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Agenda Item 25.5

MARINE TURTLES

(Prepared by the Secretariat)

Summary:

This document reports on progress to implement Decisions 14.93–14.95 *Marine Turtles* and Decisions 14.96–14.100 *Single Species Action Plan for the Hawksbill Turtle (Eretmochelys imbricata) in South-East Asia and the Western Pacific Ocean Region.* The document proposes the adoption of Decisions.

The attached draft Decisions would support the achievement of Targets 1.3, 2.1–2.3, 4.1, 3.1–3.5, and 6.4 of the Samarkand Strategic Plan for Migratory Species 2024–2032.

MARINE TURTLES

Background

1. There are currently two Memoranda of Understanding (MOUs) under CMS that address the conservation needs of marine turtles in a regional context: the Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa (Atlantic Turtle MOU, 1999), and the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA Marine Turtle MOU, 2001).

2. In addition, CMS Parties have adopted two Single Species Action Plans, one for the loggerhead turtle (*Caretta caretta*) in the South Pacific Ocean (Resolution 11.21, 2014), and one for the hawksbill turtle (*Eretmochelys imbricata*) in South-East Asia and the Western Pacific Ocean (Resolution 14.11, 2024).

3. This document contains the following sections, each reporting back on relevant COP14 Decisions:
   A. Marine Turtles
   B. Single Species Action Plan for the Hawksbill Turtle (*Eretmochelys imbricata*) in South-East Asia and the Western Pacific Ocean Region

A. Marine Turtles

4. COP14 adopted the following Decisions on this issue:

14.93 Directed to Parties

Parties are encouraged to provide funding to the Secretariat to secure the external expertise required to develop a draft review and recommendations for the consideration of the Scientific Council as foreseen in Decision 14.94.

14.94 Directed to the Scientific Council

The Scientific Council is requested to, subject to the availability of external resources:

a) review, as far as feasible in collaboration with the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA Marine Turtle MOU) and the Inter-American Convention for the Protection and Conservation of Sea Turtles, relevant scientific information on conservation and threats to marine turtles in a region- and species-specific context, including their vulnerability to climate change, the threats of plastic pollution and light pollution on post-hatchlings, and the identification of habitats resilient to climate change as these habitats may require increased conservation effort over time; and

b) based on this review, develop new recommendations for the conservation of all species of marine turtle included in Appendix I or II of the Convention including on the preservation of the current nesting beaches and the identification of new nesting beaches, and collate current and innovative management options to mitigate the effects of climate change on nesting beaches, such as beach cooling and beach restoration projects, for presentation at the 15th meeting of the Conference of the Parties.

14.95 Directed to the Secretariat

The Secretariat shall, subject to the availability of external resources:

a) facilitate the review to be undertaken by the Scientific Council by securing necessary funding and external expertise to develop drafts for review by the Scientific Council; and

b) report to the Scientific Council at the 7th meeting of its Sessional Committee on the progress in implementing this decision.

Review of scientific information on conservation and threats to marine turtles in a region- and species-specific context

5. Due to the shortened intersessional period and lack of financial resources, Decision 14.94 (a) has not yet been implemented in detail. However, several relevant resources have been recently developed independently of CMS, which may partly or fully address the request of Parties to have a regional and species-specific review of threats and conservation priorities for marine turtles.

6. The IUCN Marine Turtle Specialist Group (MTSG) continuously monitors the status of sea turtles at both regional and global levels. Their work includes assessing how populations respond to emerging threats.

7. In a recent global assessment, *Updated global conservation status and priorities for marine turtles*, Wallace et al. (2025) reviewed progress in sea turtle conservation status and habitat protection. This assessment updates the original 2011 global review of sea turtle populations and evaluates the risk, threats and conservation capacity of each Regional Management Unit (RMU). The *Conservation Priorities Portfolio 2.0* (CPP), developed as part of the paper, incorporates criteria such as population trends, nesting abundance, genetic diversity and threats such as bycatch, climate change and illegal take. In addition, conservation capacity factors such as enforcement, coordination and socioeconomic context were scored. The CPP is accompanied by an interactive online dashboard that allows users to explore threat levels and priority needs across regions. The dashboard is currently available in English only. Versions in other languages may be developed in the future, depending on available resources.

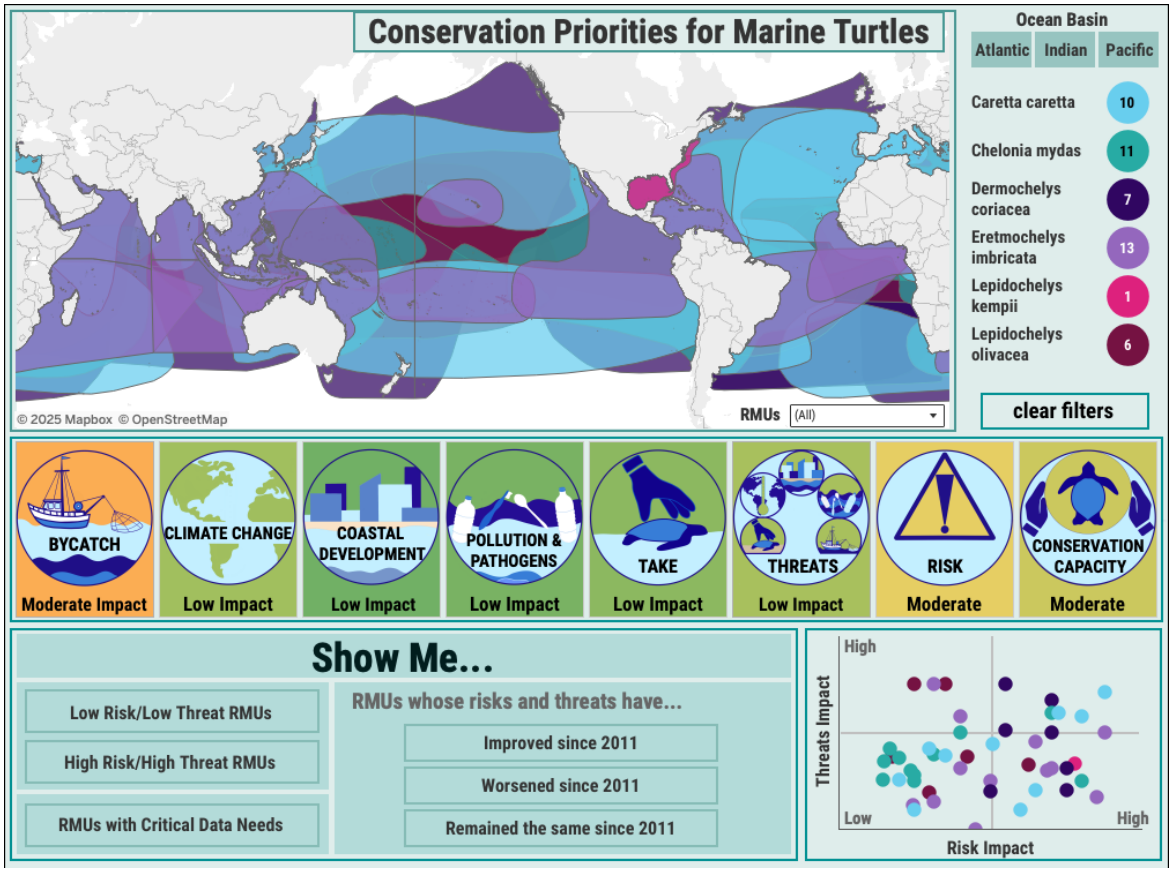

Illustration: Screenshot of the CPP Dashboard – Conservation Priorities for Marine Turtles (https://www.seaturtlestatus.org/cpp-dashboard)

8. Their findings indicate that threats have decreased for more than half (53 per cent) of all sea turtle management units. Furthermore, 40 per cent of populations are now considered to face low-risk, low-threat conditions. In this context, risk refers to factors such as abundance, population trends and genetic diversity, while threats include pressures like pollution, coastal development and climate change. About 28 per cent of sea turtle populations, primarily those in the Pacific Ocean, especially leatherback turtles, have shown signs of decline.

9. As an additional resource, the *20th State of the World's Sea Turtles Report* provides a comprehensive global overview of sea turtle conservation status, drawing on data from over 300 contributors across 80 countries. It presents updated insights on nesting sites, population trends and species protection levels, and features current distribution maps for all seven sea turtle species. The report identifies key ongoing threats, while also highlighting successful conservation actions. Importantly, it integrates scientific findings with case studies and visual tools, offering both a strategic snapshot of progress and a call for targeted action to address remaining challenges.

10. Members of the Advisory Committee of the IOSEA Marine Turtle MOU have summarized the findings with respect to the specific mandates given by COP14, as outlined in the following paragraphs.

Impacts of threats on post-hatchlings

11. The impacts of threats on post-hatchlings are less well understood than life stages such as eggs and nesting turtles. This life stage involves a long pelagic (open-ocean) dispersal and feeding phase that can last up to a decade. Post-hatchlings begin their

journey from the coast, drift through ocean gyres, and eventually return to coastal habitats. Accordingly, they face different vulnerabilities compared to neritic (coastal) juveniles, sub-adults and adults. A summary of post-hatchling threats can be found in Annex 1. Most of these oceanic threats affect individual post-hatchling turtles directly.

Effects of climate change on sea turtles and their nesting beaches

12. While protecting individual sea turtles, particularly on nesting beaches, has supported population recovery, recent focus has increasingly shifted to safeguarding entire sandy beach habitats, including backshore and dunes. At the 9th Meeting of the Signatories (MOS9), the Advisory Committee of the MOU presented CMS/IOSEA/MOS9/Doc.8.2 *Beach Management and Hatchery Practices*, outlining best-practice principles, including when hatcheries may aid recovery.

13. Climate change impacts on sea turtles and nesting beaches are still poorly documented and include temperature extremes, particularly rising temperatures, sea-level rise leading to erosion or inundation of nests, altered predator-prey dynamics, and disease. Additionally, sand mining and coastal development have directly degraded beach habitats and reduced their resilience to climate stressors.

14. Beaches are increasingly recognized as meta-ecosystems – highly interconnected habitats linked to dunes, surf zones, rivers, estuaries, saltmarshes, mangroves, seagrass meadows and other nearby habitats. They store and transport sediments, nutrients and other materials, and buffer effects of climate change and ocean acidification. Disruptions to natural water flow, and sediment budgets and transport, can break these ecological connections, negatively affecting nesting beaches and the broader coastal system.

15. In response to Decision 14.94, which was reiterated in the Work Programme 2024-2028 of the IOSEA Marine Turtle MOU, and in light of the growing pressures from climate change and increasing coastal development, a Steering Group on Nesting Beach Management was formed in late 2024. Led by members of the Advisory Committee of the MOU, it includes CMS Scientific Councillors and external experts.

16. The Steering Group will develop evidence-based recommendations, using real-world examples, to guide decision-making for the protection of sea turtle nesting beaches. These guidelines will also support other migratory species that depend on coastal soft sediment habitats, such as shorebirds and cetaceans. Existing guidance is available as UNEP/CMS/COP15/Inf.25.5a. An expert workshop is planned for late 2025 or early 2026, with outcomes to be presented at the 10th Meeting of the Signatories to the IOSEA Marine Turtle MOU (MOS10), expected to take place in 2028. A summary of current investigation themes is presented in Annex 2.

Important Marine Turtle Areas

17. Important Marine Turtle Areas (IMTAs) are sites that hold biological or cultural significance for marine turtles, modelled on existing initiatives such as Important Marine Mammal Areas (IMMAs) and Important Shark and Ray Areas (ISRAs). Draft Decisions and a draft Resolution on IMTAs can be found in UNEP/CMS/COP15/Doc.25.3.1 *Priorities for Area-based Conservation of Marine Migratory Species*.

18. To date, no IMTAs have yet been identified. To move the process forward, CMS has joined the 'Blue Corridors for Turtles' partnership. Launched in 2025, this initiative aims to identify and establish IMTAs by integrating movement and genetic data for all seven marine turtle species. CMS and its partners are working to facilitate expert workshops

and analyses of spatial data to support the identification and prioritization of IMTAs as a basis for transboundary conservation and policymaking.

Marine turtle bycatch mitigation measures

19. A review on turtle bycatch mitigation measures was carried out under Decision 14.33 (b), and a summary and recommendations can be found in UNEP/CMS/COP15/Doc.25.1.1 *Bycatch and Other Fisheries-Induced Mortality*. It assessed technical and operational bycatch mitigation measures across four major gear types – trawl, purse seine, set and gillnet, and longline fisheries – drawing from peer-reviewed literature and grey literature. The full review can be found as UNEP/CMS/COP15/Inf.25.1.1.

20. Overall, the review confirms that effective turtle bycatch reduction is fishery-specific, as has been found for mitigation of bycatch of other non-target species including seabirds, marine mammals and sharks. Measures that are highly effective in one region or gear type may be ineffective or impractical elsewhere. Tailored, evidence-based approaches, combined with stakeholder collaboration, enforcement and training, are essential for successful implementation and long-term conservation outcomes.

B. Single Species Action Plan for the Hawksbill Turtle (*Eretmochelys imbricata*) in South-East Asia and the Western Pacific Ocean Region

21. In February 2024, CMS Parties adopted Resolution 14.11 *Single Species Action Plan for the Hawksbill Turtle (Eretmochelys imbricata) in South-East Asia and the Western Pacific Ocean Region*. The Single Species Action Plan (SSAP) specifically addresses the threats of take and trade. In June 2024, the 9th Meeting of Signatory States to the IOSEA Marine Turtle MOU (MOS9) also adopted the SSAP (CMS/IOSEA/MOS9/Outcome 9.3), which means that 16 of the 33 Range States have adopted it to date.

22. COP14 adopted the following Decisions on this issue:

14.96 Directed to Parties that are Range States to the Single Species Action Plan (SSAP)

Parties that are Range States to the SSAP are requested to:

a) as foreseen in CMS/IOSEA/Hawksbill-SSAP/Doc.8 Suggestions for a Governance Structure to Support the Implementation of the Single Species Action Plan,

i. nominate one national government representative (Focal Point) and one national expert per Range State to serve on the Steering Group, and support activities of the Steering Group, in particular by providing regular reports on implementation of the SSAP;

ii. establish National Working Groups consisting of National Focal Points, local stakeholders and scientists, particularly those who would be involved to implement actions;

iii. develop a national work plan focusing on priority actions relevant to their country or territory;

b) address, as a matter of priority, subject to the availability of resources, essential and high priority SSAP actions as soon as possible, and take into account relevant medium-priority actions in national planning; and

c) actively encourage non-Party Range States to adopt the SSAP for their use.

14.97 Directed to Non-Party Range States of the SSAP

Non-Party Range States of the SSAP are encouraged to:

a) adopt the SSAP; and

b) once the SSAP is adopted,

i. nominate one national government representative (Focal Point) and one national expert per Range State to serve on the Steering Group;

ii. establish National Working Groups consisting of National Focal Points, local stakeholders and scientists, particularly those who would be involved to implement actions;

iii. urgently implement actions for immediate implementation and for delivery within three years, and start implementation of those to be addressed within five years.

14.98 Directed to intergovernmental and non-governmental organizations

Intergovernmental and non-governmental organizations are encouraged to provide financial and technical support for the implementation of the SSAP.

14.99 Directed to the Scientific Council

The Scientific Council is requested to:

a) consider the report received from the Steering Group on implementation of the Action Plan, as foreseen in CMS/IOSEA/Hawksbill-SSAP/Doc.8; and

b) provide guidance on the further implementation of the Action Plan to COP15.

14.100 Directed to the Secretariat

The Secretariat shall, subject to the availability of external resources:

a) encourage non-Party Range States to adopt the Action Plan for their use;

b) support States that have adopted the Action Plan in its implementation by facilitating meetings of the Steering Group;

c) develop a reporting form enabling the Steering Group of the Action Plan and the Scientific Council to assess progress in the implementation of the Action Plan; and

d) prepare a report to the Scientific Council at the 8th meeting of the Sessional Committee and COP15 on progress in implementing the Action Plan.

Implementation of the Hawksbill Turtle SSAP

23. In line with Decision 14.96 and Decision 14.100 (c), the Secretariat with support from the Advisory Committee of the IOSEA Marine Turtle MOU developed a simple reporting format to facilitate evaluation of the implementation of the SSAP. Notification 2025/004: *Implementation of the Single Species Action Plan for the Hawksbill Turtle in South-East Asia and the Western Pacific Ocean Region* was issued on 3 February 2025. It requested Parties that are Range States to the SSAP to nominate national focal points and experts to the SSAP Steering Group and invited the submission of national implementation reports using the template provided.

24. In response, 8 of the 33 Range States submitted national reports on the implementation of the SSAP for the Hawksbill Turtle, using the standardized reporting template. The Secretariat prepared a summary and analysis on the implementation of the SSAP, which was reviewed by the Steering Group and the Advisory Committee of the IOSEA Marine Turtle MOU, as contained in Annex 3. The full analysis is available as UNEP/CMS/COP15/Inf.25.5b.

25. While the response rate of under 30 per cent makes it difficult to draw overall conclusions, the report reveals notable progress in areas such as legislative reform, criminal justice processes and enforcement actions.

26. Ten of the Range States have nominated a national focal point and/or expert for the SSAP Steering Group.

Discussion and analysis

27. According to the updated global assessment, 24 of the 48 Regional Management Units (RMUs) were assessed as 'high risk', and 14 RMUs were assessed as subject to 'high threat impact'. Nine RMUs were categorized as both high risk and high threat, indicating a continued need for urgent conservation intervention. While the results show encouraging trends, including improved long-term abundance and lower average threat scores in several RMUs, key challenges remain. Fisheries bycatch was identified as the highest threat across species and regions, and 11 RMUs were identified as having critical data needs.

28. Multiple work streams under CMS and the IOSEA Marine Turtle MOU are being jointly implemented to address these threats. Key examples are the review of turtle bycatch mitigation measures – recommendations for which can be found in UNEP/CMS/COP15/Doc.25.1.1 *Bycatch and Other Fisheries-Induced Mortality* – the joint work on nesting beach management presented in this document, and the joint SSAP for the Hawksbill Turtle. In all these matters, the CMS Scientific Council benefits from expertise available under the framework of the MOU.

29. COP14 mandates drew attention to some key global conservation priorities for marine turtles, notably the protection of entire sandy beach habitats – backshore and dunes included – as interconnected meta-ecosystems. Climate change, coastal development and sand mining are reducing their resilience, disrupting ecological connections and harming nesting beaches and broader coastal systems. It is imperative that the work on this important topic continues and Parties receive the guidance required for effective management of beaches as habitat for many migratory species.

30. There is a clear need to engage more Range States actively in the implementation and governance of the SSAP for the Hawksbill Turtle, and encourage reporting to be able to assess progress and gaps. This should be a priority in the coming intersessional period, given the dire conservation status of this species.

Recommended actions

31. The Conference of the Parties is recommended to:

a) note the *Report on Relevant Scientific Information on Conservation and Threats to Post-hatchling Sea Turtles* contained in Annex 1 of this document;

b) note the *Recommendations for the Conservation of Sea Turtles through appropriate Beach Protection Measures in the face of Climate Change* contained in Annex 2 of this document;

c) note the *Summary and Analysis of the Implementation Reports for the Single Species Action Plan for the Hawksbill Turtle* contained in Annex 3 of this document;

d) adopt the draft Decisions contained in Annex 4 of this document; and

e) delete Decisions 14.93–14.95 and 14.96–14.100.

ANNEX 1

REPORT ON RELEVANT SCIENTIFIC INFORMATION ON CONSERVATION AND THREATS TO POST-HATCHLING SEA TURTLES

Biology of Post-hatchling Sea Turtles

Sea turtle hatchlings are particularly vulnerable to predation and must crawl cross the beach and swim through shallow nearshore waters to deeper waters in the neritic (flatback turtles) or oceanic (Kemp's ridley, leatherback, loggerhead, green, hawksbill, and olive ridley turtles) zones as quickly as possible. In the water, they swim continuously for about 24 hr in a period of hyperactivity known as the swimming "frenzy". After the initial frenzy, hatchlings use a combination of passive drifting with ocean currents and periodic, active swimming to find suitable developmental habitats to start feeding; this usually takes them a week. When the turtles begin to feed, they enter the post-hatchling stage. There is no clear end to this transitional life-stage as it occurs when they enter the dispersal stage, which can occur in the neritic or oceanic zone. At this time, turtles are regarded as juveniles.

Post-hatchling turtles occupy surface-pelagic waters, close to patches of foraging habitat that likely have high surface chlorophyll and productivity and/or convergence zones with lines of floating material, both of which support their diet of marine plankton, plants, and small animals. Threats to post-hatchling turtles are relatively under-studied due to challenges in raising, finding, and tracking them (Bolten, 2003a,b; Witherington et al., 2012; Wildermann et al., 2018; Phillips et al., 2025).

Climate Change and Post-hatchling Sea Turtles

The impacts of climate change on hatchling size and fitness could have implications for post-hatchling survival and dispersal, but there are no empirical studies to date that examine this. Sea surface temperatures and the strength of currents can impact dispersal of hatchlings and post-hatchlings into waters of varying productivity. Increased frequency and intensity of severe storms, including cyclones and hurricanes, associated with climate change could push post-hatchlings into sub-optimal (or more favourable) habitat and impact survivorship and growth rates (Monzón-Argüello et al., 2012; Scott et al., 2014; DuBois et al., 2020).

Plastic Pollution and Post-hatchling Sea Turtles

Small turtles, including post-hatchlings, are highly vulnerable to consumption of and entanglement in plastics due to their feeding behaviour and habitat including high plastic abundance. Individual turtles can be killed after ingestion or entanglement, but the impact at a population-scale is unknown (Boyle & Limpus, 2008; Ryan et al., 2016; White et al., 2018; Eastman et al., 2020; Duncan et al., 2021; Rice et al., 2021; Duncan et al., 2024).

Lights and Post-hatchling Sea Turtles

Lightsticks used in longline fisheries can attract post-hatchling loggerhead turtles (Wang et al., 2007). No records of post-hatchlings being attracted to deepwater oil rigs or other industrial structures could be found, but this is possible given their visual sensitivity to similar lights used in coastal areas. However, there is likely to be little impact at a population-level.

Chemical Pollution and Post-hatchling Sea Turtles

Oil spills pose a risk to post-hatchling turtles if surface convergence zones aggregate the oil along floating lines used as turtle habitat (McDonald et al., 2017).

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ANNEX 2

RECOMMENDATIONS FOR THE CONSERVATION OF SEA TURTLES THROUGH APPROPRIATE BEACH PROTECTION MEASURES IN THE FACE OF CLIMATE CHANGE

The **conservation of sea turtles is complicated** because of their lengthy life history, long dispersal distances and the multiple habitats used during their life cycle. Overlapping generations in foraging and nesting habitats complicate understanding and make it difficult to quantify the impacts of direct (e.g., temperature on sex ratios) and indirect pressures (e.g., coastal development). The picture is further complicated by interactions between multiple stressors (e.g. climate change) with cumulative, synergistic or compensatory effects acting on species and the environment simultaneously (Hodgson & Halpern, 2018). Forecasting the effect of climate change impacts on these species and for specific populations is therefore a complex undertaking.

Conventional conservation approaches for sea turtles on nesting beaches **were successful** until recently because efforts to control immediate threats like poaching of females and eggs, predators or fisheries' bycatch in courtship areas were sufficient to protect breeding stocks and offspring. However, an increasing number of nesting populations have to contend with coastal squeeze, chronic beach erosion or failed incubation. These are all signals that the habitat is now threatened, along with the sea turtle (and seabird) populations they host. The historic misuse of coastal ecosystems, which disrupts sand movement and budgets, and the more recent amplifying effects of climate change, are a major cause of habitat decline.

Sand is the second most traded natural resource (after freshwater) and is mined from sandy beaches, rivers or nearshore ecosystems for use in construction, glass manufacturing and beach nourishment, among many other things. Other parts of the coast have been built over with seawalls, and sand transport has been interrupted by groins, harbour walls and piers. **Longshore and across-shore sediment transport is disrupted** by both the reduction in the volume of sand and the interruptions to sediment transport. The scale of misuse has escalated, with the lucrative illegal trade in sand leading towards a pending environmental crisis (UNEP, 2022).

The effects of these practices were previously unrecognized and the impacts widely misunderstood. With the absence of large plants and algae, and the cryptic behaviour of most fauna (burrowing into the sand to avoid detection or moving in and out with the tide), beaches are often seen as marine deserts. The **lack of recognition of the status, value and processes of beach ecosystems** has resulted in their overexploitation for socioeconomic gain (Housten, 2024) through tourism (including sand nourishment), coastal development (building permanent structures like seawalls in dynamic systems such as dunes or surf zones) and sand mining (sand extraction).

Climate change is now amplifying the consequences of these poor management practices. Coastal development combined with climate-related impacts such as sea level rise and an increase in the frequency and severity of storms cause chronic erosion and coastal squeeze, with 24 per cent of the world's sandy beaches eroding at rates exceeding 0.5 m/yr. About half (48 per cent) are stable, and only 28 per cent of beaches are accreting (Luijendijk et al., 2018). In their investigation of nesting beach use, Christiaanse et al. (2024) concluded that a quarter (23 per cent) of coastal areas between -39◦ and 48◦ latitude provide suitable nesting habitat, but only 7 per cent of these are currently used. Beach management should therefore protect current *and* potential future nesting beaches.

Sea turtles as a group are robust and have persisted through evolutionary time, including past ice ages and warming periods. However, **the confluence of current pressures on both species and the nesting environment, coupled with limited remaining resilience, may lead to extinction** of some populations. Climate change effects include temperature extremes (particularly rising temperatures), sea-level rise, extreme storms, alteration of predator-prey relationships or changes in disease patterns (Simantiris, 2024). These factors affect all stages of the life history of sea turtles (breeding, feeding and migration) in all habitats, because they affect both the ecological condition of sea turtles (e.g., health, growth rate, reproductive output) and habitat quality and stability.

Popular interventions to rescue dwindling sea turtle populations include hatcheries used to boost hatchling production (Phillott et al., 2021) or 'head starting' (growing hatchlings in captivity before release) to overcome early predation pressure in the first year. These are, however, controversial interventions that should only be considered under very specific circumstances; they are both resource intensive and need expert guidance and long-term monitoring. Evidence also indicates that, because of their slow-growing and late-maturing life history, sea turtles rarely benefit from these practices (Heppell et al., 1996). The only real solution is to maintain beach ecosystems intact or recreate them at immense cost.

An **ideal sea turtle nesting beach** is on tropical or subtropical shores where natural coastal processes are unimpeded, allowing the shoreline to adapt to seasonal changes and extreme weather events. The nearshore waters should be undisturbed, offering sheltered areas like reefs or rocky outcrops where turtles can rest during inter-nesting periods. Beaches must provide unobstructed access through the intertidal zone – at least at high tide – onto clean, well-sorted medium to coarse sand (350–750 µm) with minimal rubble, rocks or furniture to allow for successful nest digging. At least 1.5 metres of sand above the groundwater table or bedrock is essential for proper body pit excavation, egg chamber construction, and natural wind-driven sand movement around the nest. To safeguard nesting success, beaches should have sediments that allow for gas and moisture exchange, contain low levels of organic material to limit bacterial and other pathogen development, and remain free from artificial lighting, excessive human activity, noise and other disturbances, creating a safe, natural environment for sea turtles to lay eggs and incubate, and for hatchlings to emerge successfully.

It is **difficult to recreate these conditions artificially**. Sea turtles scan the entire shorescape, selecting for non-visible cues like odour plumes or soundscapes, or dark horizons that are noise and disturbance-free. However, there are some (tentative) examples where sea turtles have nested on restored (nourished), reclaimed or artificially constructed beaches – although few at scale. Reprofiling of existing beaches seems to be successful, as was demonstrated for Raine Island, on the Great Barrier Reef (Robertson et al., 2024). The most well-documented beach nourishment projects with repeated successful sea turtle nesting are for green turtles or loggerheads in Florida and North and South Carolina (Brock et al., 2009; Reine, 2022), and Kemp's ridley in Texas. The effects of beach nourishment are well-studied but not always positive; results vary among species and beaches, and over time, generally improving after nourishment. Turtle nesting has been successful on these nourished beaches, but the effects may extend beyond hatching success; nourishment also seems to affect, among other things, temperature and moisture profiles (Reine, 2022; Shamblott et al., 2021), which could potentially influence sex ratios.

Countries with large-scale coastal development, particularly in the Middle East or Singapore, have tried to **recreate turtle nesting conditions artificially**. One such example of a (re)constructed nesting beach is from Ras Laffan Industrial City, Qatar (see news article here). Care was taken to recreate sea turtle nesting conditions when an artificial beach was constructed as part of coastal development mitigation efforts around a liquid gas plant.

Hawksbill turtles (*Eretmochelys imbricata*) have reportedly been observed nesting and hatching successfully there (2025 nesting season for hawksbill turtles ends - Gulf Times). The success was attributed to careful design mimicking natural nesting conditions and restricting human access during the nesting season. No abundance estimates, however, are available to compare nesting numbers before and after construction. Other examples include Kuwait's artificial islands (e.g., Sabah Al-Ahmad Sea City), or Jumeirah Island, Dubai, UAE, with similar promising reports.

Much research needs to be done to establish whether artificial incubation environments like hatcheries and nourished or artificial beaches will produce viable levels of returning individuals to maintain populations in perpetuity. The resilience of artificial beaches to the pressures from climate change is untested, but most nourished beaches need to be replenished around every decade. It may be the same for artificial constructions.

There are no simple solutions to this complex problem and it is important to recognize the likely **negative impacts of climate change on sea turtle nesting beaches, natural or man-made, and sea turtle populations** (summarized from Simantris, 2024):

- **Rising global temperatures**: Shoreline temperatures are projected to increase by 1.5–5°C over the next 80 years, creating challenging conditions for sea turtles. It will affect the metabolic requirements of nesting, incubating and foraging individuals.
- **Increased extreme weather events**: Extreme atmospheric events, such as storms and hurricanes, and erosion events are expected to occur 100 times more frequently, leading to habitat loss and shoreline destruction, and nest over-wash, inundation and the lowering of nest temperatures.
- **Loss of nesting habitats**: Rising sea levels are projected to render over 50 per cent of current nesting beaches unsuitable in the coming decades through increased erosion, inundation or flooding.
- **Reduced reproductive success**: Climate change will also affect foraging grounds, including reefs and seagrass beds, lowering productivity, which can adversely impact sea turtle growth and condition, and, in turn, reproductive output. Many studies have reported that the size of individuals across different species is getting smaller, reducing clutch sizes and hatchling vigour.
- **Effects of warmer sand on hatchling vigour and sex ratio**: Elevated sand temperatures and storm frequency will reduce hatchling survival, and skew male-to-female ratios and hatchling size and speed, prompting smaller but faster-swimming juveniles.
- **Changes in hatchling emergence**: Altered sea-surface dynamics affect hatching timing and survival rates, with hatchlings entering currents later/earlier in the season.
- **Changes in predator dynamics**: Shifts in predator type, abundance and behaviour may reduce juvenile survival rates, but these are poorly documented.
- **Accelerated sea-level rise**: Climate-induced sea-level rise is projected to exceed 2.6 mm/year, potentially reaching up to 10 mm/year when combined with human-driven coastal subsidence.
- **Ocean acidification**: Beaches with high calcium carbonate content buffer seawater acidification through dissolution. However, accelerated rates of seawater acidification are expected to result in a net reduction in sediment deposition of between 31 and 46 per cent, which will exacerbate the rate of coastal erosion (Simeone et al., 2017). Combined with increased sea levels, even pristine (undeveloped) beaches will start to erode.

There are potential positive impacts as well:

- **Expansion of nesting ranges**: Higher global temperatures, similar to past interglacial periods, may allow sea turtle populations to expand into higher latitudes. Christiaanse et al. (2024) calculated that only 7 per cent of suitable nesting habits is currently used.
- **Creation of new nesting habitats**: Warming trends could make previously unsuitable beaches viable for egg-laying, creating new opportunities for nesting.
- **Female sex bias**: In the short term, female sex biases may enhance population recovery, provided that suitable nesting habitat is available.

It is clear that habitat management, natural or artificial, will rely on **holistic beach management practices across the coastal meta-ecosystem** (Defeo et al., 2025). Adopting sustainable coastal management practices is critical for preventing human-induced beach erosion and avoiding harmful activities such as unplanned coastal development and sand mining. This includes protecting natural hydrodynamic and sediment transport processes upstream and downstream of beaches, ensuring these systems remain intact and allowing for sea-level rise buffers through appropriate coastal setbacks. Where existing infrastructure disrupts these processes, serious consideration should be given to relocating, removing or allowing it to be naturally overtaken by coastal dynamics.

In densely developed coastal cities, relocation may not be feasible, and hard engineering solutions like seawalls may be necessary – though these often result in coastal squeeze, ultimately eliminating high-shore nesting habitats and driving sea turtles away. Softer solutions, such as beach nourishment, are generally preferred despite their high costs, as they are more sustainable than hard defences. However, nourishment must be repeated over time as sand naturally erodes. Finally, coastal zones should be explicitly integrated into spatial planning frameworks as unique and dynamic systems, recognizing the continuous and significant connectivity between land and sea across varying spatial and temporal scales.

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ANNEX 3

SUMMARY AND ANALYSIS OF IMPLEMENTATION REPORTS FOR THE SINGLE SPECIES ACTION PLAN FOR THE FOR THE HAWKSBILL TURTLE IN SOUTH-EAST ASIA AND THE WESTERN PACIFIC OCEAN REGION

(The full report can be found in UNEP/CMS/COP15/Inf.25.5b)

Introduction

The Single Species Action Plan (SSAP) for the Hawksbill Turtle (*Eretmochelys imbricata*) in South-East Asia and the Western Pacific Ocean was adopted in 2024, both by CMS Parties (CMS Resolution 14.11) and Signatories to the IOSEA Marine Turtle MOU (CMS/IOSEA/MOS9/Outcome 9.3).

This document provides a summary of reports on the implementation of the SSAP. Reports are based on a template that was developed by the Secretariat for that purpose, as instructed in CMS Decision 14.100. The format requests information on each of the activities that are included in the SSAP: actions taken/results achieved, obstacles to implementation, and progress in implementing activities. The reports gathered from Range States will be used to inform recommendations for further implementation of the Action Plan.

Of the 33 Range States,[1] 8 responded to CMS Notification (2025/004) and follow-up emails, which requested Range States to report on the implementation of the Hawksbill Turtle SSAP. The findings described below apply only to these countries.

Key Findings

Using the reports received, the Secretariat and Steering Group summarized the status of implementation of each action in Table 1, using a traffic light system. However, the analysis is limited both due to the overall low submission rate (less than 25 per cent), and the fact that several reporting countries did not use the drop-down menu provided in the reporting template to indicate percentage completion under the progress column.

1. The key outcomes of the report highlight significant progress in strengthening the criminal justice process, legislative reform for hawksbill protection, and efforts to close legal gaps and enforce international commitments.

2. Of the eight Range States that submitted reports, Malaysia documented having completed the most actions, with 11 out of 23 actions fully implemented. Australia reported having completed eight actions and New Zealand recorded most actions as 'Not Applicable' due to the rarity of hawksbill turtles in their territory. All others reported 'Work in Progress' for most actions.

3. Five Range States reported completing Action 1.1.5 on addressing shortcomings in the criminal justice process with regard to illegal activities involving hawksbill turtles – the highest rate of completion for any of the Actions.

[1] List of Range States: (countries who reported in bold): **Australia**, Brunei Darussalam, **Cambodia**, China (Hong Kong and Taiwan), Cook Islands, Federated States of Micronesia, **Fiji**, France (French Polynesia, New Caledonia, Wallis and Futuna), Indonesia, Japan, Kiribati, Lao People's Democratic Republic, **Malaysia**, Marshall Islands, Myanmar, Nauru, **New Zealand**, Niue, Palau, Papua New Guinea, **Philippines**, Republic of Korea, Samoa, Singapore, Solomon Islands, **Thailand**, Timor-Leste, Tokelau, Tonga, Tuvalu, **USA** (America, American Samoa, Guam, Hawaii, Northern Marianas), Vanuatu, Viet Nam

4. Enacting new laws on hawksbill turtle conservation related to use and trade (Action 1.1.2) also showed notable progress, with three Range States having reported it as complete.

5. Most engagement was reported for Action 1.1.3 on capacity-building and Action 1.1.4 on improving law enforcement activities, with all eight reporting Range States having initiated some form of activity.

6. The least implemented actions were Action 2.1.2 on tackling illicit financial flows and corruption linked to hawksbill turtle trafficking and Action 3.1.2 on examining motivations behind legal and illegal use and proposing alternative livelihoods.

7. The establishment of quotas regarding legal domestic harvest of hawksbill turtle specimens (including eggs) (Action 1.2.2) was reported as 'Not Applicable' as it is illegal in most Range States, with provisions for traditional and Indigenous communities.

8. Lack of financial and technical support was identified as one of the main challenges to the full implementation of the Hawksbill Turtle SSAP.

9. Limited capacity was also reported as an obstacle, with gaps in capacity-building hindering the effective implementation of several actions within the SSAP, particularly those related to Action 2.2.1 on intra- and inter-regional collaboration and exchange of actionable intelligence on the illegal take and trade of the hawksbill turtle, as well as Action 2.4.2 on defining and identifying habitat critical for hawksbill turtle stocks at different life history stages.

10. Other obstacles to the full implementation of the Hawksbill Turtle SSAP include the lack of information and scientific data, overlapping powers and legal jurisdiction as well as conflicting interest between economic gains and environmental sustainability.

11. Overall, the SSAP implementation shows varying levels of progress among Range States. The achievement of the objectives under the SSAP and the implementation of the planned actions appear only partially satisfactory.

Recommendations

To support continued progress under the Action Plan, the Secretariat and Steering Group have developed the following recommendations to further strengthen the Action Plan implementation, based on challenges identified by Range States and its own assessment of key gaps:

1. Secure additional funding to ensure effective implementation of the SSAP, with a focus on enhancing monitoring programmes, capacity-building and training, as well as wider outreach campaign programmes.

2. Establish capacity-building and training across stakeholders, such as Indigenous populations and government agencies to improve monitoring of the hawksbill turtle.

3. Strengthen efforts on data collection regarding illegal wildlife take and trade, and address illicit financial flows linked to hawksbill turtle trafficking.

4. Enhance institutional capacity to support the need for additional CITES officials.

5. Promote interagency collaboration through targeted capacity-building to address the illegal take and trade of the hawksbill turtle, including regular training, joint workshops and shared best practices.

6. Support targeted research to fill current data gaps, particularly for completing and implementing Marine Turtle National Plans of Action

7. Facilitate improved exchange of relevant conservation data to inform planning and monitoring.

8. Ensure continued technical support from regional and international partners by facilitating access to expert guidance, standardized tools and best practices that help align Range States' national actions with SSAP objectives.

Table 1: *Overview of the progress reported for each action on the implementation of the Single Species Action Plan for the Hawksbill Turtle (Eretmochelys imbricata) in South-East Asia and the Western Pacific Ocean.*

	Range States							
	Australia	Cambodia	Fiji	Malaysia	New Zealand	Philippines	Thailand	USA
Action	Progress							
1.1.1		N/A			N/A	N/A	N/A	
1.1.2								
1.1.3								
1.1.4								
1.1.5								
1.2.1								
1.2.2		N/A	N/A	N/A	N/A			N/A
2.1.1					N/A			
2.1.2								
2.1.3								
2.1.4								
2.1.5								
2.2.1								
2.2.2					N/A			
2.3.1					N/A			
2.3.2					N/A			
2.3.3								
2.3.4					N/A			
2.4.1					N/A			
2.4.2					N/A			
3.1.1					N/A			
3.1.2					N/A			
3.1.3					N/A			

No Action

Work in Progress

Completed

ANNEX 4

DRAFT DECISIONS

MARINE TURTLES

Directed to Parties

15.AA Parties are encouraged to use the guidance developed under the IOSEA Marine Turtle MOU available at www.cms.int/iosea-turtles/en/page/capacity-building-resources to:

i. review existing national beach management guidelines to ensure sea turtle protection needs are met;

ii. identify and map existing nesting sites.

Directed to the Scientific Council

15.BB The Scientific Council is requested to, subject to the availability of resources:

a) support the work of the joint CMS/IOSEA Nesting Beach Management Steering Group, in collaboration with the Inter-American Convention for the Protection and Conservation of Sea Turtles as appropriate, aimed at expanding the existing guidelines on the management of beaches as an ecosystem and as important habitat for marine turtles and other migratory species that depend on coastal soft sediment habitats, and make recommendations on their implementation to COP16; and

a) develop guidance for the identification of potential new nesting beaches, taking into account expected effects of climate change, as these habitats may require increased conservation effort over time, as appropriate in collaboration with the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA Marine Turtle MOU) and the Inter-American Convention for the Protection and Conservation of Sea Turtles.

Directed to the Secretariat

15.CC The Secretariat shall, subject to the availability of resources, support the Scientific Council in implementing activities foreseen under 15 BB, as required.

SINGLE SPECIES ACTION PLAN FOR THE HAWKSBILL TURTLE (*Eretmochelys imbricata*) IN SOUTH-EAST ASIA AND THE WESTERN PACIFIC OCEAN REGION

Directed to Parties that are Range States to the Single Species Action Plan (SSAP)

15.DD Parties that are Range States to the SSAP are requested to:

a) nominate, if not yet done, one national government representative (Focal Point) and one national expert per Range State to serve on the Steering Group, and support activities of the Steering Group;

b) establish or maintain National Working Groups consisting of National Focal Points, local stakeholders and scientists, particularly those who would be involved in implementing actions;

c) develop or update a national work plan focusing on priority actions relevant to their country or territory; giving particular attention to essential and high-priority SSAP actions, and start implementation of relevant medium-priority actions;

d) actively encourage non-Party Range States to adopt the SSAP for their use; and

e) when requested, provide a national implementation report, using the reporting template provided by the Secretariat, once during the intersessional period.

Directed to non-Party Range States of the SSAP

15.EE Non-Party Range States of the SSAP are encouraged to:

a) adopt the SSAP; and

b) once the SSAP is adopted:

i. nominate one national government representative (Focal Point) and one national expert per Range State to serve on the Steering Group;

ii. establish National Working Groups consisting of National Focal Points, local stakeholders and scientists, particularly those who would be involved in implementing actions;

iii. when requested, provide a national implementation report, using the reporting template provided by the Secretariat, once during the intersessional period;

iv. develop or update a national work plan focusing on priority actions relevant to their country or territory; giving particular attention to essential and high-priority SSAP actions, and start implementation of relevant medium-priority actions.

Directed to Parties [that are not Range States to the SSAP]

15.FF Parties that are not Range States to the SSAP are requested to provide technical and capacity-building support to Range States for the implementation of activities outlined in the Action Plan.

Directed to intergovernmental and non-governmental organizations

15.GG Intergovernmental and non-governmental organizations are encouraged to provide financial and technical support for the implementation of the SSAP.

Directed to the Scientific Council

15.HH The Scientific Council is requested to:

a) consider the report received from the Steering Group on implementation of the Action Plan; and

b) provide guidance on the further implementation of the Action Plan to COP16.

Directed to the Secretariat

15.II The Secretariat shall, subject to the availability of resources:

a) encourage non-Party Range States to adopt the Action Plan for their use;

b) support States that have adopted the Action Plan in its implementation by facilitating meetings of the Steering Group at intervals decided upon by that group; and

c) request national implementation reports from Range States, compile the information received, and support the Steering Group in reviewing and analysing these responses to assess progress in the implementation of the Action Plan.