ALDFG, potentially to function as a makeshift fish aggregating device (FAD) for cuttlefish. The vessel stopped close to the entangled turtles and two hook poles were used to hold the ALDFG on the starboard side of the vessel. The turtles and ALDFG were not brought onboard for further examination. Each turtle was entangled by the head, fore-flippers, and hind-flippers. The net was carefully cut with a knife to free the live turtle, while a second turtle entangled in the same net was found dead. The live turtle was released back into the water without further injury. The second observation was of a turtle entangled in what appeared to be a monofilament net with a white piece of thermocol (polystyrene), which acted as a float, preventing the live turtle from diving. The vessel crew used a knife attached to a pole to free the turtle.

Morphometric measurements of all turtles were taken using a flexible 1 metre measuring tape and the number of costal and vertebral scutes were counted (Table 1). The live turtles did not have any severe injuries or deep wounds. However, due to the tightening and rubbing of the net, the joints of the fore and hind flippers were

**Table 1. Morphometrics of olive ridley sea turtles entangled in ALDFG. CCL: curved carapace length; CCW: curved carapace width; L: left; R: right.**

| # | CCL (cm) | CCW (cm) | # Vertebral Scutes | # Costal Scutes (L/R) | Live/Dead |
|---|---|---|---|---|---|
| 1 | 60.2 | 63.4 | 7 | 8/8 | Live |
| 2 | 62.0 | 65.3 | 7 | 8/8 | Dead |
| 3 | 63.5 | 66.0 | 7 | 6/6 | Live |

**Figure 2. A floating mass of ALDFG and two (one live and one dead) olive ridley turtles. (Photo credit: Zainul Abid P.M.)**

**Figure 3. A live olive ridley turtle entangled in ALDFG and unable to dive. (Photo credit: Alvin Anto)**

reddened. The dead turtle had sharp bite marks on the fleshy areas. The live turtles were released, and actively swam from the vessel.

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# STRANDING OF A GREEN SEA TURTLE ON SASIHITLU BEACH, KARNATAKA, INDIA

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A sea turtle carcass was found stranded on 4th September 2024 at Sasihitlu Beach (13.066° N, 74.778° E) in Dakshina Kannada district on the southern coast of Karnataka, India (Figure 1). Measurements of the carapace, plastron, and tail were taken with a flexible one metre measuring tape following Bolten (1999). Based on morphometric data (Table 1) and internal examination during necropsy, the turtle was identified as an adult female (Figure 2).

The dead turtle was necropsied by the Forest Department, and the report indicated that the turtle's death resulted from fatal head trauma, potentially caused by a collision with a fishing vessel. Intensive near-shore fishing operations (predominantly trawling and purse seines) are common across the coasts of port cities Mangalore (Dakshina Kannada district) and Udupi (Udupi district) (Naik *et al*., 2015) and previous records of green sea turtle strandings along the Karwar city coast have implicated fishery-related activities as the primary cause of mortality (Naik *et al*., 2015; Pujar *et al*., 2022). This green sea turtle stranding represents one of the largest individuals recorded along this coastline and is the first report of stranding of the species from the Dakshina Kannada district in recent years.

The necropsy also revealed the presence of vitellogenic follicles, suggesting that the turtle was preparing to breed, with nesting sites for green turtles along this coastline or nearby islands proposed by Sharath (2002, 2006). Another dead adult female green sea turtle was documented on 25th March 2024 at Hoode Beach, Udupi (13.2345° N; 74.4149° E) (Shettigar, unpubl data). The

**Table 1. Morphometric data of a stranded adult green turtle at Sasihitlu Beach.**

| Morphometric | Measurement (cm) |
|---|---|
| Curved carapace length | 104 |
| Curved carapace width | 101 |
| Plastron length | 89 |
| Plastron Width | 81 |
| Total tail length | 20 |

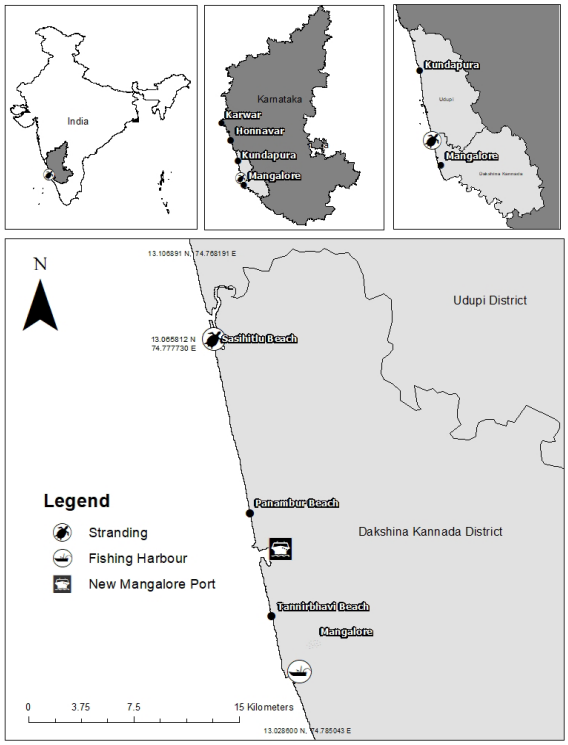


**Figure 1. Location of stranded adult green turtle at Sasihitlu Beach. (Map generated using ArcGIS 10.4)**

**Figure 2. Adult female green sea turtle stranded at Sasihitlu Beach, Dakshina Kannada. (Photo credit: Thejaswini Shettigar)**

necropsy report revealed trauma along with oviducal eggs, which further supports the possibility of nesting grounds off the southern coast of Karnataka. Green sea turtles have been occasionally observed offshore of the south Karnataka (Udupi and Dakshina Kannada districts) coast by fishers (Shettigar, unpubl data), yet no nesting sites have been recorded along these beaches and the potential occurrence of nesting requires beach surveys for verification. The presence of partially digested jellyfish in the gastrointestinal tract of the green turtle described in this note indicates jellyfish were a dietary item, as has been previously documented in adult green turtles (Stokes *et al*., 2019)

Between April 2023 and September 2024, 20 green, 52 olive ridley, and four hawksbill turtle strandings were recorded along the coast of Dakshina Kannada and Udupi districts (Shettigar, unpubl data). Historically, turtle strandings in the region often have been neglected or undocumented. This note demonstrates the value of examining stranded sea turtles to collect data about distribution, diet, and breeding status of foraging and potentially nesting turtles.

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REPORTS

# PRESIDENT'S REPORT FOR THE 42ND ANNUAL SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION, PATTAYA, THAILAND, 24TH-29TH MARCH, 2024

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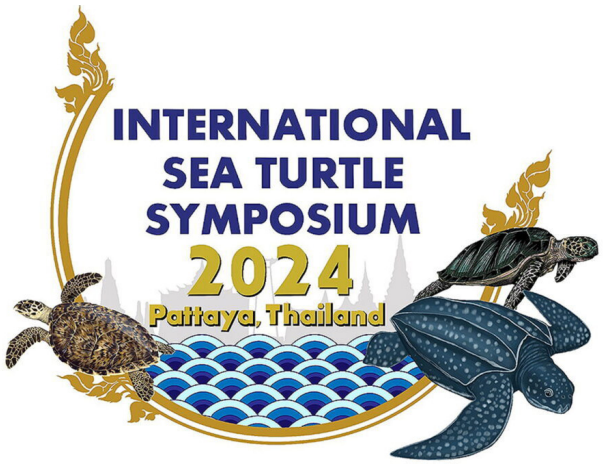


The 42nd International Sea Turtle Society Symposium (ISTS42) took place from 24th-29th March 2024 at Dusit Thani Hotel, in Pattaya, Thailand. Planning for the Symposium began in 2022 shortly after the election of Stephen Dunbar to the position of President-elect, with initial meetings between Dunbar and his Thai organising team, and the Mayor of Pattaya, Mr. Poramese Ngampiches and his team. With a welcoming spirit, Mayor Ngampiches encouraged the organising committee to pursue holding the ISTS in Pattaya and began to offer services and ongoing support for the Symposium. "It will be a great honour and pleasure to have the ISTS in Pattaya," Ngampiches said. It was decided early by the President and Thai Organising Committee that Pattaya would serve as an ideal host city due to its location on one of the largest beach areas in the country, as well as the many features on offer to visiting attendees to the Symposium. These include scores of international restaurants, street food stalls, craft markets, and opportunities to explore the many cultural treasures of the surrounding province. The city is an eclectic mix of cultural heritage, art, crafts, tradition, and exciting events. Additionally, it was the only coastal location with hotels large enough to host the international event, with more than 500 attendees expected to attend.

Over the ensuing 23 months after deciding the host city, a huge coalition of committee members and organizers pulled together to discuss ideas for the Symposium. These ideas included a wide range of workshops, regional meetings, and special sessions. For the 42nd ISTS, we also planned some new initiatives, including having three concurrent oral sessions, a student-only social event, and introducing an 'Origin Stories and Stories from the Field' special session. In total, the organising group was comprised of no less than 23 committees, with each working in concert with other committees to ensure plans avoided overlap, conflicts, and redundancies.

This was only the second time for the ISTS to be held in Southeast Asia, with the first being the 23rd ISTS Symposium presided over by Nicholas Pilcher in Kuala Lumpur, Malaysia in 2003. For the first time in the Society's history, the symposium was hosted in Thailand and more accessible to communities, researchers, government agencies, and students from the Southeast Asia and Indian Ocean regions. In order to facilitate a sense of integrating attendees from both the East

and West, as well as the Global North and South, the theme of the Symposium was "*All In – All Together; Inspiring the Next Generations of Global of Sea Turtle Conservationists*." This theme set the inclusive tone of the meetings, with the warm and welcoming staff of the Dusit Thani Pattaya Hotel, and the international inclusiveness of the city providing the perfect backdrop for all attendees to feel they were part of a truly historic and memorable ISTS gathering.

Of the 590 pre-symposium registrants, 558 attended the meeting (95%), representing 66 countries from around the world, with especially high attendance from the Asia and Southeast Asia regions, fulfilling one of the main purposes of holding the meetings in Thailand.

**Logo:** To commemorate the 42nd ISTS, the symposium logo was thoughtfully designed by Dr. Sirawich Srisiri (a member of the Thai Organising Committee for the Symposium) with input from President Dunbar, and the use of turtle images originally painted by Dawn Witherington. The logo incorporated elements of the Thai culture, including a city scape of historic cultural icons throughout Thailand, and the Thai art style of the traditional golden leaves, called Kranok. The Kranok is a classical, fundamental Thai pattern widely used for the ornamentation of Thai architecture and art. In the logo, the Kranok cradles a water body rendered in the distinctive Thai artistic style, along with the cityscape, and the three species of sea turtles (green, hawksbill, and leatherback) most commonly found in Thai waters, all symbolising Thailand's rich historic heritage connected to its waters. Overall, this logo demonstrates the harmonization of Thai tradition, culture, and arts, with the conservation of precious sea turtles.

**Symposium Website:** The website for the 42nd ISTS was expertly developed and managed by Dr Paul Whittock. This included the use of the general format developed for the 40th ISTS Symposium in which key tabs and links were already in place on the website. New tabs and pages were added to the ISTS42 website as desired, and Paul was also able to provide a map of countries represented by attendees for the Symposium. The integration of ConfTool also made changes to registration details, abstracts, payments, communications to specific attendees, and the Symposium program development much easier from a management perspective. ConfTool has also helped to automate several aspects of the development and organization of the Proceedings booklet for publication.

**Communications and Social Media:** From the start of the planning for the ISTS42, the Organising Committee was committed to providing regular and informative e-mails and social media posts to the ISTS Membership, the CTurtle listserve, and regional leaders' e-mail lists. Although social media posts were initially slow, the onboarding of Stephanie Molina to direct the Symposium social media campaign, along with assistance from Ingrid Yañez and Laura Prosdocimi greatly improved both the coordination and the output of the campaign, resulting in 164 total social media posts, increasing the number of followers in all Symposium social media platforms, reaching 5,200 for the ISTS Facebook account, 5,400 for the ISTS Symposium42 Facebook account, 1,803 for the ISTS Instagram account, and 614 for the ISTS Twitter account. Over the period from November 8, 2023 – March 20, 2024, engagements in Facebook increased 307%, while engagements through Instagram increased by a staggering 4,500%! Social media was a vitally important means of outreach and engagement to the sea turtle community, as many members who were unable to attend the Symposium were able to keep updated with the many ongoing activities of the meetings. Part of our city-wide awareness were several billboards arranged by the Mayor's Office, advertising the Symposium around the city. These were expertly designed by Stephanie Molina, as well.

**Travel Grants:** Between 2nd November 2023 and 1st December 2024, the Travel Grants Committee made up of nine regions received 144 travel grant applications to review. Travel grants provided lodging in shared accommodations for the entire duration of the Symposium. Out of 144 applications, 114 (79.2%) were approved, with 47 (41.2% of total) allocated to Asia, 19 (16.7%) to North America, 10 (8.8%) to Europe, 10 (8.8%) to Mexico and Central America, 10 (8.8%) to South America, 7 (6.1%) to Africa, 5 (4.4%) to Oceania and Polynesia, 3 (2.6%) to the Caribbean, and 3 (2.6%) to the Middle East and North Africa. We were especially pleased to see a large number of Asia constituent applications submitted, and the funding of a large number of these facilitated significant representation from the host region.

**Pre-, Post- Symposium Transportation:** As a result of the substantial investment of Pattaya City and the Thai Convention and Exhibition Bureau (TCEB) into the Symposium, they provided free shuttle buses that facilitated a safe, care-free way for attendees to easily transfer from Suvarnabhumi International Airport in Bangkok to the Dusit Thani Hotel in Pattaya without additional expense or having to organise transportation once reaching Thailand. Return transportation from the Hotel back to Bangkok Airport was also arranged for attendees who took advantage of signing up prior to the Symposium. The *ad hoc* Transportation Committee

was overwhelmed with the immediate responses of attendees when the initial sign-up lists were posted to the Symposium webpage and announced through social media. The positive responses required that we planned for additional busses, especially for the day prior to the start of pre-symposium workshops and regional meetings.

In consultation with the Pattaya City Mayor's office and the Thai Organising Committee, we were able to reschedule and rearrange busses so that essentially all attendees in need of transportation to and from the symposium were accommodated, despite some expected challenges in locating meeting spots within the arrival area of the airport. Nevertheless, this contribution by Pattaya City was greatly appreciated by all attendees who took advantage of the service.

**Volunteers:** The Volunteer Committee was directed by Drs Itzel Sifuentes and Adriana Cortes. On the first day of registration, the ISTS President addressed the Volunteers to thank them for their service and to acknowledge the enormous value of their contributions to the smooth running of the Symposium. The Volunteer team was comprised of 129 attendees, of whom 117 were Travel Grant recipients. Volunteers were called on to assist with room set-ups and changes, ensuring that presentations were uploaded, and attending to any situations that needed extra help. A unique and useful experiment at the 42nd ISTS was to have an 'on-call' group of Volunteers that were accessible by WhatsApp. Their willingness to deal with immediate situations was very helpful, and we again express our thankfulness to all the Volunteers who dedicated their personal time to assisting with the work of the Symposium.

**Pre-Symposium Workshops and Regional Meetings:** Attendees who arrived prior to the official start of the Symposium took part in workshops and regional meetings. All 14 workshops were facilitated on Sunday, March 24, and covered topics as varied as GIS, sea turtle rehabilitation and medicine, drones and turtles, photo-based citizen science, and a workshop organised by the Student Committee. Workshops provided a total of 72 hours of instruction and interactions, with a total number of 364 in attendance. Seven regional meetings were carried out on Monday, March 25, and included African, Indian Ocean and Southeast Asia, Latin American, and a special Thailand meeting, among others. These meetings provided a total of 36 hours of reporting, discussion, and planning time involving 350 registered participants. In all, both workshops and regional meetings were well organized, efficiently conducted, and highly successful.

**Opening Events:** For the ISTS42, the Student Committee, headed by Janie Reavis and Gabriela Arango, organised a special Student Mixer event. Students were provided time from 5:30pm – 6:30pm on Monday 25th March for a students-only opportunity to meet and greet each other without the presence of supervisors and other attendees. This was designed to facilitate opportunities for students to meet students as peers, and to have opportunities to relax and enjoy social connections among former friends, and to meet new student friends in a relaxed and purely social atmosphere.

At the completion of the Student Mixer, all other Symposium participants who had pre-purchased Opening Social tickets were then permitted to move into the open beach area where the first symposium-wide social event took place. During this special event, attendees enjoyed special Thai Traditional dances performed by the Pattaya local students dance group, an abundance of different food stalls, available drinks, and the Master of Ceremonies talents of Dr Jesse Senko. The event was originally planned for approximately 300 participants, although actual attendance well exceeded that number, reaching 412. This evening event was a fitting preparation for the much-anticipated Symposium Opening Ceremonies of Tuesday morning, 26th March.

The official start to the 42nd ISTS began when the International Sea Turtle Society President, Stephen Dunbar, and Thai Organizing Team met the special honoured guests at the entry of the Hotel. These guests included Mr Poramese Ngampiches, Mayor of Pattaya City; Mr Pinsak Surasawadee, Director General of the Department of Marine and Coastal Resources (DMCR); Mr Autthaphon Chatroenchansa, Director General of the Department of National Parks (DNP); the representative of Mr Bancha Sukkaew, Director General of the Department of Fisheries; Ms Preeyaporn Suwannakes, Director General of the Department of Pollution; Admiral Suwin Jaengyodsuk, Deputy Commander of the Royal Thai Navy; and very special guest, Mr Jatuporn Buruspat, Permanent Secretary of the Ministry of Natural Resources and the Environment, and Representative for Her Highness, Princess Sirivannavari. After a brief assembly and short introductions of the dignitaries in the hotel entryway, the Special Guests' Party filed into the Napalai Convention Hall to the cheering crowd of Symposium attendees. Official welcome speeches were given by Mayor Ngampiches and Permanent Secretary Jatuporn Buruspat, who each welcomed the attendees and placed the Symposium as a highlight of the sea turtle conservation efforts of the country. An ISTS President's award was presented by Stephen

Dunbar to the Permanent Secretary on behalf of the Princess Sirivannavari Thai Coral Reef and Marine Life Conservation Foundation, for the work of the foundation toward sea turtle conservation in Thailand and support of many of the national organizations attending the Symposium.

For the first time in Symposium history, a video entitled "International Sea Turtle Society – Who We Are" was premiered. The video was compiled by Michael Dunbar, and presented short clips of videos and photos from more than 40 organizations, projects, and communities that are part of the International Sea Turtle Society undertaking projects and programs around the world. The beautiful video (also available on the ISTS42 website at: https://www.ists42thailand.org/) received a hall-wide standing ovation. Finally, Dunbar addressed the entire assembly and encouraged all of those present to reach out to one another, providing support and a sense of community, especially to the young among the group, and those who will become the international conservation leaders and decision makers of the future.

Once finished, Dunbar invited representatives of each organizing committee on stage with all the dignitaries, to receive recognition from everyone in attendance for their tireless work in organizing the ISTS42, then together with Permanent Secretary Buruspat, led the President's Party through the poster hall, then to each of the hallway displays, and finally out to the entrance of the hotel.

Opening events concluded with excellent Plenary presentations by Dr Jeffrey Seminoff ("Reflections from a sea turtle lifer"), and Jarina Mohd Jani ("Sea turtle conservation in Southeast Asia: A tale of two beaches, and some of those in between"). These Plenary presentations fully set the stage for the remainder of the Symposium in providing a historical context to the growth of the Society, and also the importance of communities in sea turtle conservation in the Southeast Asia region.

**Oral and Poster Sessions:** During the ISTS42, we elected to run three concurrent oral sessions. This resulted in more opportunities for oral presentations, and the highest number of orals presented in sea turtle symposium history. After abstract submissions ended in November 2023, the Program Committee, led by Dr Kelly Stewart undertook the task of reviewing all 331 submissions. In the end, 328 abstracts were accepted, and the Symposium hosted 173 oral presentations and 155 poster presentations. Of these, 114 (combined orals and posters) were presented by students. Poster presentations were available for viewing for three full days, and Symposium attendees were able to interact with poster presenters at the "Meet the Authors" sessions from 4:30pm – 5:30pm, providing time for viewers to ask questions and discuss the presentations.

**Video Night:** Once again, the Symposium Video Night was another successful opportunity for projects and organisations to present their work in a unique way. The Video Night was advertised and organized by Dr Seh Ling Long and her team. Twenty-nine videos were received from various countries and organizations, such as Bahari Hai Conservation, City University of Hong Kong, Flora & Fauna International Cambodia, Lampedusa Turtle Rescue, Marine Conservation and Research Organization Malaysia (PULIHARA), Sri Lankan Turtle Conservation Project, State University of Papua (UNIPA), WWF, and several others.

Videos were screened from 8:00pm – 11:00pm on Tuesday night, 26th March and ranged in purpose and presentation style, promoting conservation efforts, showcasing volunteer programs, highlighting scientific research, celebrating individual contributions, and raising awareness about the threats faced by sea turtles and their habitats. Some videos used engaging narratives and local cultural ties to conservation, while others focused on scientific data, volunteer training, and research techniques. Each one provided the audience with opportunities to see different perspectives on sea turtle conservation programs around the world.

**Trading Post:** Once again, the Trading Post raffle program, overseen by Dr Kate Mansfield, was highly successful. This one-time event provides an opportunity for researchers and organizations to donate unused, functional equipment and supplies, to be raffled off to students and organizations who may not have the opportunities or means to purchase these types of supplies first-hand. At ISTS42, individuals were provided raffle tickets, and met at the Trading Post table from 5:30pm – 6:30pm on Thursday 28th March. As in prior years, the event was highly successful with students, community organizations, and NGOs who were interested in obtaining used, but useful equipment and project materials, from tag applicators to satellite transmitters. This mechanism for the distribution of equipment and materials to student and community projects is an invaluable way to 'recycle' supplies from prior projects and laboratories, and represents one way the sea turtle community continues to support students, projects, and communities that may not be able to purchase these kinds of materials.

**Silent and Live Auctions:** Our Silent Auction was facilitated by veteran host, Dr Marina Zucchini who expertly arranged the auction items in the hotel meeting

room specifically reserved for this purpose. Symposium attendees were able to view the items and write down their bids for two full days, then see if they won their items at the closing of the Silent Auction on Wednesday 27th March. Later that same evening, our host for the Live Auction, expert auctioneer Dr Rod Mast, assisted by Dr Adriana Cortes conducted a fun-filled evening of games, challenges, the election of the Symposium King and Queen, and the infamous jail fundraiser. Thanks to the tireless efforts of the entire Auction Committee, the silent and live auctions raised more than US$23,000 to fund travel grants for the 2025 ISTS Symposium, and did so in a way that highlighted the joy of being part of the global ISTS family.

**Student Committee Activities:** At the ISTS42, the Student Committee completed its 12th year of activities dedicated to welcoming and encouraging student attendees. This year, the Student Committee, expertly led by Janie Reavis and B. Gabriela Arango, organised four core activities for student attendees: a Student Workshop ("Career Paths in Sea Turtle Conservation") attended by 27 students; student presentation feedback; speed-chatting with experts, in which 35 students participated; and a student mixer in which there were games, music, and socialising opportunities. This event was held outdoors and just prior to the general Opening Social. The Committee received very positive feedback from students who were engaged in student activities during the Symposium.

**Closing Banquet and Awards Ceremony:** The ISTS42 closing banquet was a special event hosted by Dr Dave Owens, who recalled humorous experiences of his many years in sea turtle conservation and research work. At the banquet, long-time sea turtle research and conservation leaders, Dr Kellie Pendoley and Dr Anders Rhodin were honoured with Lifetime Achievement awards, while Scott Eanes and Turtle Watch Egypt 2.0 each took home Champions Awards. The Ed Drane Volunteerism Award was presented to Laura Bruce for her role as a dedicated volunteer with the Loggerhead Marinelife Center in Florida. Grassroots Conservation Awards were presented to Campamento Tortuguero Ayotlcalli A.C. and Warriors of the Rainbow for their important roles in sea turtle conservation through educating future leaders and decision-makers. Finally, Dunbar presented nine President's Awards to individuals who especially contributed to the organisation of this year's Symposium.

A panel of judges evaluated student oral and poster presentations nominated for the Archie Carr Student Awards. The seven students awarded for their outstanding presentations were: Tiffany Dawson, Megumi Kawai, Emily Turla, and Taylor Brunson in the Biology category; and Gustavo Stahelin, Anna Ortega, and Cindy Vargas in the Conservation category.

Attendees enjoyed traditional Thai music and dancing from a professional dance group, while feasting from a buffet banquet that exceeded the daily bounty provided by the Dusit Thani Hotel Chefs and Kitchen staff.

**Symposium Images and Videos:** Symposium images and video were captured by Michael Dunbar, Hamed Mallat, and Stephanie Molina. Video shorts and images were presented at the start of sessions throughout the days of the Symposium, and a folder of images has been made available to be viewed and downloaded at: https://drive.google.com/drive/folders/1_3tEyM3iq7A_l8RyF29noQCOBkomQH4x?usp=sharing. Attendees especially appreciated the "Memorial" and "Who We Are" videos produced by Michael and Stephen Dunbar, and the "Closing Remarks" video produced by Michael Dunbar. These videos are available to view at: https://www.ists42thailand.org/

**Closing Ceremony:** At the closing ceremony, ISTS President Dunbar introduced the Keynote Speaker, Dr Kartik Shanker, who presented a thought-provoking, encouraging, and humorous overview of the global approach to sea turtle conservation entitled, "The brighter horizon: balancing human needs and ecosystem health in marine conservation". Shanker's address challenged us all to beware of our own prejudices and how these biases can impact our attitudes toward indigenous knowledge and approaches to the science and work of conservation.

At the completion of the final Keynote address, Dunbar addressed the attendees with a message that reviewed the Symposium week, emphasising,

> ***"The challenges before us have never been so great as they are now, and those challenges are certain to increase in the near future. Still, we can meet the future with hope. Hope that our efforts can and will make a difference, not only for the creatures we study and work to conserve, but for the marine habitats, and the coastal community members who rely on those habitats for their daily existence. These efforts are less about saving the world, and more about recognizing that we, all of us, are a community of people who are seeking to care for the people around us, and for the creatures who share the planet with us."***

He concluded his closing remarks with the encouraging

thoughts,

> "*My hope is that as we close this 42nd ISTS, that we've all been inspired to inspire others, not just others from this sea turtle community, but all those around us; to take courage, to move forward in faith that our efforts are making a difference. To be courageous enough to continue the work of sea turtle research, conservation, community outreach and education, and influencing policies that will better the lives of sea turtles and people around the world. Only now, I hope that part of those efforts will be to support each other, hug each other, and love each other more than we have before. Because that's what turtle people do! This is who we are!*"

As attendees applauded in a standing ovation, Dunbar could be heard saying to the crowd, "*I love you guys*!"

**ISTS Business Meeting:** The business meeting began after the formal addresses of the closing ceremony, and reviewed Society business for the 2023 – 2024 year. Essentially all business-related items, including the Treasurer's, Secretary's, Awards Committee, Travel Grant Committee, and Student Awards reports were adopted by Society members without extensive discussion. However, the proposal for the restructuring of the Society's administration initiated much discussion among the members present, with members being reassured that the proposal for restructuring was in the discussion phase with a request for members to provide their feedback on the proposal over the coming year. The Nominations Committee Chair presented the 2024 Elections results: Alexander Gaos was elected President-Elect; Seh Ling Long and Richard Reina were elected to the Board of Directors; Connie Ka Yan and Kellie Pendoley were elected Nominations Committee members; and Ryan Welsh, Rod Mast, Earl Possardt, and Jacques Fretey were elected Awards Committee members. The business meeting was adjourned within the scheduled meeting timeframe.

**Presidential Handover:** The transition of the Presidency occurred at the conclusion of the Closing Ceremony with the exchange of gifts from outgoing President, Stephen Dunbar, to incoming President, Andrews 'Andy' Agyekumhene. Dunbar presented Agyekumhene with some traditional representations of Thailand, while Agyekumhene presented Dunbar with a traditional Ghanaian Chief's coat. After the exchange, Dr Agyekumhene provided a preview of the ISTS43 meetings to be held in Accra, Ghana in March 2025.

**Hotel Hospitality:** Our organising teams worked closely on a regular basis with Dusit Thani Hotel in Pattaya. This included detailed planning sessions for room block arrangements, workshop and regional meeting rooms and media assistance, poster and vendor rooms, session rooms, meals, coffee breaks, and both main social events. As many details as possible were worked out well ahead of the Symposium, although plans required updating and finalizing for some aspects of the Symposium up to the week of the start of the meetings. This included meeting room changes, special dietary meal preparations and delivery, adjusting social event numbers, and the move of the Opening Social from the original venue (due to a rapid increase in attendance numbers during ISTS registration, beyond the capacity of the original venue) to the grounds of the Dusit Thani Hotel. In all of these and other on-the-ground adjustments, the management and staff of the hotel provided excellent service for the ISTS meetings in accommodating all our organizational and attendee needs.

The hotel itself was situated in a beautiful setting on Pattaya Beach, where attendees were able to walk the beach, swim in any of the hotel's three pools, or enjoy the warm ocean waters just a few meters from the hotel grounds. Inside the hotel, rooms were nicely decorated in touches of traditional Thai style, and were comfortable for single, double, or triple occupancy.

Perhaps the service for which we received the most comments was the incredible food that was available to attendees for breakfast and lunch, with a full buffet that included plenty of options for main courses and desserts for all dietary needs. Additionally, the hotel provided food and beverages for both morning and afternoon coffee breaks that showcased many traditional Thai delicacies, introducing attendees to new and delightful flavours and tastes.

Overall, the 42nd International Sea Turtle Society Symposium was a huge success that reminded everyone who attended, that if we are to be effective at the global conservation of sea turtles and the habitats they rely on, we must continue to work in intimate collaboration with coastal communities, and be committed to being 'all in – all together!'

**Acknowledgments**

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Finally, the President would like to thank the following Donors and Sponsors to the 42nd Annual International Sea Turtle Society Symposium: National Oceanic and Atmospheric Administration, 5 Oceans, PeerJ Open Advances in Marine Biology Publishing, National Save the Sea Turtle Foundation, Sea Turtle Conservancy, International Seafood Sustainability Foundation, WWF Netherlands, City of Pattaya, Chonburi, Loma Linda University, Frontiers in Marine Science Publishing, Save our Seas Foundation, Wildlife Computers, Department of Earth and Biological Sciences of Loma Linda University, Turtle Foundation, AZA Sea Turtle SAFE Program, Coastal Wildlife Club, The Leatherback Trust, Telonics, New England BioLabs Inc, Lotek, Ronald and Kathleen Carter, Upwell Turtles, Ecological Associates, Inc., California Turtle & Tortoise Club - Inland Empire Chapter, Inwater Research Group, Protective Turtle Ecology Center for Training, Outreach, and Research, Inc., Thailand Convention and Exhibition Bureau, Veterinary Medical Aquatic Animal Research Center, Veterinary Medical Aquatic Animal Research Center of Excellence, Chulalongkorn University, Earth Agenda Foundation, and the Princess Sirivannavari Thai Coral Reef and Marine Life Conservation Foundation. Thank you all for your hard work and contributions in making ISTS42 an amazing success. This is Contribution No. 46 of the Marine Research Group (LLU), and Contribution No. 24 of ProTECTOR, Inc.

# REPORT FROM THE DECOLONISING SEA TURTLE CONSERVATION: *WALKING THE TALK* WORKSHOP AT THE 42ND INTERNATIONAL SEA TURTLE SYMPOSIUM, PATTAYA, THAILAND

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***Disclaimer*** In this workshop report, we use the terms "Global North" and "Global South" to discuss issues related to global inequality in sea turtle research and conservation. We have chosen these terms for specific reasons:

***Avoiding Economic Labels*** We avoid terms like "high income," "low income," and "developed" or "undeveloped," as these terms often overlook the historical and structural reasons behind countries' current status, including the impact of colonialism.

***Understanding Privilege*** We recognize that "privilege" can have different interpretations, and there is still debate on its usage within our group – some argue that privilege is conferred by colonial powers while others see it as a result of colonial history where countries that have managed to rise from less privileged circumstances have done so despite systemic challenges. The term "more privileged" in this context denotes countries that have historically benefited from global systems and structures, often at the expense of others. The term "less privileged" is used for countries that have faced challenges due to these same systems.

***Global North and Global South Usage*** The term 'Global North' refers to the countries in the Northern Hemisphere, most of which participated in the colonisation of countries in the 'Global South,' which refers to countries in the Southern Hemisphere, many of which have been colonised (Patrick & Huggins, 2023). There continues to be global debate about these terms as they originated in the 1970s and are not a consistent geographic reflection of colonisation (Patrick & Huggins, 2023). However, they are used in this context for their simplicity in reflecting colonisation and their recognition as widely used terms.

We acknowledge that these terms may not adequately capture the complexities of global inequalities but use them to frame the discussion in a way that emphasizes historical context and systemic issues.

On 24th March 2024, the first International Sea Turtle Society Symposium (hereafter Symposium) workshop on the decolonisation of conservation was held at the 42nd International Sea Turtle Society Symposium (ISTS Symposium42) in Pattaya, Thailand. This session discussed two recent SWOT Report articles identifying how we participate in colonial conservation and parachute science as individuals and as a sea turtle society (Shanker *et al*., 2022, 2023). In doing so, workshop participants took time to identify their roles, express their observations, experiences, perspectives, concerns, confusions, and frustrations, and brainstorm ideas of how they would like to see the International Sea Turtle Society (hereafter Society) address these issues. What follows is an account of this meeting, including recommendations for actions that could be taken to begin addressing some of the issues raised.

## WHAT DOES THE COLONISATION OF SEA TURTLE CONSERVATION REFER TO?

Within the history of sea turtle conservation, most of our own work and that of the experts we idealize reflect a theme of colonialism in which primarily English-speaking researchers from the Global North travel to remote areas in the Global South to tell local communities how to live and manage/interact with their natural resources (Rudd *et al.*, 2021). These efforts to "educate and train" local populations, though often well-intentioned with respect to ecological goals, frequently overlook the local sociocultural values and economic needs (Brockington *et al.*, 2006; Campbell, 2007; Armitage *et al.*, 2020; Bennett *et al.*, 2021). Unfortunately, but not surprisingly, the sea turtle community is no exception, as we find sea turtle people following the same global migration routes and methods forged by centuries of colonialism (Shanker *et al.*, 2023) in this case, to exploit intangible resources such as knowledge and culture. Importantly, this form of colonisation is not limited to foreign scientists in local communities but also within local communities of different regions.

Often, researchers and conservationists from the Global South are not well-connected to the network of counterparts around the globe and are, therefore, overlooked and undervalued. Possibly, this is due to language barriers, with English being the predominant language used for scientific publication, communication, and collaboration (Dahdouh-Guebas *et al.,* 2003). However, this also stems from glorifying the prestige of the Global North and the Western-centric convention of how research and conservation 'should be done.' As such, conservationists of any background should be more aware of the difference between sharing versus imposing their ecological and social ideologies on local and indigenous cultures and be careful not to heroise researchers from the Global North or their methods to avoid further colonisation within regions.

## HOW HAS THE INTERNATIONAL SEA TURTLE SOCIETY COLONISED SEA TURTLE CONSERVATION?

The Society has been a registered non-profit organization since 1996. Its roots are regional sea turtle conferences held under various names since 1981, aimed at bringing together volunteers and researchers from the southeast of the United States. Therefore, meetings were held predominantly in the southeast United States of America until 1998 (the 18th International Sea Turtle Symposium) when the scope of meetings expanded from regional workshops to international conferences (Figure 1a; International Sea Turtle Society, 2024a). Since then, the Society has come a long way, from a few local attendees to now welcoming a diverse range of participants, including researchers, conservationists, and students. In fact, the virtual format of ISTS Symposium40 in 2022, necessitated by the COVID-19 pandemic, boasted one

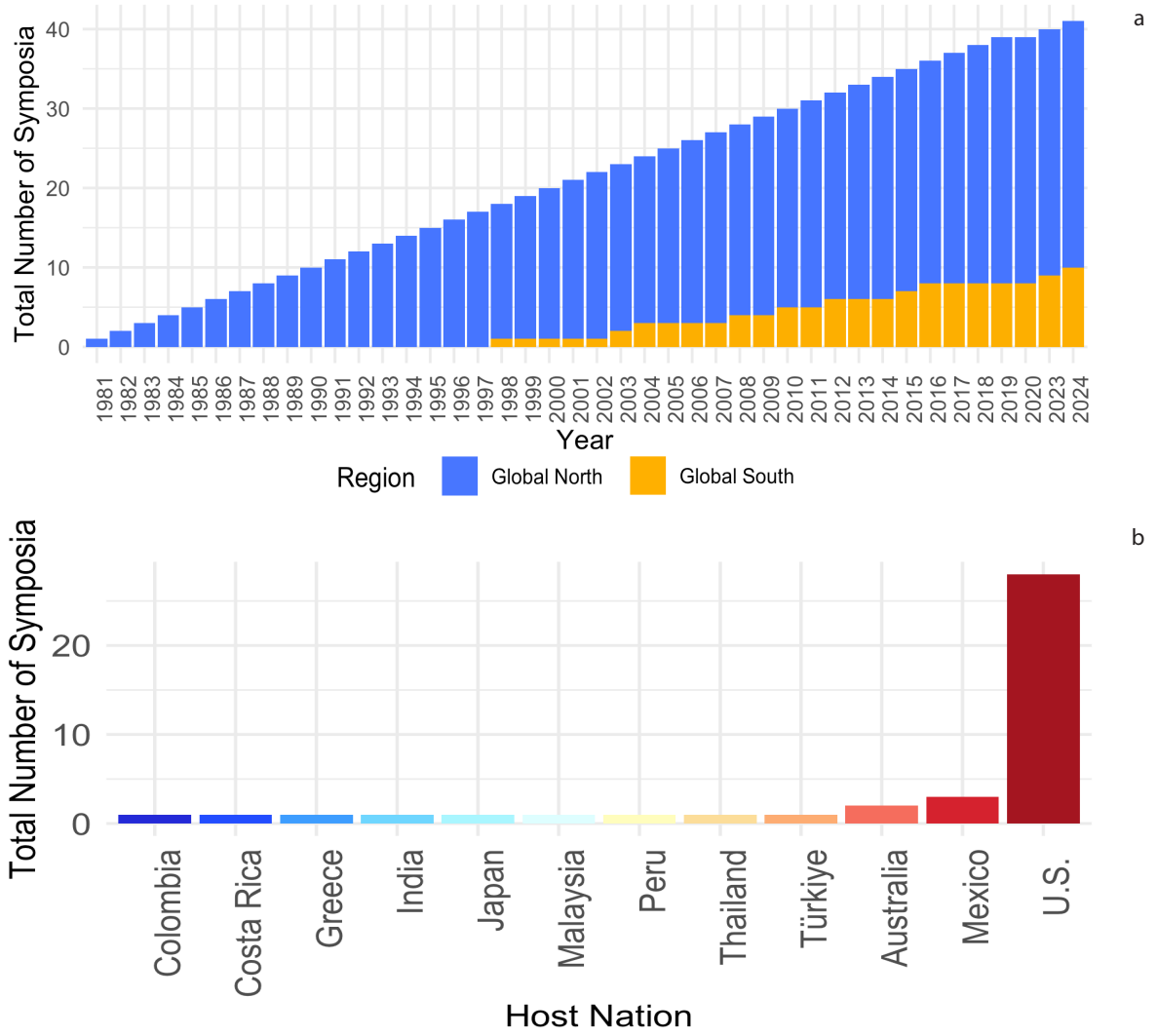


**Figure 1. International sea turtle symposia (1981-present) by a) global region and b) host nation (International Sea Turtle Society, 2024a). The Global North category is Europe (apart from Türkiye), North America, Japan, and Australia (UN Trade and Development, 2023). The Global South category is Türkiye, South Africa, Colombia, Costa Rica, India, Malaysia, Peru, Thailand, and Mexico (UN Trade and Development, 2023; UNESCO Organization for Women in Science for the Developing World, 2024).**

of the widest geographic range of attendees, attracting individuals from over eighty countries (Pendoley, 2022). In doing so this Symposium also highlighted ongoing issues related to global representation.

Though the Society was created officially in its current nonprofit status in 1996, its history shows a predominance of Symposia host nations and honourees from the Global North, with growing participation from the Global South in recent decades (Figure 1; International Sea Turtle Society, 2024a). The imbalance is further evident in participants' geographic and professional backgrounds, the distribution of awards (e.g., the Lifetime Achievement Award has been awarded to someone from the Global North 84% (n=38) of the time), and the locations of symposia events, which have frequently favoured individuals from and countries in the Global North (14 symposia or 58% (n=24) since 1998; cumulatively 31 symposia or 73% (n=42)) (Figure 2; Shanker *et al.*, 2023; Past Proceedings – International Sea Turtle Society 2024). In fact, the only award of which all recipients have been from the Global South is the Grassroots Awards (International Sea Turtle Society, 2024b).

Another important indicator of global differences is the ISTS Student Awards, which have been given for the best talks and posters since 1990. Student Awards are a highlight of the event with many students vying

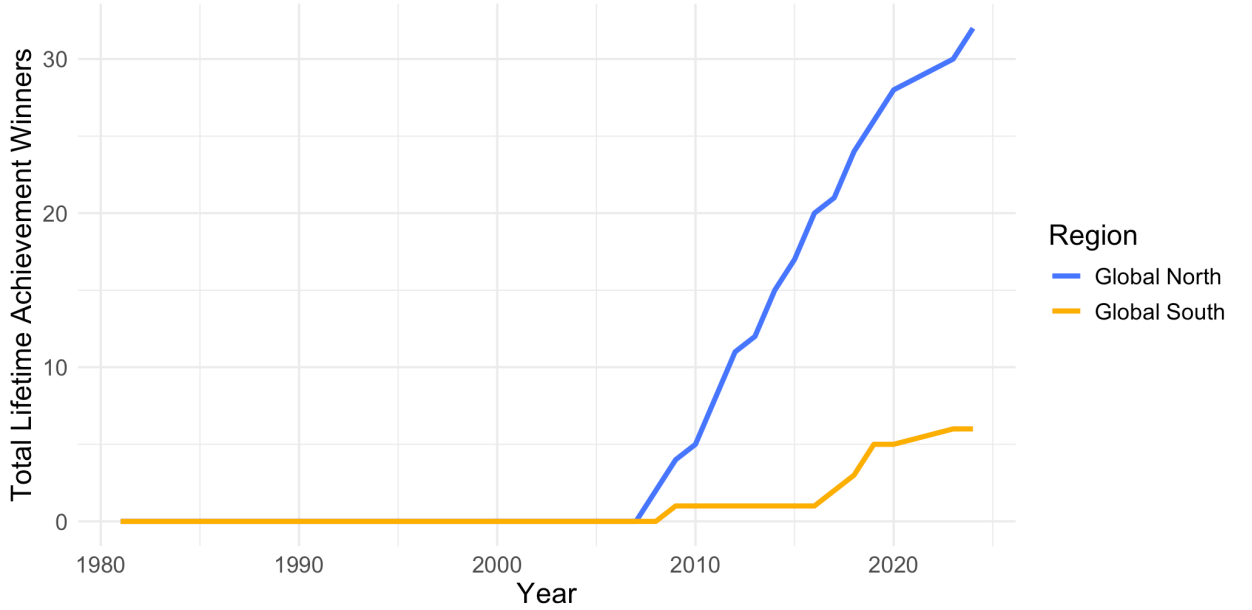


**Figure 2. Cumulative ISTS Lifetime Achievement Award winners by global region (International Sea Turtle Society, 2024b). The Global North category is Europe (apart from Türkiye), North America, Japan, and Australia (UN Trade and Development, 2023). The Global South category is Türkiye, South Africa, Colombia, Costa Rica, India, Malaysia, Peru, Thailand, and Mexico (UN Trade and Development, 2023; UNESCO Organization for Women in Science for the Developing World, 2024).**

for this distinction and a dozen or more judges giving considerable time to evaluating the presentations and posters. Without a doubt, this plays a great role in incentivizing and inspiring the next generation of sea turtle biologists and conservationists. However, as a result of epistemic differences in what is considered 'good science' and likely asymmetries in regional representation, material resources, and training available, a vast majority of these awards have also gone to students from North America 89.8% (mainly the United States). Only 10.2% (21 of 205) of student winners were from an institution in the Global South (International Sea Turtle Society, 2024b).

We suggest these disparities are indicative of the larger issue of unequal access and influence within the field of sea turtle conservation, often described as a form of "colonization" and there is a pressing need for the Society to ensure a more equitable global representation in future symposia.

## HOW DOES THE INTERNATIONAL SEA TURTLE SOCIETY DECOLONISE SEA TURTLE CONSERVATION?

As a collective sea turtle society, we should learn from the mistakes of the past to move forward, as ultimately, the responsibility of reforming how we collaborate and communicate conservation should be equally shared by all identities in the Global North and Global South (Dahdouh-Guebas *et al.*, 2003).

We outline a few ways in how this can be achieved through:

1. Recognizing that local communities are the guardians of their ecosystems.
2. Listening respectfully to local community members about their ancestral knowledge and cultural practices within the ecosystems we seek to conserve. As Western-trained researchers, we can learn more from communities besides gathering data for statistical analysis.
3. Recognising non-English speaking researchers/ conservationists and ensuring their work is shared in global forums.
4. Adapting and integrating commonly accepted scientific techniques to be compatible with local cultural practices.
5. Recognising that all forms of use, including consumption, deserve meaningful consideration and that sustainable management decisions can be guided through a collaborative integration of Indigenous community knowledge and scientific research.

## WHAT HAS THE INTERNATIONAL SEA TURTLE

## SOCIETY DONE SO FAR TO ENCOURAGE DECOLONISATION?

1. In 1998, the Symposium was hosted at its first international location in Mazatlán, Mexico. Since 2003, the Symposium has been regularly hosted at international locations including Global South venues (Figure 1; International Sea Turtle Society, 2024a). Therefore, of 24 symposia since 1998, 14 have been hosted in Global North countries – 10 of which occurred in the southeast United States – and 10 have been hosted in Global South countries.

2. The ISTS travel grants started around 1985 through the vision of Karen Eckert, Scott Eckert, and Tony Tucker, with support from Jim Richardson, to increase the participation of students and individuals who are from an underrepresented region and face financial barriers. This long-standing grant is a shining example of prioritising diverse background within our community.

3. The Symposium Grassroots Award was created in 2011 to recognise participation and contributions by Indigenous and local community members (International Sea Turtle Society, 2024b).

4. In 2021, Symposia began awarding the Community Grant, which helps 'build[] capacity for local leadership and community-based conservation[].' (International Sea Turtle Society, 2024c). The majority (89%; n = 9) of these grants have gone to Global South communities (International Sea Turtle Society, 2024c).

5. Early in ISTS history, the nominating committee proposed new members of the Board of Directors, and then the general membership voted on these proposed individuals. Attempts have been made to diversify the Board of Directors since the early 1990s. In 2006, direct voting for the Board of Directors was established. While this process has clear advantages, there are limitations as only Society members – i.e., those who can afford to purchase and renew annual memberships – can run for these positions and vote for candidates. As such there is an inherent structural barrier in Board of Directors membership and representation that needs to be addressed (Shanker, pers. obs.).

## WHAT MORE CAN THE INTERNATIONAL SEA TURTLE SOCIETY DO?

Although the Society cannot decide how its members conduct their work or if Symposium attendees should decolonise sea turtle conservation in their region, it can contribute to the cause by setting examples and creating new norms. Therefore, during the Decolonisation Workshop of ISTS Symposium42, participants discussed concrete steps that could be taken to make the Symposium – and thus the Society – more inclusive and less 'colonial' in form and function. Some practices that the Society can adopt include:

1. Implement satellite meetings

Apart from the issue of the Symposium's carbon footprint, our opportunity to truly learn from and network with one another is minimized if research and persons from the Global South or students and early career researchers – who are often on the frontlines of novel science – continue to be underrepresented. One potential way to address this systemic inequity could be to host regional satellite meetings in conjunction with the Symposium. Regional satellite meetings would create an opportunity for collaboration with neighbouring researchers and conservationists while still contributing remotely to the annual symposium. These satellite meetings can be further accommodated for time zone differences by saving and sharing recorded presentations with global participants via a symposium archive.

2. Improve access and collaboration

As our society grows, so do our sessions, and even those who can afford to attend Symposium annually cannot participate in each session and workshop. Pre-recording and archiving talks, meetings, discussions, workshops, and digitised posters would allow broader, more equitable access to the symposium's educational wealth. Archived sessions would allow for access to content after the symposium has ended, accessible to a larger audience, including future researchers, conservationists, and students not yet in the sea turtle world.

The use of remote technology would have the additional benefit of facilitating more time and space for workshops, discussions, and networking. By inverting the current time and space allotted between the oral sessions and workshops, the ISTS program will allow for more opportunities to interact and collaborate with new and former colleagues.

3. Source translators

Presenting an oral, poster, or even a discussion point during a workshop can be intimidating; doing so in a different language amplifies the sentiment. Language barriers could be a deterrent for some researchers as they may not have the speaking or writing skills in English to share their work. They are, therefore, presenting their

work under strained capacity and they may be unable to garner the attention their work deserves. Including translators via multilingual volunteers or even allocating funds for translators allows for more work to be displayed and shared, more conversations and collaborations among attendees to take place, and nurture recognition of their work.

Additionally, including a written translation service that allows participants to write, translate, and submit questions during live sessions, which moderators can read on their behalf.

4. Ensure a diverse board of directors

The Board of Directors that helps guide, manage, and represent the Society should be a reflection of its members. Having minimum regional representation within the Board of Directors, promotes diversity within an already existing international society, encourages inclusion and collaboration by leading as an example, allows for a more immediate recognition of global perspectives; and further identifies and celebrates counterparts from regions or backgrounds that may have been overlooked in previous years.

5. Elevate and celebrate diverse conservation practices

As sea turtles occur globally, so do the conservation efforts to protect them and their habitats. As a society working to conserve these animals and their ecosystems, we have the unique privilege of being privy to various communities and cultures. However, as this workshop group has noted, we often promote uniform conservation practices, usually within the realm of Western-approved strategies. As we enlighten ourselves about the colonialism of this mentality and how to decolonise our practices, we should investigate, share, and celebrate the varied sea turtle conservation practices occurring at global nesting shores and within international coastal communities. In doing so, we provide ourselves with an opportunity to learn from one another, inviting new methods and strategies that have the potential to increase the success of conservation interventions.

We suggest formally celebrating these diverse conservation practices and successes as:

a. part of our annual Decolonising Conservation workshop; and/or

b. a discussion point within relevant annual meetings and/or ISTS Board meetings.

Alongside celebrating diverse conservation practices, we recognise a need to promote the Symposium Grassroots Award further, which is an initial effort to recognise the efforts and successes of Indigenous and local communities.

6. Create an equity committee

To enact the above suggestions and proactively propose further accommodations, the society could establish an Equity Committee to support the ISTS, particularly the President and their organizing team. The Equity Committee could:

- support the Society Board of Directors and Symposia organisers with the aforementioned suggestions, e.g.,
  - implementing satellite meetings,
  - instilling remote technology, and
  - providing and managing translation services.
- perform an audit of the Society and Symposium to identify opportunities to implement further inclusivity measures (e.g., review membership and Terms of Reference for the Symposium Program Committee, Student Award Committee, Travel Grant Committee, etc.);
- organise an annual Symposium meeting or workshop focused on topics of equity, inclusivity, and decolonizing sea turtle conservation; and
- assist with improving social media accounts, ensuring posts are frequent, informative, inclusive, and relatable.

This committee would raise awareness, suggest improvements, and address inequalities including those outside of decolonisation, like providing childcare for symposium attendees.

## MOVING FORWARD

The decolonisation of conservation is a necessary movement being discussed globally (Dahdouh-Guebas *et al.*, 2003; Rudd *et al.*, 2021; Tan, 2021). By adopting the above suggested practices within sea turtle conservation, the Society has an opportunity to help facilitate the forward movement and spread of decolonising conservation. Doing so will set an example, not only for our society of sea turtle conservationists, researchers, students, and enthusiasts, but for other conservation societies as well. Furthermore, participating in the decolonization of conservation aligns with our International Sea Turtle Society mission statement, "to promote understanding, appreciation, and value of sea turtles and their habitats through the exchange and sharing of information, techniques, ideas, and inspiration that will promote actions from local to global levels, for the advancement

of sea turtle biology and conservation" (International Sea Turtle Society, 2024d).

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