Asia-Pacific Marine Turtle Genetic Working Group

Terms of Reference

Asia-Pacific Marine Turtle Genetic Working Group and Online Workshop Series

Expanding the Asia-Pacific Marine Turtle Genetic Working Group (APMTGWG) to support the conservation of marine turtles in the Asia-Pacific Region: Enhancing capacity, standardising methods, identifying priorities, and creating a regional network.

Background

Although several species of marine turtles use the beaches and waters of nations throughout Asia and the Western Pacific Ocean, their population status, genetic structure and habitat connectivity in this ocean region remain unclear. Generating information on abundance, genetics and spatial habitat use is needed to develop and support effective management and policy decision-making. Since marine turtles have ranges that often span the waters of multiple nations, a multinational approach is needed to effectively generate information.

Genetic studies provide valuable information for marine turtle conservation management by: (1) delineating the stock structure of marine turtle nesting assemblages, (2) defining conservation units, (3) characterising broad-scale movement patterns, (4) evaluating the exposure to and risk of in-water threats such as fisheries bycatch and direct capture, (5) tracing the origin of products in the Illegal Wildlife Trade, and (6) identifying areas where localised versus region-wide management approaches may be warranted. International conventions, CITES for example, is directing countries to collect and analyse genetic samples, especially from confiscated specimens, to determine populations of origin in support of research, investigations, and prosecutions. As such, genetic research at local, regional and international levels are critical for the effective management of marine turtles.

The Asia-Pacific region hosts many globally significant nesting and foraging populations of six species of marine turtles, yet few collaborative genetic studies have been successfully conducted. Current and future management actions continue to be hindered by the paucity of genetic information. Notwithstanding this perspective, access to genetics laboratories is becoming more common across the region, and more studies are incorporating genetic aspects into their projects. Given this increased accessibility, there is a need for enhanced in-country capacity to develop and carry out genetic research studies, as well as a need to standardise methods and collaboration between groups to ensure work can be compared and combined for effective analysis.

In response to these needs, an international Steering Committee initiated the Asia-Pacific Marine Turtle Genetic Working Group, a network established to bring together researchers from the Asia-Pacific region who have access to marine turtle ecological data, tissue samples or genetic laboratories, and who are interested in supporting or leading marine turtle genetic studies. From January to August 2021, a series of 8 online workshops were conducted, serving as a platform to connect collaborators and to share data, knowledge and outputs. From these workshops, a clear need emerged to expand the geographical boundaries of the group and to include the Western Pacific Region and greatly enhance collaborations and synergies throughout the Asia-Pacific. The Pacific region covers approximately 32

million km^2 of ocean and is home to six of the seven marine turtle species, with migratory routes and foraging grounds interconnecting across Asia.

To expand and enhance the working group, identify additional members, support collaboration and sharing, and promote familiarity with field and laboratory genetic techniques, a series of five (5) online workshops (approximately 2-4 hours long) will be hosted during the first half of 2022.The workshops will be complemented by activities, surveys and exercises held between workshops, and supported by Asia-Pacific-specific manuals and information materials. The dedicated working group website (www.marineturtlegenetics.org) will also be expanded to provide a sharing platform for the Western Pacific group to collaborate and to integrate new members. Additional Asian members may also be invited to participate in these workshops if they were unable to attend the initial series and to ensure there is representation from the Asian Group to enhance connectivity between the regions.

Lastly, an additional workshop will be hosted in March 2022 as a dedicated session at the International Sea Turtle Symposium (ISTS) with the goal to introduce, harmonise and facilitate cohesion between the Asia and Western Pacific participants for a consolidated way forward.

Goals

Enhance technical capacity, standardise methodologies, identify research priorities and establish a regional collaborative network to facilitate genetic studies that can support national and international marine turtle management and protection efforts.

Objectives

- Create a directory of individuals, groups and institutions currently involved in genetics work (or with the potential to get involved) in the region, as well as their current capacity and interests.
- Identify and prioritise conservation knowledge gaps that can be solved with a genetic approach and design common priority research questions (i.e. Identify core issues and key research questions, highlight challenges and needs and identify opportunities and priority actions).
- Consolidate regional best practice protocols for sample collection and long term storage and standardise genetic analysis protocols and pipelines for priority research questions (ie. tools and techniques to define appropriate “units to conserve”, applicability of emerging technologies and analytical tools).
- Provide training on sample processing, as well as genetic analysis and interpretation, to increase participants’ genetic comprehension and improve in-country capacity to carry out genetic research.
- Work towards developing a regional collaborative digital tissue sample database (including existing repository databases and museum collections) and identify mechanisms for data sharing.
- Identify and create a directory of relevant government agencies, points of contact, and permit processes to ensure that sea turtle genetic research is being coordinated with appropriate government agencies working towards understanding the role that genetics can play in national and international policy and legislation decision making.
- Create a long term plan for the Asia Pacific Marine Turtle Working Group (i.e. identify mechanism for collaborations, determine structure and size of the working group and subgroups, identify the steering committee)

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Activity Plan

To facilitate the expansion of the working group, identify additional members, support collaboration and sharing, and promote familiarity with field and laboratory genetic techniques, a series of five (5) online monthly workshops (approximately 2-4 hours long) will be hosted during the first half of 2022:

- Workshop 1 – Introduction to the Working Group, the Participants, and their Projects
- Workshop 2 - Sample Collection, Preservation and Management
- Workshop 3 - Genetic Analyses of Samples for Rookery Stock Structure, MSA, and Novel Genetic/Genomic Tools
- Workshop 4 – Illegal Trade, Forensics and the ShellBank Project
- Workshop 5 - Wrap Up Workshop - Summary and Looking Towards the Future

ISTS40 Workshop

Bridging the Gaps: The Asia-Pacific Marine Turtle Genetic Working Group

https://www.ists40perth.com.au/program/workshops-regional-meetings/

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Funded by the European Union (EU) and the Government of Sweden, the EUR 45 million PEUMP programme promotes sustainable management and sound ocean governance for food security and economic growth, while addressing climate change resilience and conservation of marine biodiversity. It follows a comprehensive approach, integrating issues related to oceanic fisheries, coastal fisheries, community development, marine conservation and capacity building under one single regional action.

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