

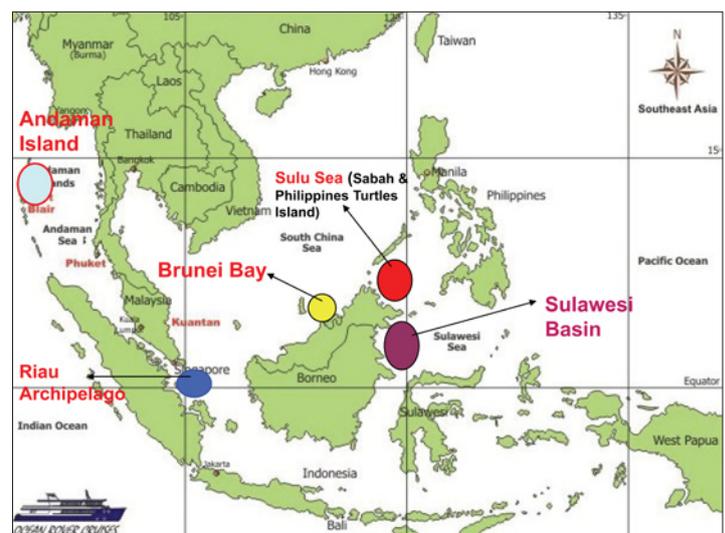
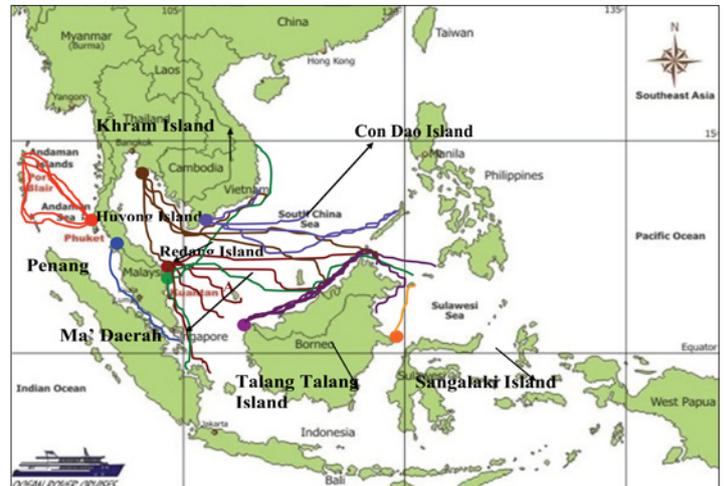
SPECIAL REPORT

Research on Stock Enhancement of SEA TURTLES in Southeast Asia

Starting from 2004, MFRDMD has implemented a program on “Research on the Stock Enhancement of Sea Turtles” with funding support from the Japanese Trust Fund. The program is expected to complete in 2008. The program covers the studies on sea turtle tagging and satellite telemetry, sea turtles stock identification, and detection on multiple male paternities.

Regional Sea Turtle Tagging and Satellite Telemetry Studies

Under the SEAFDEC Sea Turtle Research Program, conventional Inconel Tags and Passive Integrated Transponder (PIT) Tags (or microchip tags) have been used by MFRDMD in conducting the sea turtle tagging surveys. Inconel Tags had been continually used in Brunei Darussalam, Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam; while PIT Tags had also been used as supplements tags in Malaysia, Thailand, Indonesia, Myanmar and the Philippines. In addition to tagging, satellite telemetry study had also been conducted from 2005 to 2008. The objectives of the tagging and satellite telemetry studies are to determine the migration routes, the inter-nesting and foraging habitats, as well as other relevant biological information of sea turtles in the region.



Migration Routes of Green Turtles (Chelonia mydas) obtained through the Satellite Telemetry Studies (above); and Suspected Foraging Habitats of Sea Turtles based on Satellite Tracking Studies of Sea Turtles in Malaysia (below)

Third Regional Consultation on Research for Stock Enhancement of Sea Turtles in Southeast Asia

The Third Regional Technical Consultation Meeting of the JTF IV program was held from 15-17 October 2008 in Kuala Lumpur, Malaysia to discuss the outcomes of the activities implemented from 2004 to 2008 and plan the activities to be implemented in 2009 and onwards. The Meeting was attended by participants from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam; and representatives from SEAFDEC-Secretariat, SEAFDEC-TD and SEAFDEC-MFRDMD. Resource persons were invited from Research Institute of Far Seas Fisheries, Japan, Universiti Malaysia Terengganu, Universiti Kebangsaan Malaysia, Department of Fisheries Malaysia and Marine Research Foundation, Malaysia. The Meeting was also attended by observers from DOF Malaysia, IOSEA, Sarawak Forestry Corporation and WWF-Malaysia

Third Regional Consultation on Research for Stock Enhancement of Sea Turtles in Southeast Asia



Identification of Sea Turtles Stock/Population in Southeast Asia

The regional analysis on stock identification of green and hawksbill turtles in the Southeast Asian region had been conducted by MFRDMD. The main objective of which is to detect subpopulations of nesting green and hawksbill turtles in Southeast Asian region, and to identify the genetic markers of different management units. As for green turtles, the tissue samples were gathered from 14 sites throughout the region. For hawksbill turtles, 136 samples were collected from 9 sites (nesting beaches). The results suggest that the green turtles in the region could be grouped into 12 management units (subpopulations). However, no conclusive result could be made to the hawksbill turtle population due to the small sample size.



Sampling sites of green turtle in the Southeast Asia (above) and sampling sites of hawksbill turtle in the Southeast Asia (below)

Conclusion

- 30 haplotypes were detected of which 11 was published by Moritz et al. 2002 and 19 are new.
- Dominant haplotypes are C3, found at all samples sites except Enu, Indonesia and Panikian Island, Philippines. C3 dominant haplotype for Pengumbahan (17/23), Redang (42/73), Paka (14/15), Pahang (8/12), Perak (13/15), Sipadan (24/40), Tameahla (18/30), Coco (17/30), Huyong (10/19), Kham (15/30), Vietnam (51/53).
- Due to limited samples, the output of this study will not give a true figure of hawksbill population genetic.
- 3 haplotypes are shared between nesting beach and 12 haplotypes are unique to individual rookeries and in Melaka, no haplotype diversity

Detection on Multiple Paternities of Green Turtles

Study on Detection of Multiple Paternities of Male Green Turtles was also conducted by MFRDMD at Mak Kepit Beach, Terengganu. The objectives are to determine the level of multiple paternity and to estimate adult male stock sizes at nesting beaches in Redang Island, Terengganu. A total of 300 tissue samples of hatchlings green turtle from 10 nesters in Mak Kepit beach, Redang Island of Terengganu, Malaysia had been analyzed through DNA microsatellite marker. The DNA microsatellite marker can be used to determine whether all the hatchlings in a nest have the same father or different fathers. Single father will present one to two paternal alleles, while clutches with three to four paternal alleles represented offspring from a mating between one female and two male turtles. If more than four paternal alleles were present, the clutch was assumed to have a minimum of three fathers.



Location of 12 genetically distinct breeding stocks or management units of green turtles (Exact test of sample differentiation based on haplotype frequencies Raymond M. and F. Rousset. 1995).