

Recommendations for leatherback turtle conservation

These three tables of recommendations were developed through plenary and working group discussions held at the IOSEA Memorandum of Understanding's Fourth Meeting of the Signatory States (Muscat, Oman, March 2006).

Gap	Nations/agencies	Project context/aim	Expected outcomes
Regional and national fisheries based projects			
High seas and within EEZ bycatch (pelagic fisheries)	Nations of the IOSEA region and Nations (outside IOSEA) deploying foreign fishing fleets into the region. International fisheries management agencies	Work within national and regional fisheries bodies to develop programs and activities such as onboard observer programs, and bycatch assessment/quantification and mitigation projects (including gear modification and improved fishing practices to reduce bycatch). Advocate for regional and national fisheries bodies' policies to incorporate turtle bycatch assessment and mitigation strategies Investigate/ advocate for investigation of seasonal and spatial closures as a management tool for reducing bycatch.	National bycatch observer, assessment and quantification programs established. National and/or regional bycatch mitigation projects established Coordinated regional approaches to bycatch management and illegal fishing established Reduced mortality of marine turtles
Within territorial waters bycatch (coastal fisheries)	States of the IOSEA region	Determine the spatial and temporal variation in distribution and impact of fishing effort. There is a particular need for the development of gear modification and/or use to achieve reduction in turtle mortality in gill nets [c.f. achievements such as TEDs and work in progress with long line fisheries]. Assess the impact of fisheries to inter-nesting, migrating & foraging turtles Assess the impacts of ghost nets and plastics pollution	Improved understanding of bycatch "hotspots" which will aid in fisheries bycatch management. National and/or regional bycatch mitigation projects established Improved understanding of the impacts that bycatch may have on turtle at particular life history stages Reduced mortality of leatherback turtles
MPAs	States of the IOSEA region	Protection and adequate management of already identified critical habitats (nesting, inter-nesting, feeding and migratory) Identification of further critical habitats – especially inter-nesting, feeding and migratory)	MPA networks (community-based and/or formally gazetted) that provide adequate protection and management across critical leatherback habitats

Gap	Relevant nations	Project aim	Expected outcomes
Regional and national genetic based projects			
Population genetics - Leatherback turtle nesting down through the Andaman Sea, southern Indonesia to northern Australia and in Sri Lanka have not been genetically identified.	Sri Lanka, India, Indonesia, Thailand, South Africa, Papua New Guinea, Australia and Mozambique	Determine the genotype of leatherback turtles nesting in Sri Lanka, India Thailand and Indonesia [Sumatra] and compare these with published haplotypes	Understanding of the genetic structure of leatherback turtles to be used as a base for monitoring and management
Genetics of bycatch/strandings/direct take [development of an organized collection program]	Countries with leatherback turtle bycatch programs and/or direct take [Australia, Eritrea, Sri Lanka, South Africa (shark nets) & Indonesia (Kei Is.)]	Using genetic markers identified for nesting populations, determine population structure of marine turtle bycatch or stranded turtles	Stock based threat analysis to be used as a base for monitoring and management
Biological data			
Quantify key demographic parameters [reproductive output, clutches per season, remigration interval and annual survivorship]	Each nation with nesting leatherback turtles	Conduct annual saturation tagging census at an index rookery within each genetic management unit for a minimum of six consecutive breeding seasons	Improved understanding of the biological structure of leatherback turtle populations to be used as a base for monitoring and management
Incomplete mapping of the breeding distribution and census	The priority areas are Sri Lanka, southern Indonesia to north western Australia and Philippines.	Complete the mapping and develop a six year census project at index beaches.	6 year (& then ongoing) determination of size of nesting population
Limited understanding of post nesting distribution of female leatherback turtles	Sri Lanka, India, Indonesia (predominately southern)	Satellite telemetry study to define geographical scale of migration pathways	Improved understanding of the structure of leatherback turtle populations to be used as a base for monitoring and management
Limited data on hatchling production including sex ratios and health and survivorship of hatchlings	South Africa, Mozambique, India, Sri Lanka, Indonesia and Papua New Guinea and Thailand	Determine; (1) survivorship of eggs and hatchlings (inc. natural egg loss, predation and human use), (2) clutch size, (3) beach temperatures, (4) temporal and spatial patterns of nest distribution and survivorship (5) socio-economic drivers that underlie egg take and (6) Implementing management options to maximize hatchling production	Improved understanding of the biological structure of leatherback turtle populations, in particular aspects related to egg and hatchling mortality to be used as a base for monitoring and management

Issue	Relevant nations	Project aim	Expected outcomes
Pervasive egg depredation over multiple rookeries.	India, Indonesia and Papua New Guinea	Develop a cost effective method of managing predators to produce enough hatchlings to sustain a population such as threat removal, deterrents or barriers.	Reduced mortality of leatherback turtle clutches from predation. The data can be used as a base for monitoring and management
<p>Egg take</p> <p>a) illegal take of eggs b) excessive legal take of eggs in some rookeries c) In most cases these egg takes have not been assessed for sustainability d) In most cases a lack of community based awareness or action exist to ensure adequate hatchling production</p> <p>Take of turtles</p> <p>Lack of real incentives (such as creation of alternative livelihoods) to encourage community support for conservation to ensure adequate hatchling production.</p> <p>A defined need for collaborative, community based projects to maintain adequate hatchling production and reduce or eliminate the direct take of turtles.</p> <p>Inadequate enforcement of existing legislation/ policy</p>	Indonesia, India, Sri Lanka, Papua New Guinea	<p>Determine the enforcement, regulatory and socio/economic drivers that underlie legal or illegal egg or turtle take</p> <p>Design a targeted education approach (by Govt and/or NGO) to raise awareness about the level of hatchling production that is needed to ensure sustainable populations.</p> <p>Where necessary, strengthen policy, legislation and enforcement of egg and turtle protection measures</p> <p>Create and implement incentives (such as creation of alternative livelihoods) to encourage community support for conservation to ensure adequate hatchling production.</p> <p>Develop collaborative, community based projects to maintain adequate hatchling production and reduce or eliminate the direct take of turtles.</p>	<p>Improved understanding of the social, economical and ecological aspects related to the management of leatherback turtle populations</p> <p>Decreased mortality of leatherback turtle eggs, or turtles.</p> <p>Improved social and cultural awareness about leatherback turtle conservation and management</p> <p>Improved socio-economic conditions of coastal communities that participate adjacent to rookeries</p> <p>Decreased mortality of leatherback turtle eggs, and improved hatchling production</p>
Hatcheries that are functioning with reduced hatch success and producing incorrectly imprinted & physically compromised hatchlings and manipulated sex ratios.	Sri Lanka and southern Indonesia	For Governments, regulatory agencies and NGO groups to develop a coordinated education and enforcement approach to change hatchery practice that results in high rates of hatching success of healthy and correctly imprinted hatchlings that are released on the night of emergence	Decreased mortality of leatherback turtle eggs, and improved production of high quality hatchlings