Coral Reefs Management in Sri Lanka

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Content....

- General information
- Management Objectives
- Management Issues
- Management strategies used
- Conclusions
Sri Lanka
Distribution of Coral Reefs in Sri Lanka
Coral Reefs

- Shallow water ecosystems
- Coral reef ecosystems are linked to other ecosystems such as mangroves and sea grass meadows
- Highly productive – called rain forests of the sea
- Coral reef areas attract sea turtles, dolphins and other marine mammals
- Support livelihoods and ensures food security of coastal communities.
Diversity of selected animal groups on reefs in Sri Lanka

- Hard corals: 208 species
- Reef Fish: > 800 species (estimated)
- Crustaceans: > 1000 species (estimated)
- Molluscs:
  - Gastropods: 469 species
  - Bivalves: 287 species
- Species associated with reefs – sea turtles and dolphins
Importance

- Tourism
- Building materials
- Food source
- Coastal protection
- Medicine
- Bio diversity
- Bio technology
Bio diversity

- Coral reefs are often called the Rainforests of the sea
Natural beauty
Tourism

- swimming, snorkeling and diving.

- Dolphin watching, fish watching and whale watching activities
Coastal Protection

- Act as a breakwater in order to absorb the energy flows with oceanic waves
Threats on Coral reefs

- Nearly 60% of the reefs were found to be at risk from human activities.
- Reefs with the highest levels of biodiversity are threatened.
- Many have been damaged beyond recovery.
- Threats of anthropogenic origin
- Threats of natural origin
Threats ....

- Uncontrolled resource exploitation
- Use of destructive fishing practices – e.g. - use of nets on reefs, use of explosives to catch fish
- Poorly planned coastal development
- Natural alterations due to movement of sand
- Climate change related impacts – e.g. coral bleaching due to increase in sea surface temperature
- Sedimentation
• Invasive species –
  – Crown of Thorns Starfish
  – Calcareous algae - Halimeda
• Pollution
  – Sewage
  – Improper garbage disposal
  – Industries
• Hydrocarbon extraction
Destructive fishing and collective methods

Dynamiting
Damage caused by dynamiting
Fish collection using Moxy nets
Unsustainable exploitation of coral reef resources
Collection of reef resources
Ornamental fish collection

Butterfly fish

Angle fish
Coral trampling by reef visitors

Dr. Terney Pradeep Kumara
Sediment deposit on coral

(*Porites Sp.*)
Glass bottom boat - Hikkaduwa
Propeller cuts - Pigeon Island
Oil spills

Ocean 255 burns in Tampa Bay, Florida
Anchor damage
Climate change, coral bleaching and the 2004 tsunami

Coral bleaching occurs due to an increase in sea surface temperature. Extensive damage was caused in 1998. Recovery is slow.

Observations indicate that reefs that are under stress due to human activities take longer to recover.
The 2004 tsunami caused extensive damage to reefs in several locations along the east.
Invasive Species

Crown of Thorns Starfish

Halimeda
The objectives for the management of coral reefs are:

- To preserve reefs as unique living resources which are part of Sri Lanka’s natural heritage as well as for their importance in maintenance of fisheries.
- To preserve reefs as a natural buffer against coastal erosion.
- To maintain reefs as a Scientific, Educational and Tourist Resource.
- To ensure that removal of reef organisms, such as aquarium fish, does not exceed sustainable levels.
Management measures
Strategies followed by the CCD to Control Coral Mining

- Direct Regulations
- Alternative livelihood/Employment Programmes
- Development of Alternative sources for Lime
- Conduct Environmental Education and Awareness Programmes
- Enforcement
Implementation of Rules & Regulations

1. Coast Conservation Act
2. Fisheries and Aquatic Resources Act
3. Fauna and Flora Protection Act
4. National Environmental Act
5. Marine Pollution and Prevention Act
6. National Aquatic Resources Research and Development Act

Awareness Building – by CCD, MEPA, DWLD

Researches – Coral transplanting-University of Colombo & Univ. of Ruhuna
Coast Conservation (Amendment) Act No. 64 of 1988

- Prohibited - mining, collecting, possessing transporting of coral.

- Prohibited - own, process, occupy, rent, lease, hold or operate kilns for the burning and processing of coral.

- Prohibited - use or possess any equipment for breaking up coral.

- Prohibited - use of any vehicle craft or boat in or in connection with transporting of any coral.
Policy developments

- Coastal Zone Management Plan
- Special Area Management Plan
1. Hikkaduwa Marine National Park - 1979
3. Rumassala Marine Sanctuary - 2003
4. Pigeon Island Marine National Park - 2011
5. Northwestern Fisheries Management Area (Mannar & Puttalam Districts)
6. Southcoast Fisheries Management Area (Galle, Matara & Hambantota Districts)
7. Eastcoast Fisheries Management Area (Batticoloa and Ampara Districts)
Hikkaduwa Marine National Park

- Declared in 1979
  - Habitat and species protection
  - Special Area Management Planning – USAID (1990-1995)
  - Environmental profile & management Plan Prepared
- Was upgraded into a Nature Reserve in 1994
  - Extended increased upto 250ha
  - Further upgraded in 2002 as a Marine National Park
Bar Reef Marine Scannctuary

- Declared in 1992
  - 306 sq km
  - Habitat and species protection
- Environmental profile & management Plan Prepared
Pigeon Island Marine Sanctuary

- The island were protected in 1960’s to protect Rock Pigeons. (Surrounding sea was not included)
- Declared in 2003 (including surrounding sea-1 mile radius)
- Special Area Management Plan?
Rumassala Marine Sanctuary

- Declared in 2003
  - Habitat & Species protection

- Special Area Management Plan?
Enforcement...

- Mainly done through the Police Department
- Political Involvement – Elections
- Donor Agency Contributions
- Demolition of lime kilns at Matara district completed but Galle was not.
Results...

- Price at Coral base line has increased.
- Income of coral miners also increased (from Rs.500 – 600 to Rs. 1000 – 1200)
- Mining of coral escalated.
- Coral mining reported in areas where activity has not been previously carried out.
Challenges on conserving coral reefs

- Lack of financial resources to undergo researches,
- Inadequate inter agency corporation
- Political influences
- Lack of awareness for conserving and importance of the corals
- Sedimentation- due to inland activities
Conclusion...

- It is very difficult to achieve the objectives of coastal resources management such as coral through implementing single strategy.
- Without providing solutions to the route causes of the issues management policies for single coastal resources is not possible.
- Inter agency cooperation and multy disciplinary approaches can minimize the negative impacts of over exploitation of the coastal resources.
Thank you

Photograph: Dr. Terney Pradeep