Ecosystem Approach for Large Marine Ecosystem Management Sri Lanka experiences

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Contents of the presentation

- Introduction of the Ecosystem Approach
- Background of the study area
- Management initiatives
- Out come and Management gaps
- Recommendations and conclusions

What is the Ecosystem Approach (EA)

- EA is a holistic approach to management of Coastal resources that move away from traditional coastal resources management systems that focus only on mainly secoral aspect of the coastal resources management
- It is towards systems and that balance ecological decision-making processes that balance ecological well-being with human and societal well-being within improved governance frameworks.

Why EA for Large Marine Ecosystem Management

- Broader consideration of links between ecosystems and coastal resources including fisheries
- Contribution to more effective resource use planning
- Facilitation of trade-offs between different stakeholder parties, balancing human and ecological needs
- Increased stakeholder participation

Why EA for Large Marine Ecosystem Management con.

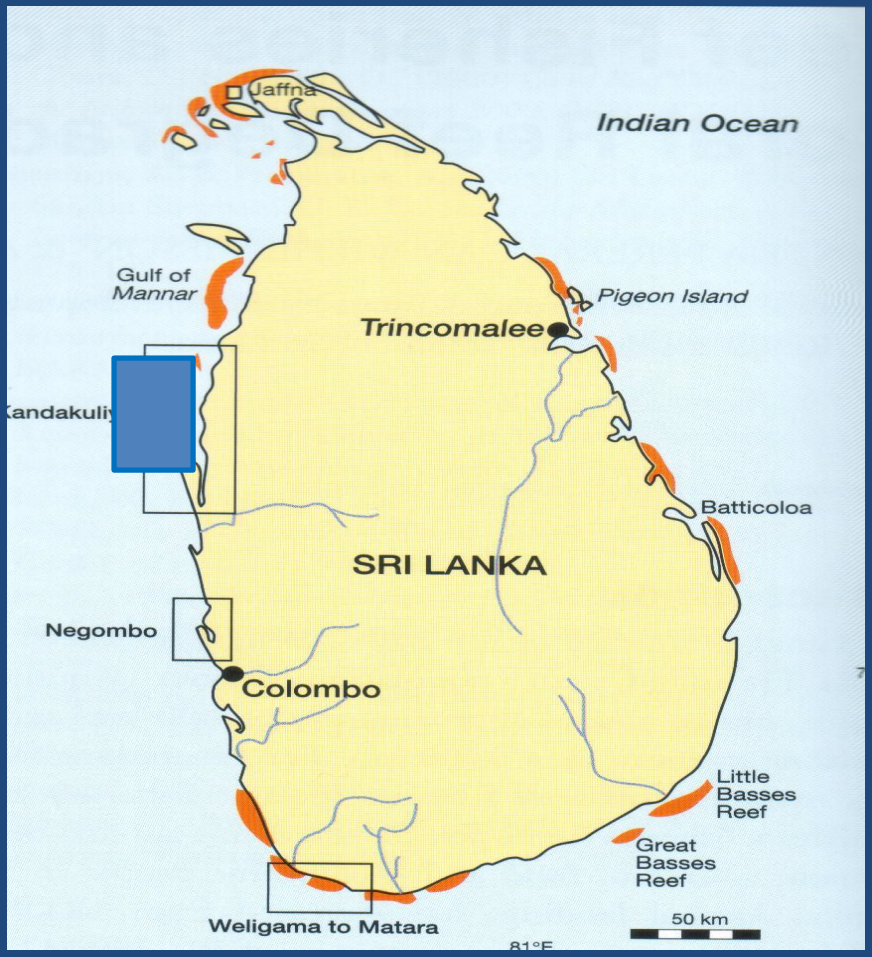
- Help with resolving or reducing conflicts between stakeholders
- Help with balancing resources productivity with conservation of biodiversity and habitat protection
- Grater recognition of cultural and traditional values in decision making
- Enabling of larger-scale, longer-term issues to be recognized and incorporated into coastal resources management

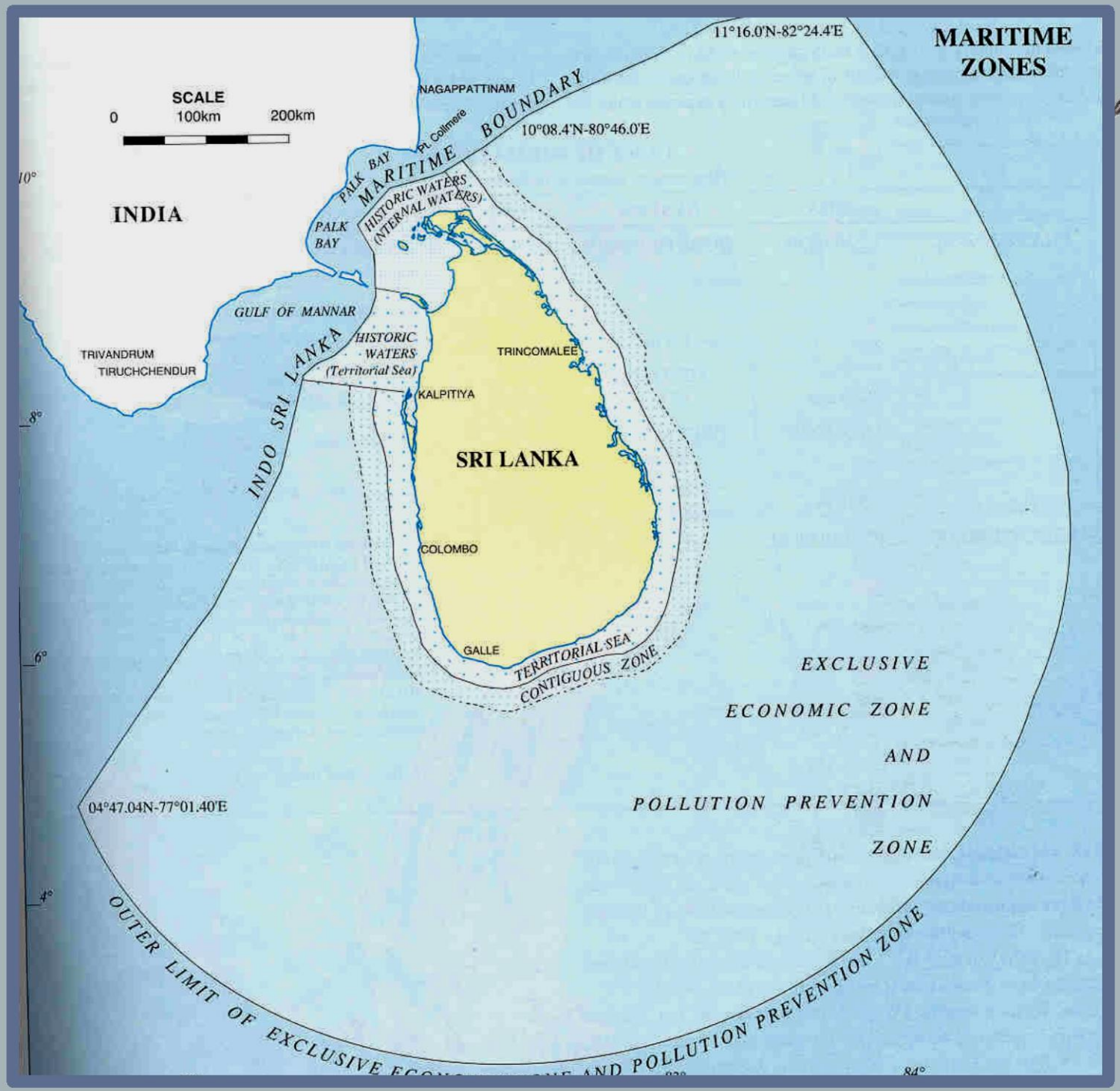
The main three EA components

- Ecological well-being
- Human well-being
- Good governance

Background of the Study area

Case Study Kalpitiya MPA




MARITIME ZONES
SCALE
0 100km 200km
11°16.0'N-82°24.4'E
10°08.4'N-80°46.0'E
04°47.04N-77°01.40'E
NAGAPPATTINAM
Pt. Calimere
MARITIME BOUNDARY
PALK BAY
HISTORIC WATERS (INTERNAL WATERS)
PALK BAY
INDIA
GULF OF MANNAR
TRIVANDRUM
TIRUCHCHENDUR
INDO SRI LANKA
HISTORIC WATERS (Territorial Sea)
TRINCOMALEE
KALPITIYA
SRI LANKA
COLOMBO
GALLE
TERRITORIAL SEA
CONTIGUOUS ZONE
EXCLUSIVE ECONOMIC ZONE AND POLLUTION PREVENTION ZONE
OUTER LIMIT OF EXCLUSIVE ECONOMIC ZONE AND POLLUTION PREVENTION ZONE
10°
8°
6°
4°
84°

Why it is required to Impliment EA in the area

Newly forming Sand dune

Mangrove Islands

Estuarine ecosystem

Sea Grass beds

Coral Reefs

Area of dugong occurrence

Dugong at Sea grass bed

Blue and Sperm wheals

Blue and Sperm wheals

Dolphins around Kalpitiya

Fish

Turtles

Socio-Economic Activities

- Tourism
- Fisheries
- Energy
- Agriculture

Tourism Activities

- Dolphin and whale watching
- Diving and snorkeling at Bar reef area
- Kite surfing and wind surfing
- Adventure tourism
- Eco-tourism

Kite Surfing

Kite Surfing

Fisheries Activities

- Traditional and artisanal fishing (Non mechanized boats)
- One day boats (Out board motor engine boats)
- Malty day boats (Inboard engine)
- Aquaculture

Energy Generation Activities

- Coal fired energy generation plant
- Wind power energy plants

Agriculture Activities

- Vegetable farming
- Fruits farming
- Coconut farming
- Herbal plants culture

Major issues in the area

- Coal plant related issues
- Wind field related issues
- Fisheries related issues
- Collecting exotic and ornamental fish for curio trade
- Tourism related issues
- Trans boundary issues
- Habitats destructions
- Climatic Related issues

Coal plant related issues

- Fly Ash
- User Conflicts (Tourism, Agriculture etc.)

Coal Ash moving with wind

Wind plant related issues

- Noise pollution
- Migrant birds issues
- User conflicts with tourisam

Fisheries related issues

- Illegal fishing activities and habitat distructions
- By catch issues
- Habitats destructions due to aquaculture

Destructive fishing and collective methods

Dynamiting

Damage caused by dynamiting

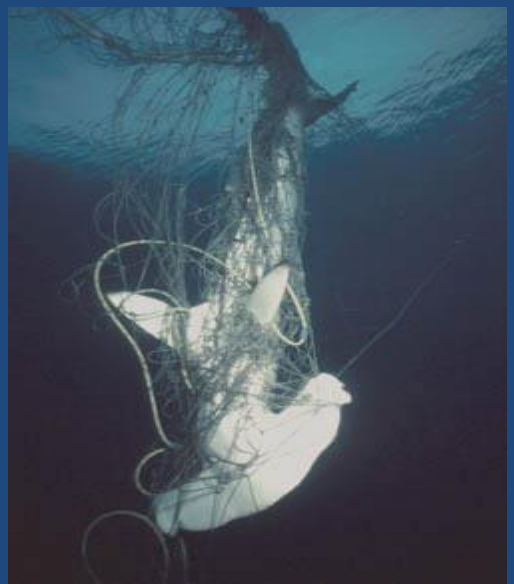

Using Dynamites to catch fish
Bar Reef Marine Sanctuary - Sri Lanka - Mar 2007
Arjan Rajasuriya


© Nishan Perera 2015

Conflicts among the Fishermen

The lost gear may then continue to fish Indiscriminately-"ghost-fishing."

By-Catch of Gillnets



By-Catch of Longline

- Using Disco Net - this net is used to catch fishes, lobsters living around the coral reefs

By catch and Illegal killing of Sea turtles

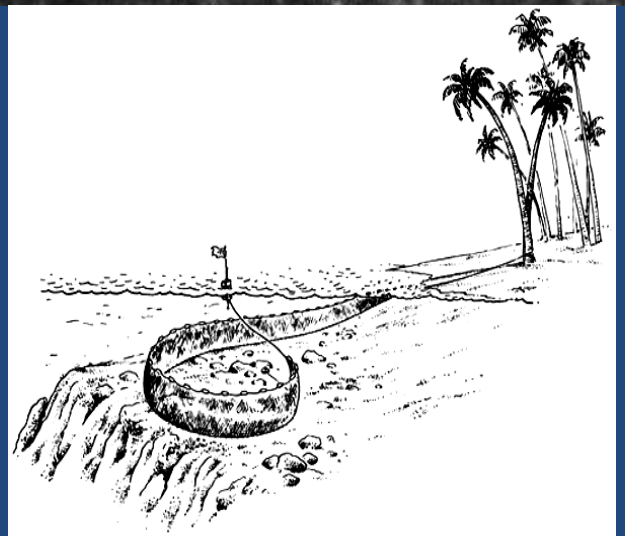
Destructive Fishing Practices
Habitat Destruction…..

Moxi net

Drag net

Bottom trawling

Drag net



Collection of reef resources

For marine curio trade

Photographs- Terney

Collection of reef fish for ornamental fish trade

Butterfly fish

Angle fish

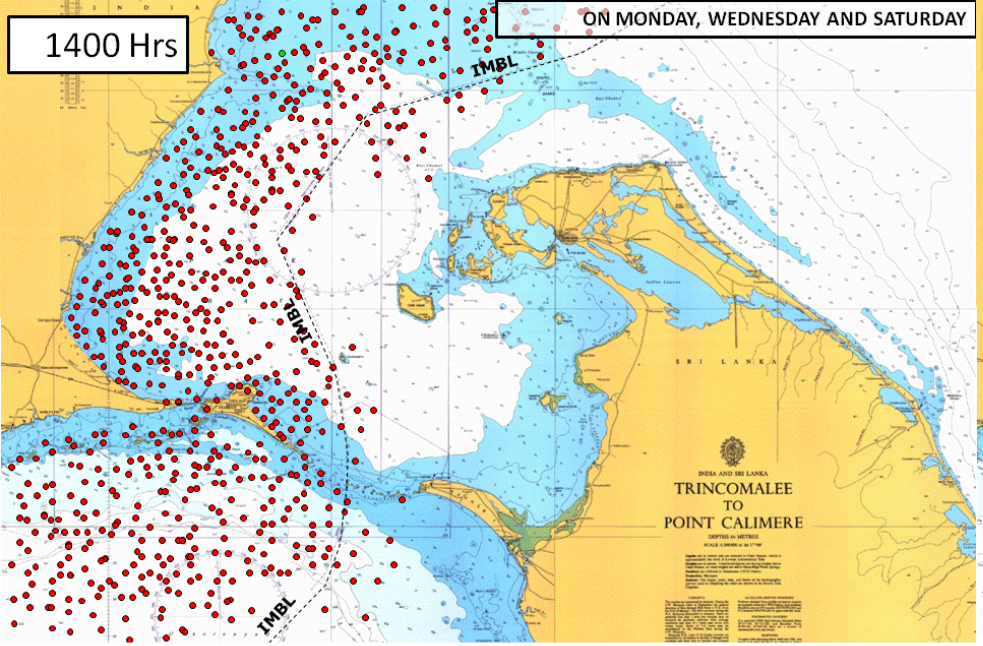
Anchoring of motorized boats in the sea

Tourism and Energy Conflicts

Spear guns

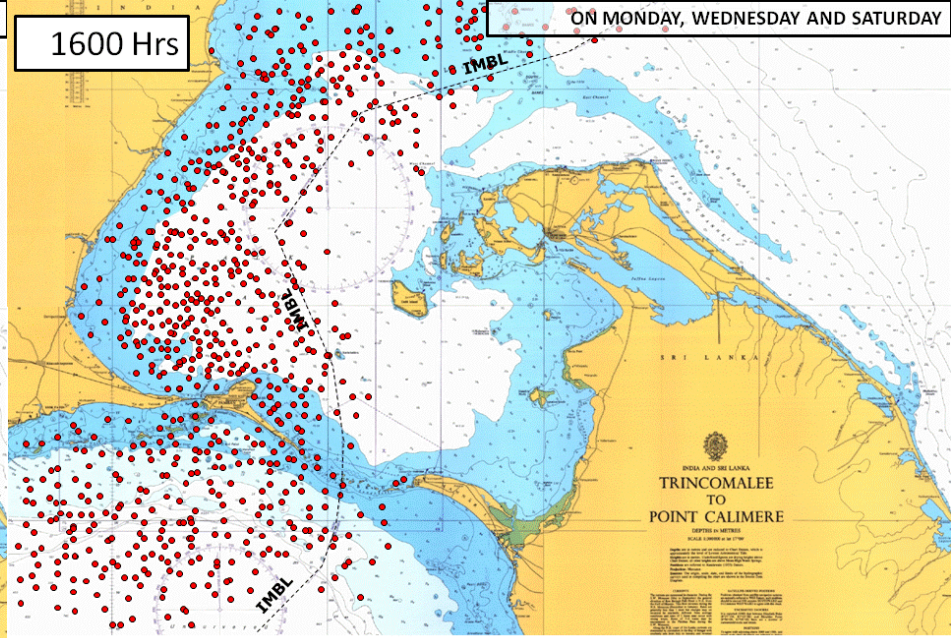
Trans boundary issues

- Indian trawlers poaching in the Sri Lanka water
- Damping waste to the sea



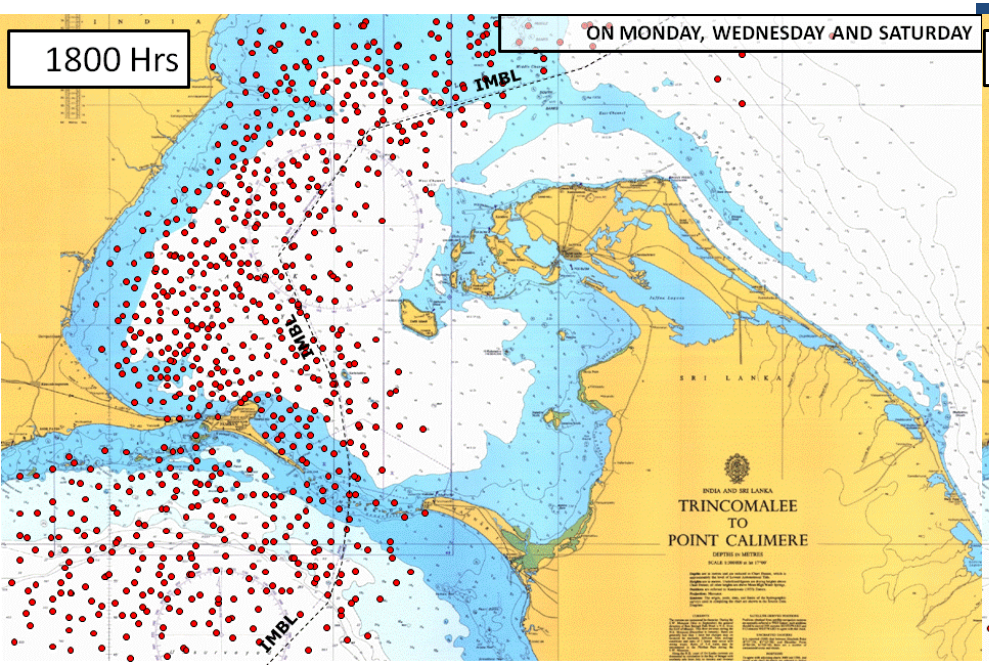
POACHING IN SRI LANKAN WATERS BY INDIAN FISHERMEN

At 2.00 p.m. Tamil Nadu trawlers start to cross the IMBL.



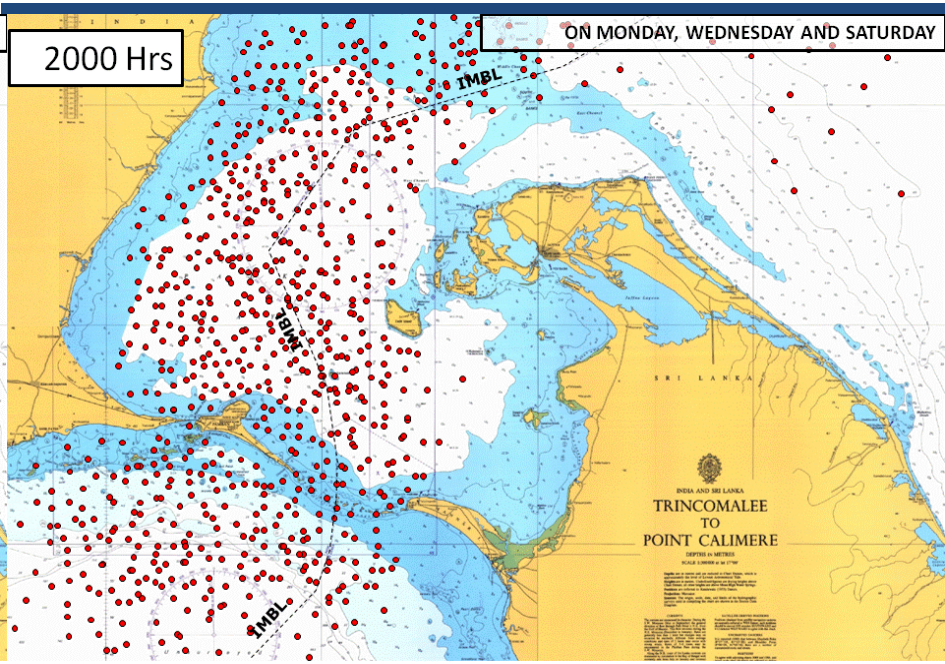
POACHING IN SRI LANKAN WATERS BY INDIAN FISHERMEN

At 4.00 p.m. Tamil Nadu trawlers continue to cross the IMBL.



POACHING IN SRI LANKAN WATERS BY INDIAN FISHERMEN

At 6.00 p.m. Tamil Nadu trawlers start to advance in to Sri Lankan waters.



POACHING IN SRI LANKAN WATERS BY INDIAN FISHERMEN

At 8.00 p.m. Tamil Nadu trawlers continue to advance in to Sri Lankan waters.

Source - Min of Fish.

Midnight Poaching

CATCH AFTER BOTTOM TRAWLING WITH DESTRUCTION TO SEABED

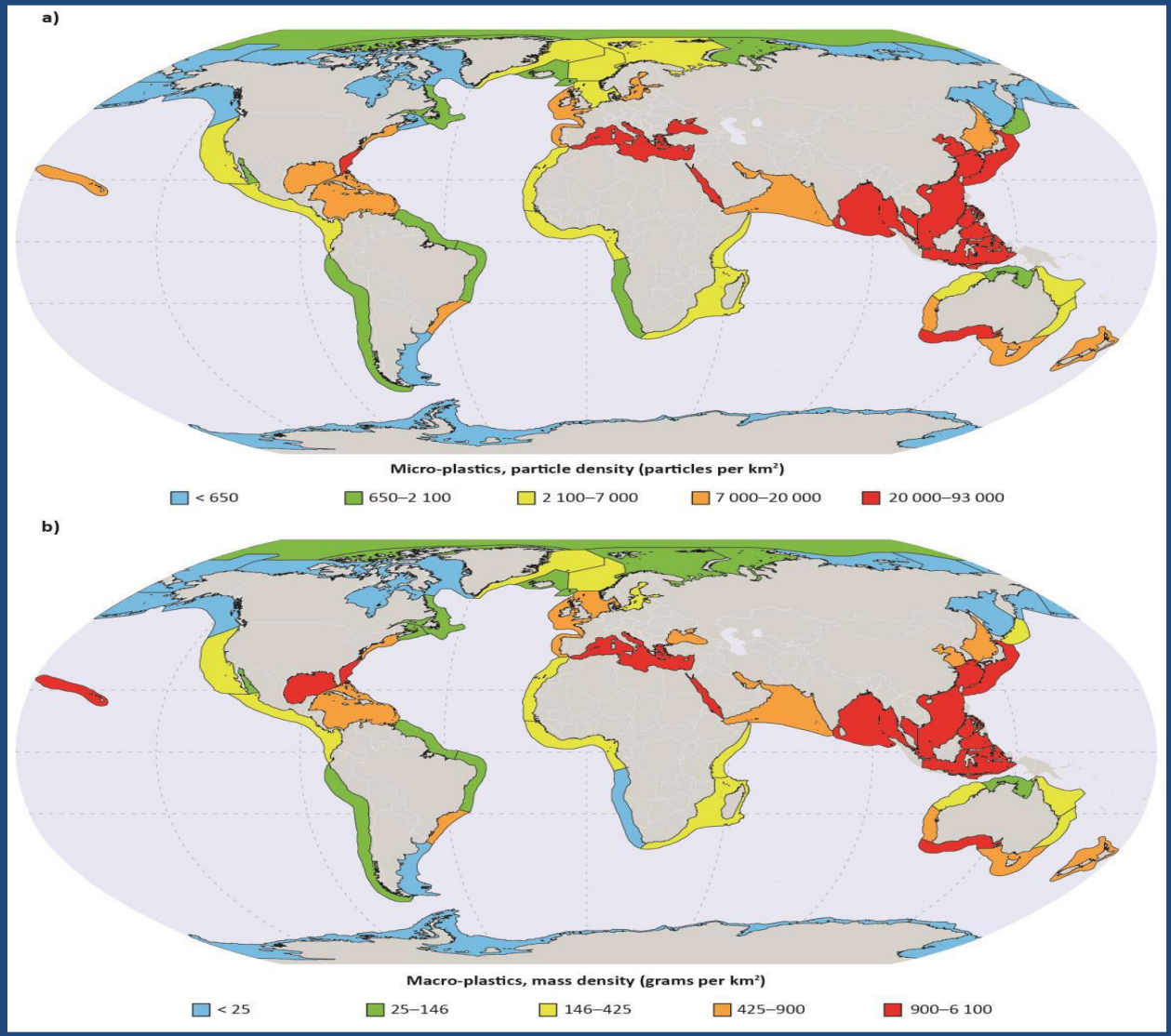
Source - Min of Fish.

Midnight Poaching

Marine litter coming to Kalpitiya area via gulf of Manner

Indian clinical waste reaches Puttalam Beaches in Sri Lanka

Micro Plastic and Plastic density in the Bay of Bengal area



Whales are killing due to many reasions

Dugong are killed due to by catch or any other reasons

Dugong are killed due to by catch or any other reasons

Dolphins are killing due to by catch or tourism

Climate change/Natural Issues

Coastal Erosion 150m in 4 years

Envirnmental impacts

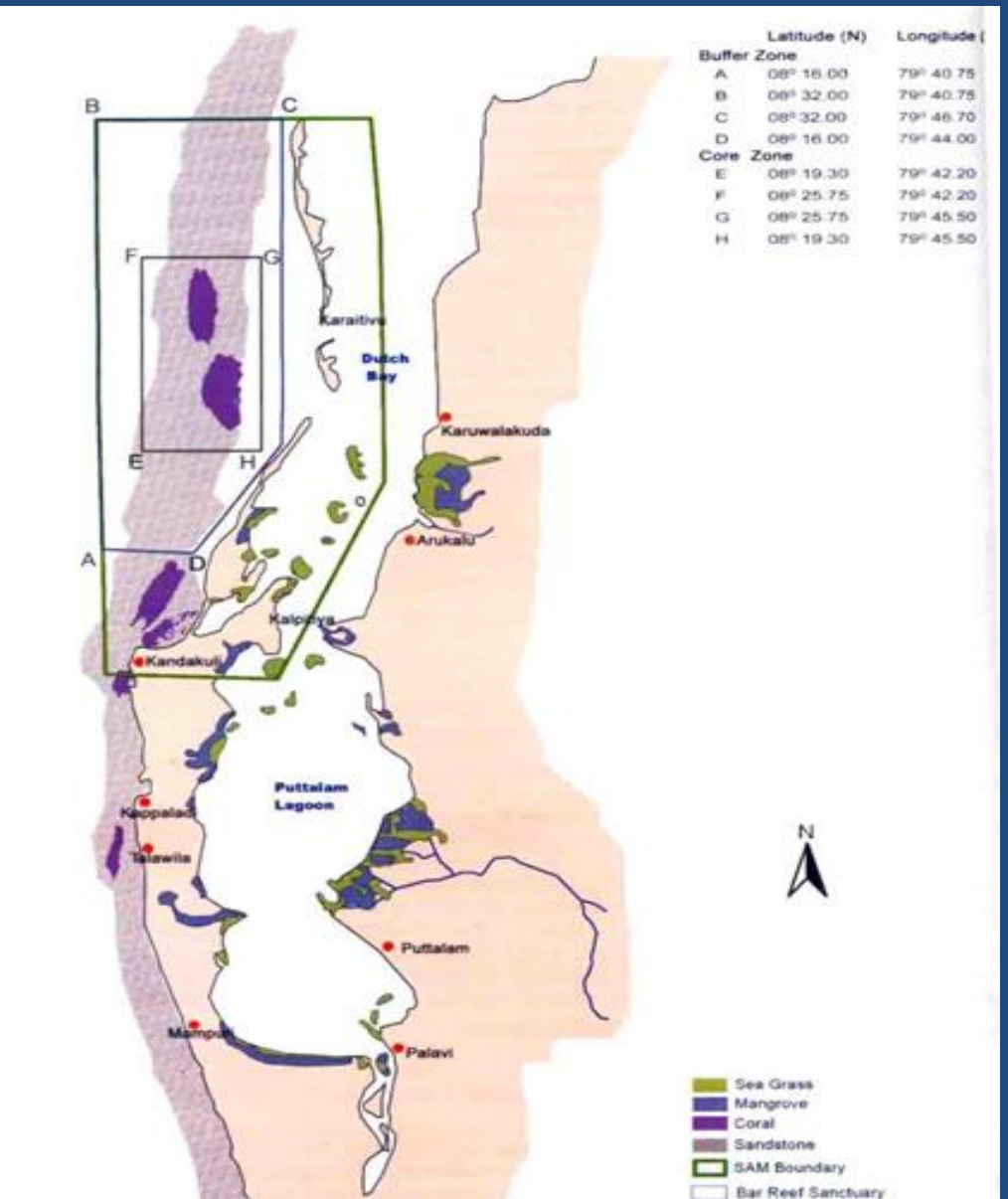
1998 El nino event

What are the management Initiatives taken

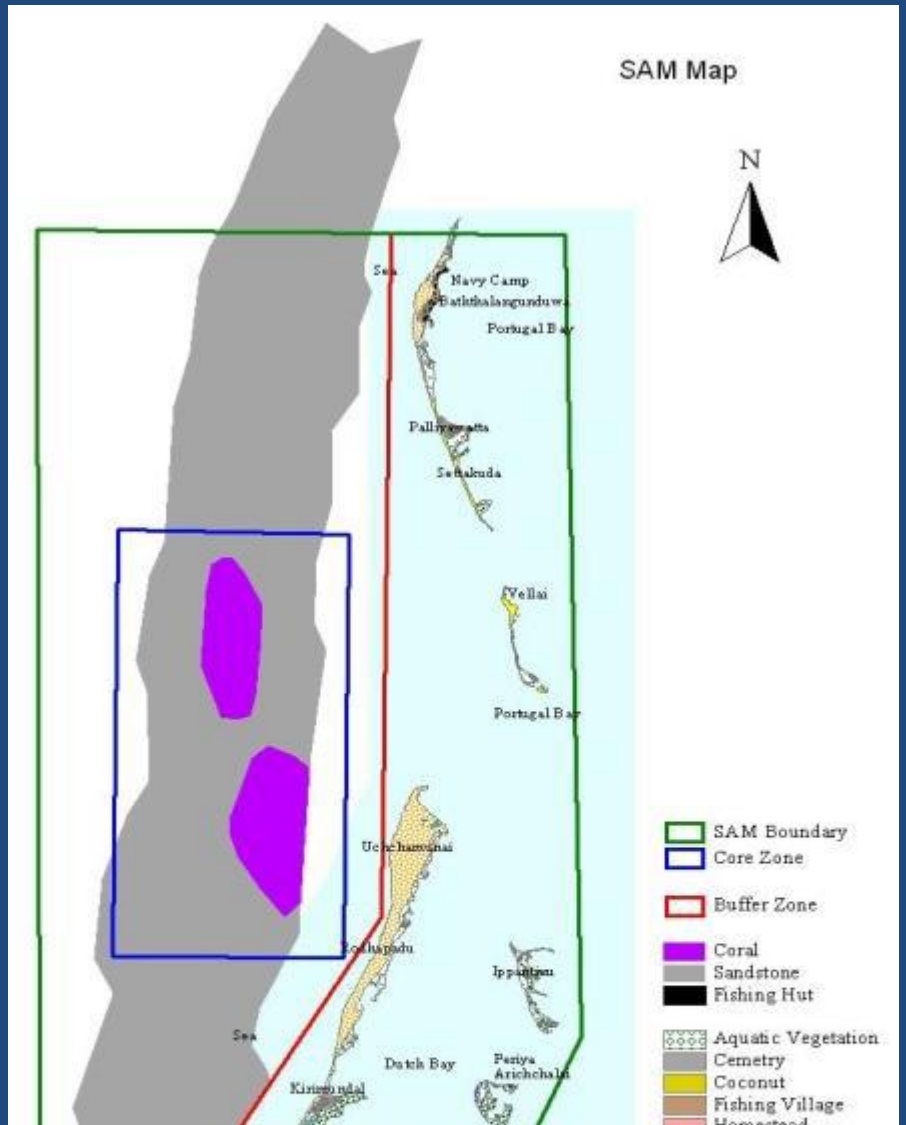
Bar Reef Marine Sanctuary

- Declared in 1992
  - 306 sq km
  - Habitat and species protection
  - **Special Area Management planning** – ADB (2000 – 2005)
  - **Environmental profile and management plan prepared.**

Declaration of management area



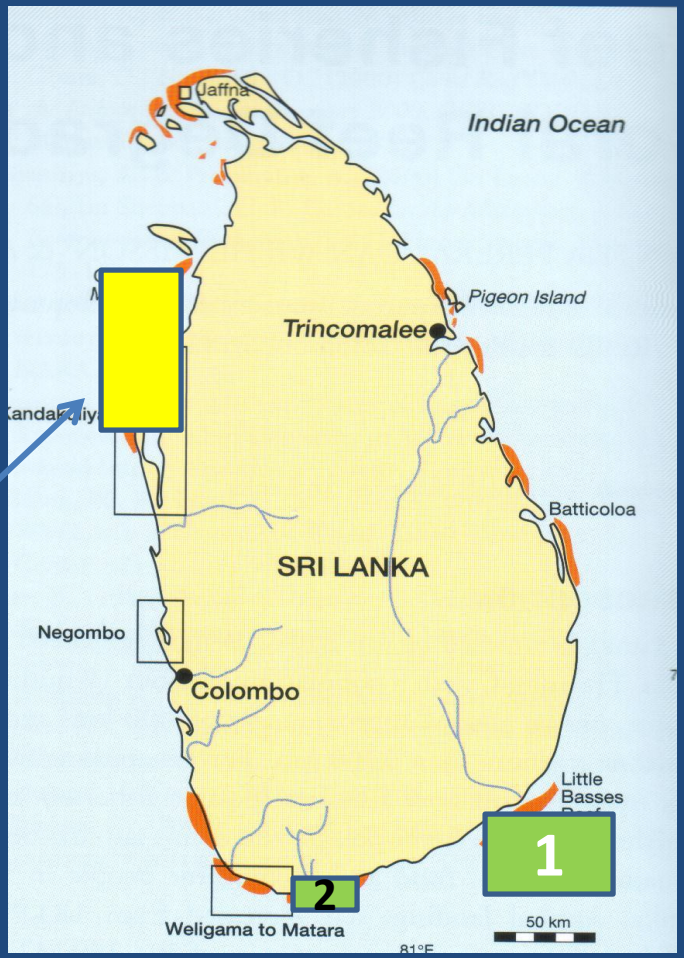
Declaration of Marine sanctuary



Fisheries Management Areas under the Fisheries Act

-)

- Other 3 areas have been identified and have been proposed for managing Sea cucumber, Chank, Lobsters and Ornamental Fish).



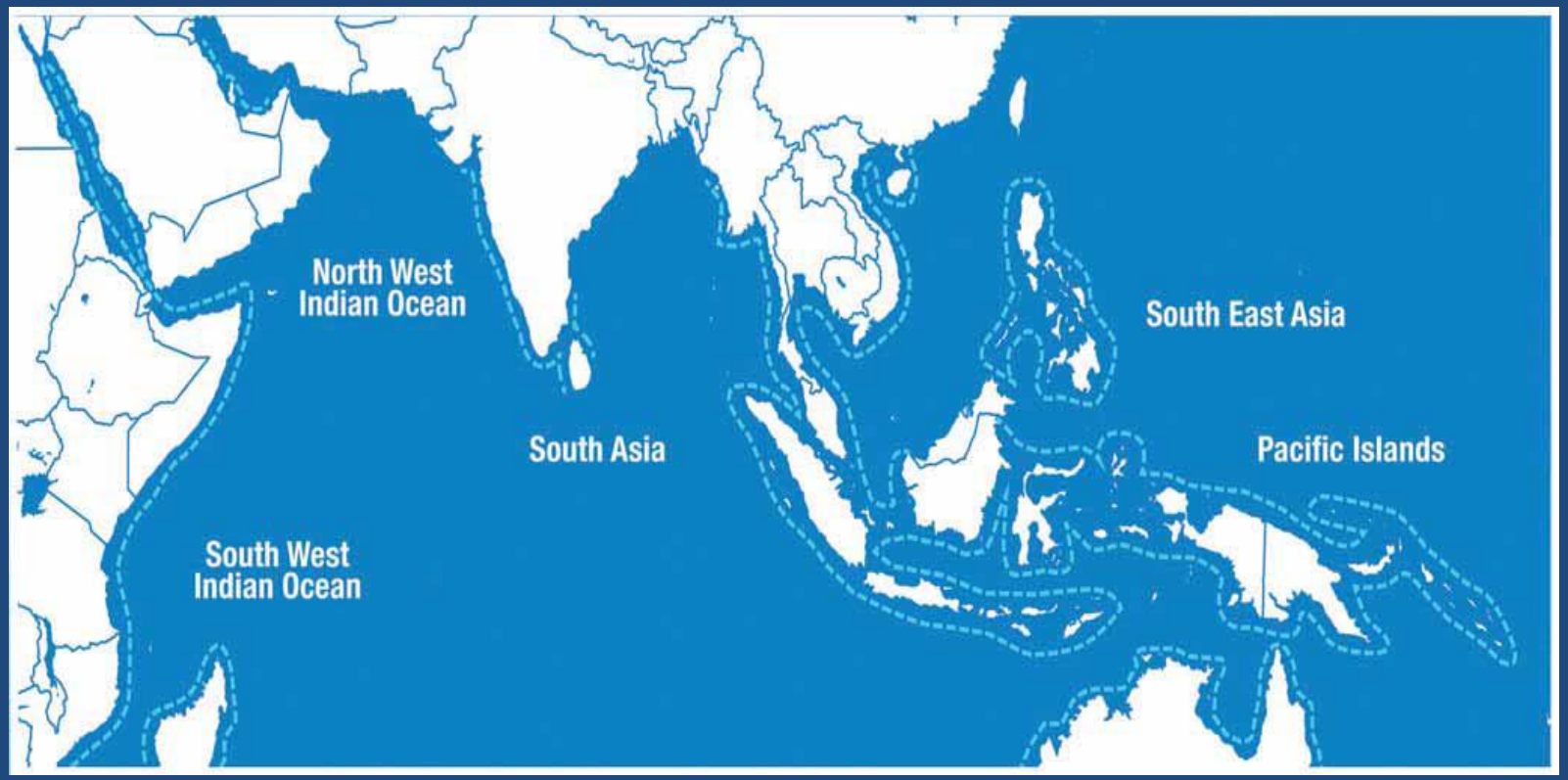
Existing management strategies for offshore fishery

- Offshore fishery management plan prepared
- Regional fishery management body (IOTC)
- Management measures
  - Effort control
  - Eliminate IUU fishing
  - Catch monitoring

Management strategies Developed for coastal fisheries management in the area

- Participatory Management plans
- Declaration of fisheries Management Areas
- Fisheries Act and Regulations
- New Fisheries Act
- 10 year development plan

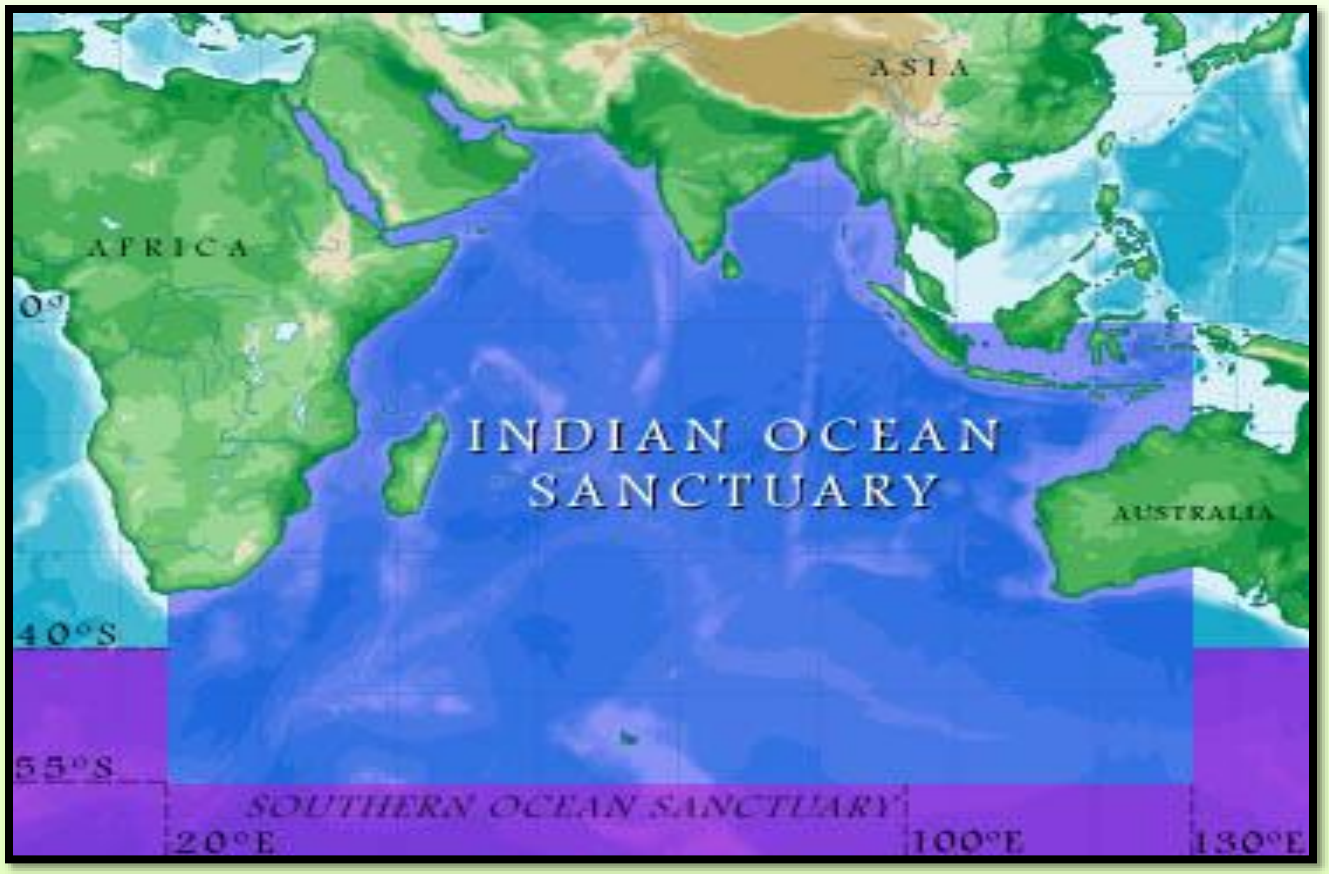
DUGONG MOU SIGNATORIES



DUGONG MOU SIGNATORIES

- **DUGONG MOU SIGNATORIES:** AUSTRALIA, BAHRAIN, COMOROS, ERITREA, FRANCE (MAYOTTE, NEW CALEDONIA), INDIA,
- KENYA, MADAGASCAR, MOZAMBIQUE, MYANMAR, PALAU, PAPUA NEW GUINEA, PHILIPPINES, SEYCHELLES, SOLOMON ISLANDS,
- SRI LANKA, THAILAND, UNITED ARAB EMIRATES, UNITED REPUBLIC OF TANZANIA, VANUATU AND YEMEN.


First South Asia Sub-regional Workshop of UNEP/CMS
Memorandum of Understanding on the Conservation and
Management of Dugongs and their Habitats throughout their
Range in South Asia
6-7 JUNE 2011
VENUE - DSF GRAND PLAZA, TUTICORIN

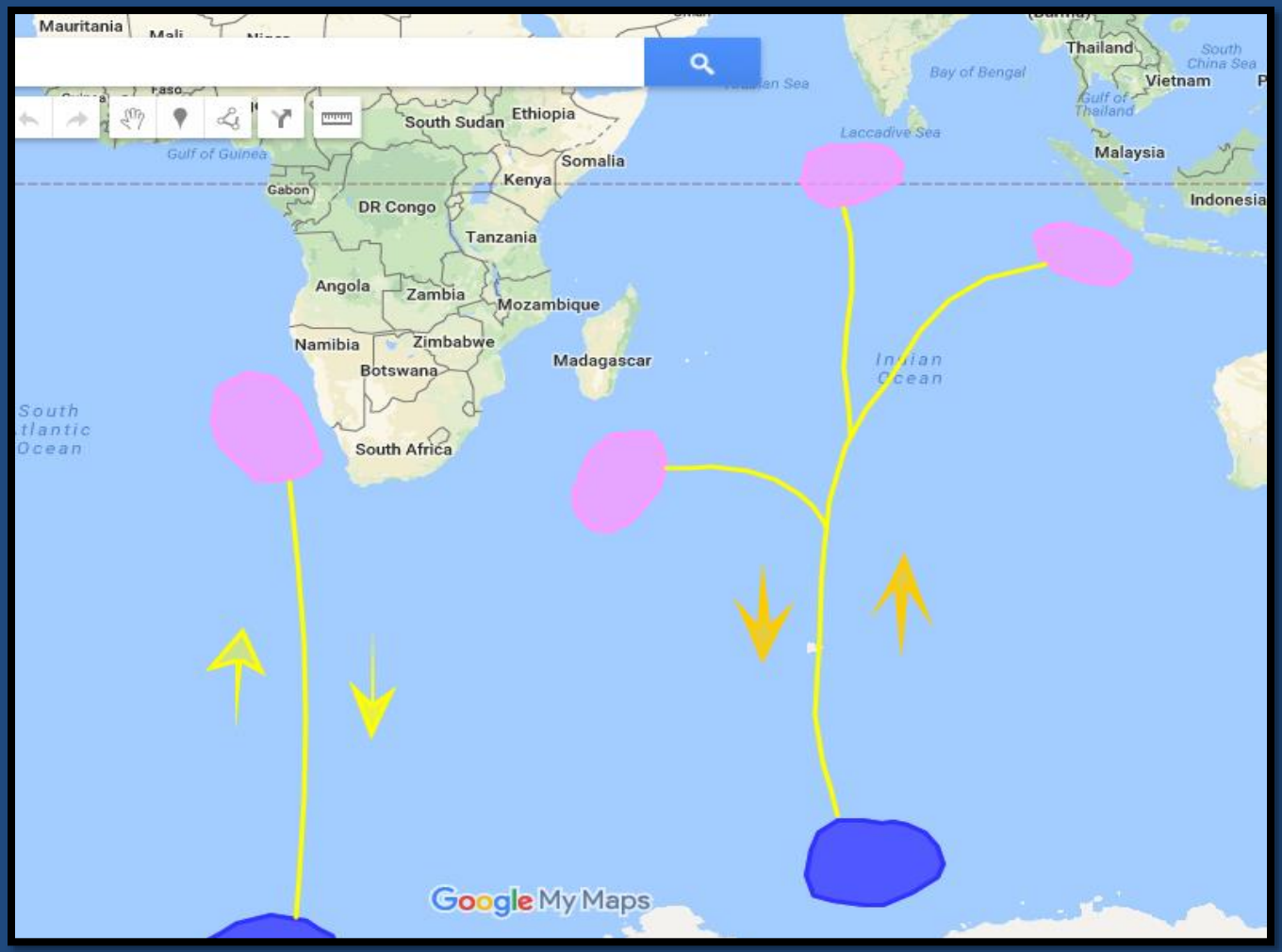


In 1979, The International Whaling Commission declared the Indian Ocean (north of 55° S) a sanctuary. Sri Lanka is located in the center of the Indian Ocean Marine Mammal Sanctuary

Whale migration

During winter period - Migrate to equatorial region for feeding and breeding.

Summer time – Migrate to summer feeding grounds



Most of these activities are basically sectoral approaches even though it indicated that those are ICRM

Full government/ Central management	Ecosystem based MANAGEMENT (VARYING DEGRESS) ⟷	Full community-based management

Conclusions

- Successful natural resources management is the proper management of people and their action (Political, legal, and social)
- Understanding of the hydrological and biological condition is important but understanding of the political and social condition is also very important

Efficient Ecosystem based Coastal Resources Management system

- Aiming at involving the PARTICIPATION of stakeholders in achieving a SUSTAINABLE development of the natural system through an INTEGRATION of all the activities in the Ecosystem based Management area

Management elements Gaps/Constraints and possible Solutions

Management element	Ecosystem Approach Gaps/Constraints	Possible Solution
Enabling Environment	• Inadequate concern for coastal ecosystems in coastal legislation and policy • Lack of public and political awareness of the importance of coastal ecosystems	•Legislation reform • documentation of adverse impacts of river basin management •Creation of awareness of politicians, authorities and coastal user groups

Management element	Ecosystem Approach Gaps/Constraints	ICARM issues
Institutional Framework	• Insufficient interaction between land use planners and coastal water managers • Dominant interaction between land use planners and coastal water manager • Dominant sector bias • Insufficient institutional capacity	• Establishment of institutional coordination and cooperation mechanism • Capacity development in integrated taskforces

Management element	Ecosystem Approach Gaps/Constraints	ICARM issues
Management Instruments	• Lack of effective implementation and enforcement tools • Lack of stakeholder involvement and responsibility • Lack of impact assessment and planning tools	• Development of implementation tools • Improved stakeholder involvement and responsibility • Improved valuation of coastal ecosystems • Use of tools for integrated impacts assessments

Future Requirements for proper management of the EA in LMA

- Establishment of appropriate Institutional system
- (There is no blueprint for institutional framework valid for all cases) (Stage of development, Financial and human resources, traditional norms and other specific circumstances will play an impartment role to decide the institute)
- Institutional capacity building

Future requirements

- Legislation reform
- Established a proper Documentation of adverse impacts of Ecosystem management
- Creation of awareness of politicians, authorities and coastal user groups
- Establishment of institutional coordination and cooperation mechanism
- Capacity development in integrated taskforces

Future Requirements continue

- Information systems. In many cases available information on natural resources is scarce, fragmented, outdated or otherwise unsuitable for management purposes.
- Resource allocation and conflict management
- Regulatory instruments in management (Direct command and control approaches, Economic instruments, voluntary agreements and self-regulation)
- Restorations and rehabilitation of habitats


Thank you for
your attention!