

LK6 - 2132

**Increasing knowledge on sea grass habitats and
dugong distribution at selected sites in North
Western Sri Lanka**

Project progress July 2016

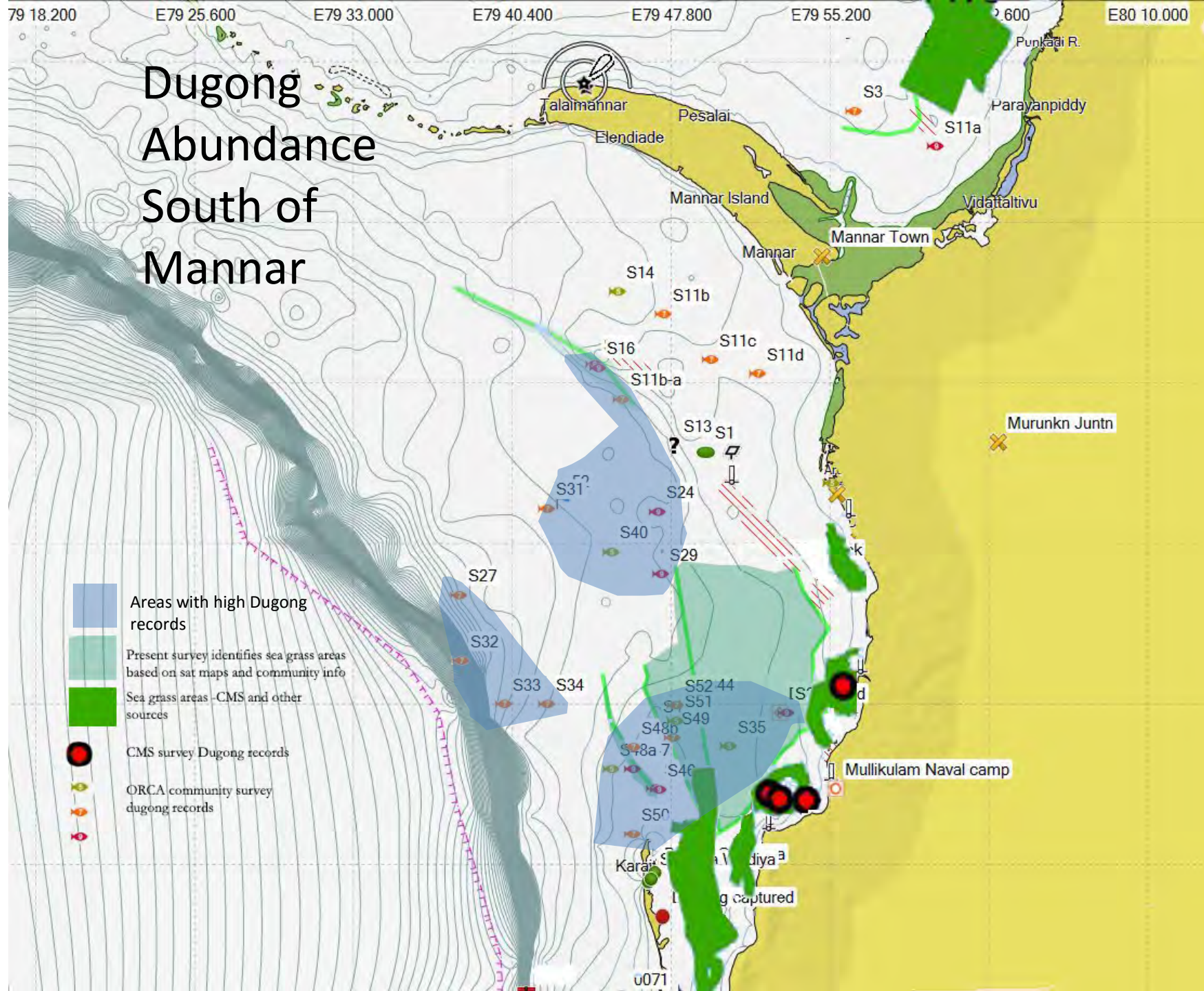
**ORCA
Ocean Resources Conservation
Association**



- This is a general overview of the findings of the project up to now.
- The main survey area is between Kalpitiya and Mannar peninsula
- The area North of Mannar is not sufficiently sampled within the present survey period.

Dugong Abundance South of Mannar

- Areas with high Dugong records
- Present survey identifies sea grass areas based on sat maps and community info
- Sea grass areas -CMS and other sources
- CMS survey Dugong records
- ORCA community survey dugong records



[illegible]

This is a nautical chart of the Lakshadweep Islands. The chart features depth soundings in meters, with values ranging from 0.5 to 11.9. Key geographical features include the islands of Minicoy, Kavaratti, and Agatti. The 'Periyar' area is highlighted with a red arrow and labeled as a 'Shifting Sand Bank'. Other labels include 'Talamannar', 'Pesalai', 'Elendiade', 'Mannar Island', 'Mannar', 'Erukklampidi', 'Maldiva Bank', 'Parayanpiddy', 'Vidattattu', 'Doric', 'Moderegama Pt', 'Moderegama Aru', 'Kudremalai Pt', 'Kudremalai Tower', 'Karattivu', 'Portugal Bay', 'West Cheval Banks', and 'East Cheval Banks'. The chart also shows various navigational aids and symbols for reefs and shoals.

Site surveys using SCUBA divers



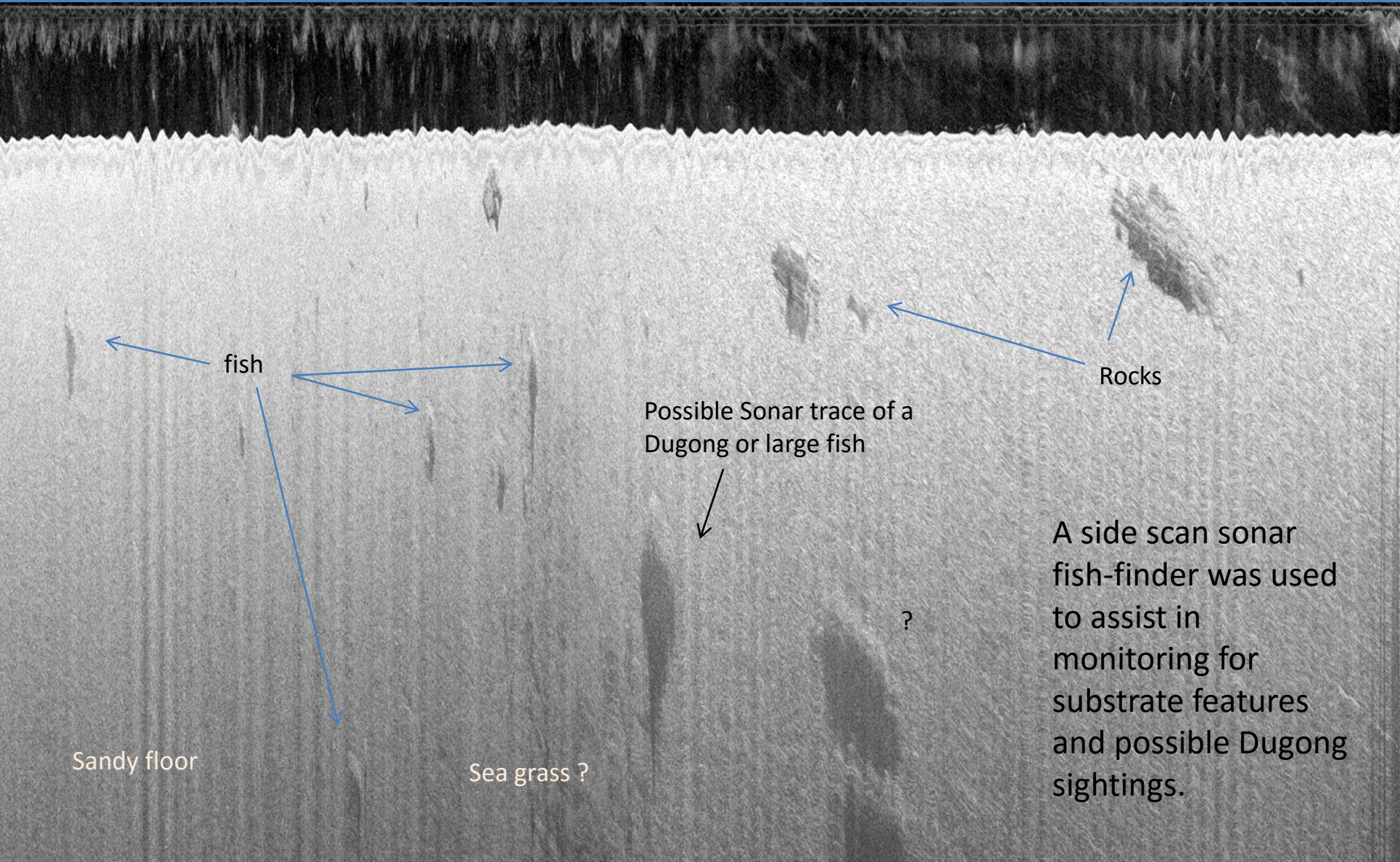


SIDE SCAN SONAR

Side scan sonar was used to survey sea floor for identification of possible reef and sea grass areas as well as to monitor for possible tracings of Dugong which may not be detected from the boat.



Use of SIDE SCAN SONAR

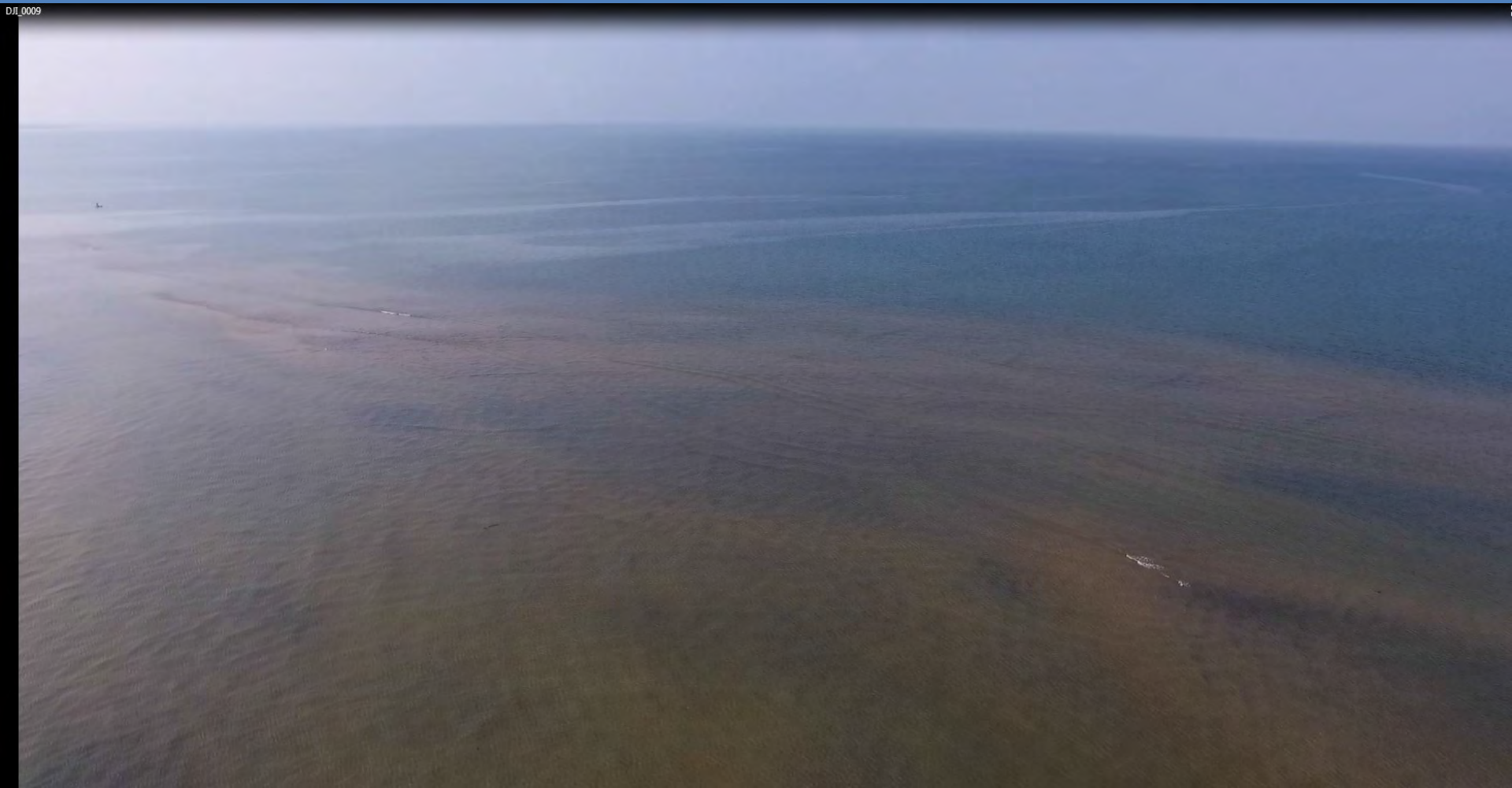




**Using Mini- Drones to survey
shallow sea areas**

Use of Mini- Quadcopter Drones allows survey of shallow sea areas from a high altitude. The drones can be used in waters up to about 3m. Depth in clear water and is particularly advantageous in areas where boat maneuvering is difficult . Capable to reach altitudes of over 150m it can also be used to assist local area mapping

DJI_0009



Sea grass habitats

Halophila dominant Sea grass – mid Cheval

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Halophila dominant Sea grass – mid Cheval

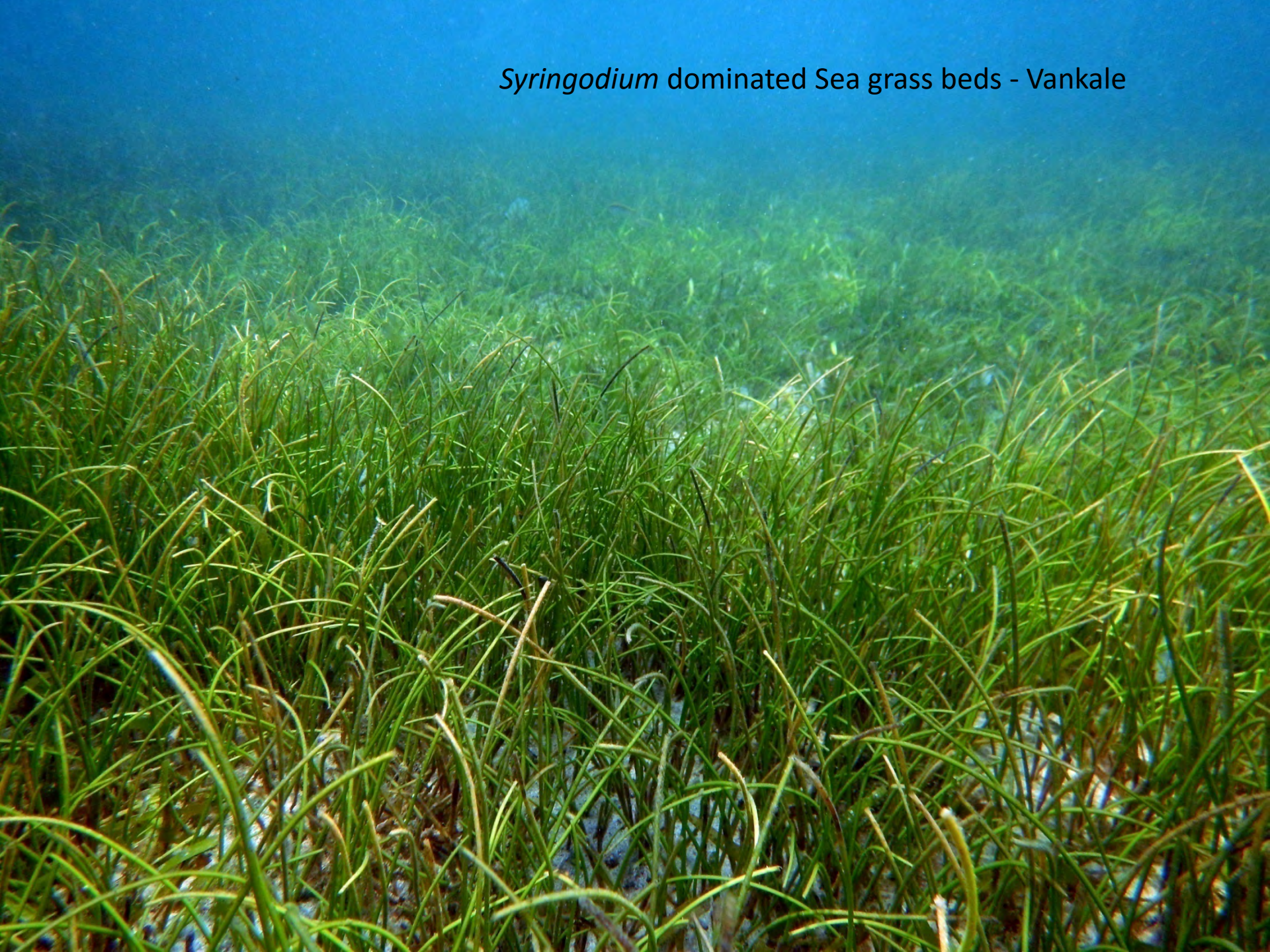


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Cymodoce dominated Seagrass beds East Cheval



Syringodium dominated Sea grass beds - Vankale



Halophila Syringodium mixed habitats



Mixed sea grass habitat





Shallow *Enhalus* dominated Sea
grass habitats Pallimune to
Illuppakadavi

ORCA



Species diversity recorded:

During the survey 9 species of Sea grassed were found in various depths from 0.5 m to 14m

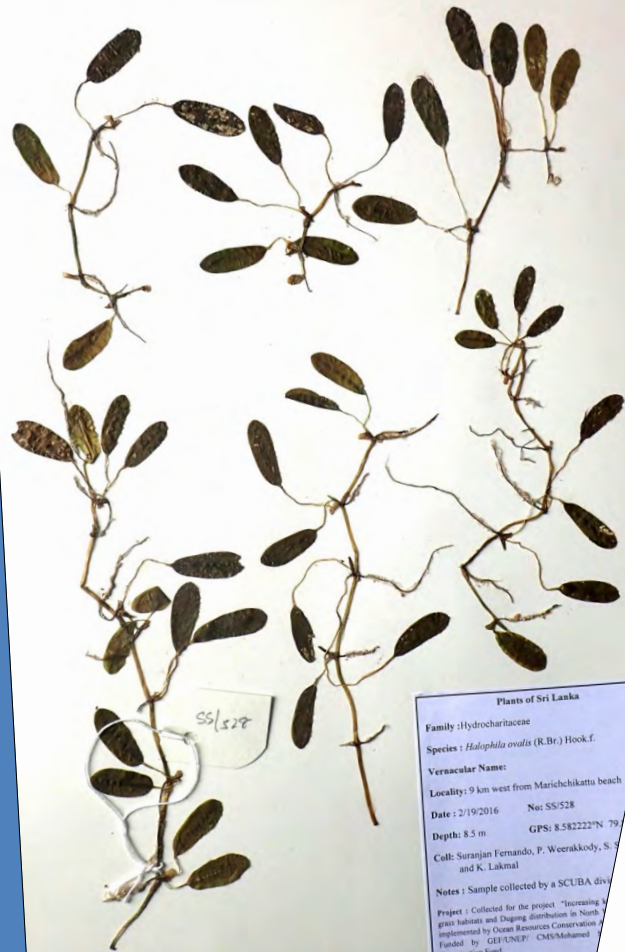
- *Cymodocea serrulata* (R.Br.) Asch. & Magnus
- *Cymodocea rotundata* Asch. & Schweinf.
- *Syringodium isoetifolium* (Asch.) Dandy
- *Halophila ovalis* (R.Br.) Hook.f.
- *Halophila decipiens* Ostenf.
- *Halophila stipulacea* (Forssk.) Asch.
- *Halodule uninervis* (Forssk.) Boiss.
- *Thalassia hemprichii* (Ehrenb. ex Solms) Asch.
- *Enhalus acoroides* (L.f.) Royle



Halophila stipulacea



Contributing to the National Herbarium Collection



Plants of Sri Lanka
Family : Hydrocharitaceae
Species : *Halophila ovalis* (R.Br.) Hook.f.
Vernacular Name:
Locality: 9 km west from Marichchikattu beach
Date : 2/19/2016 No: SS/528
Depth: 8.5 m GPS: 8.582222°N 79.838611°E
Coll: Suranjan Fernando, P. Weerakkody, S. Subhashana and K. Lakmal
Notes : Sample collected by a SCUBA diving survey
Project : Collected for the project "Increasing knowledge on Seagrass habitats and Dugong distribution in North Western Sri Lanka" implemented by Ocean Resources Conservation Association (ORCA). Funded by GEF/UNEP/ CMS/Mohamed bin Zayed Species Conservation Fund.
Property of National Herbarium Peradeniya



Plants of Sri Lanka
Family : Cymodoceaceae
Species : *Cymodocea serrulata* (R.Br.) Asch. & Magnus
Vernacular Name:
Locality: Shore near Kudiramale point
Date : 2/19/2016 No: SS/535
Depth: 0.5 m GPS: 8.539886°N 79.874736°E
Coll: Suranjan Fernando, P. Weerakkody, S. Subhashana and K. Lakmal
Notes : Hand collection from bottom
Project : Collected for the project "Increasing knowledge on Seagrass habitats and Dugong distribution in North Western Sri Lanka" implemented by Ocean Resources Conservation Association (ORCA). Funded by GEF/UNEP/ CMS/Mohamed bin Zayed Species Conservation Fund.
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Property of National Herbarium
Peradeniya

54+ herbarium specimens of Seagrass and Algae have been deposited in the National Herbarium Sri Lanka (PDA) as voucher specimens under the current project name and ORCA.

Another 40+ specimens are under preparation for depositing at the national herbarium representing various surveyed locations.

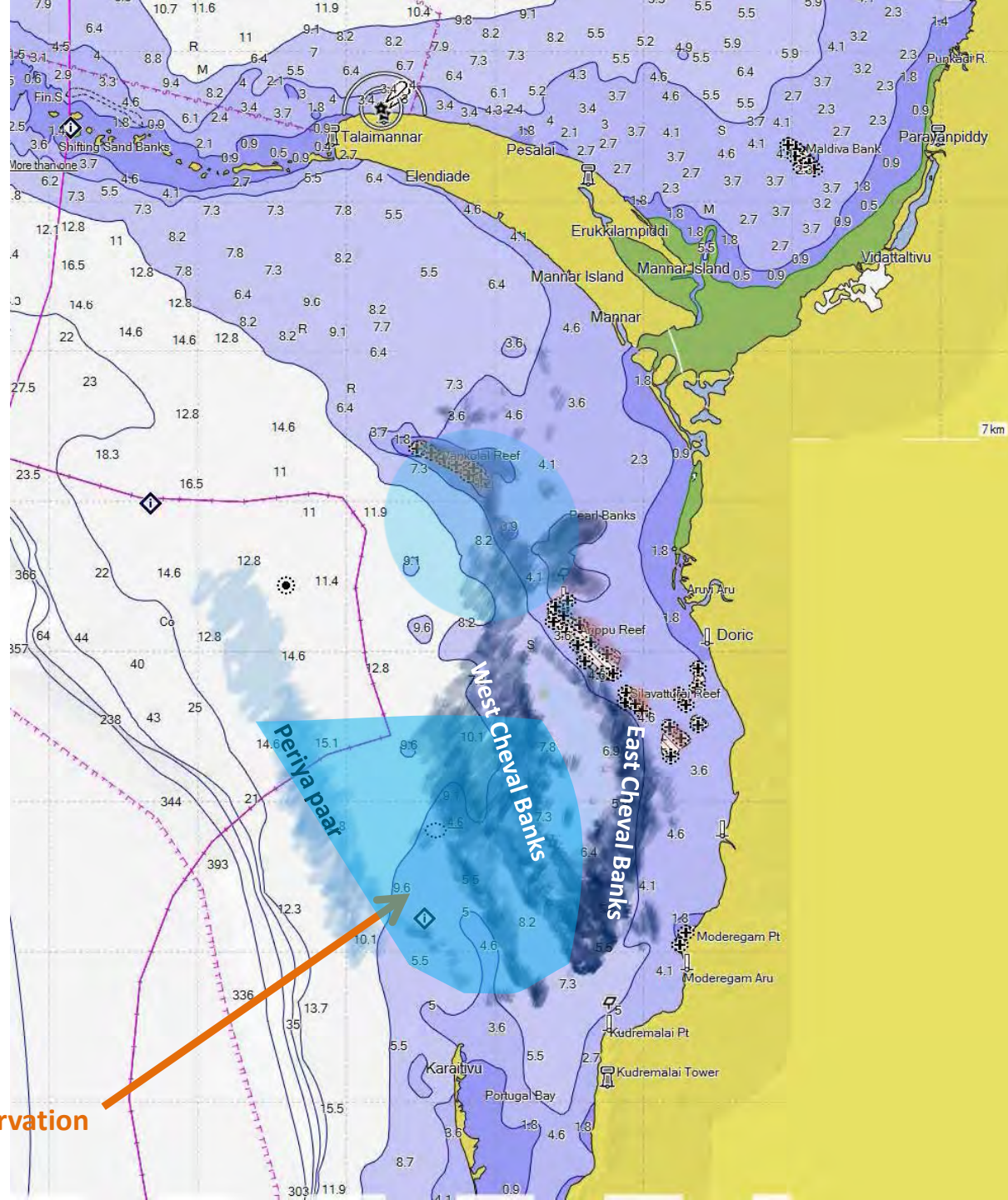
Dugong priority areas for Conservation

Based on available information of Dugong preferred Sea grass species occurrence and sightings/ capture records of Dugong; the area of the West Cheval Banks and periya paar seem to be the core area for Dugongs within the South of Mannar area.

This area is possibly the core area that may need to be given priority for any Dugong conservation programs that may be proposed in the future

The area is located 10-30 km. offshore from Mollikilam but is closer to Battalangundu Island (5-15km.)

Possible core area for Dugong conservation



THREATS

The primary threat to the Dugong is from the Gill net fishery for Rays. (Madu Dal). Of all Dugong killed this net may be responsible for well over 90% of the Kills. In addition the Ja-kotu trap nets and direct hunting using Dynamite is also used to kill Dugongs



ORCA 2016 April
Mollikulam



ORCA 2016 April
Mollikulam

ORCA teams help
recovery of a killed
Dugong with the
support of SLN and
DWC 30th April 2016
Mollikulam

Dugong killed as By-
catch in a Ray gill net
close to
Battalangundu
Island.



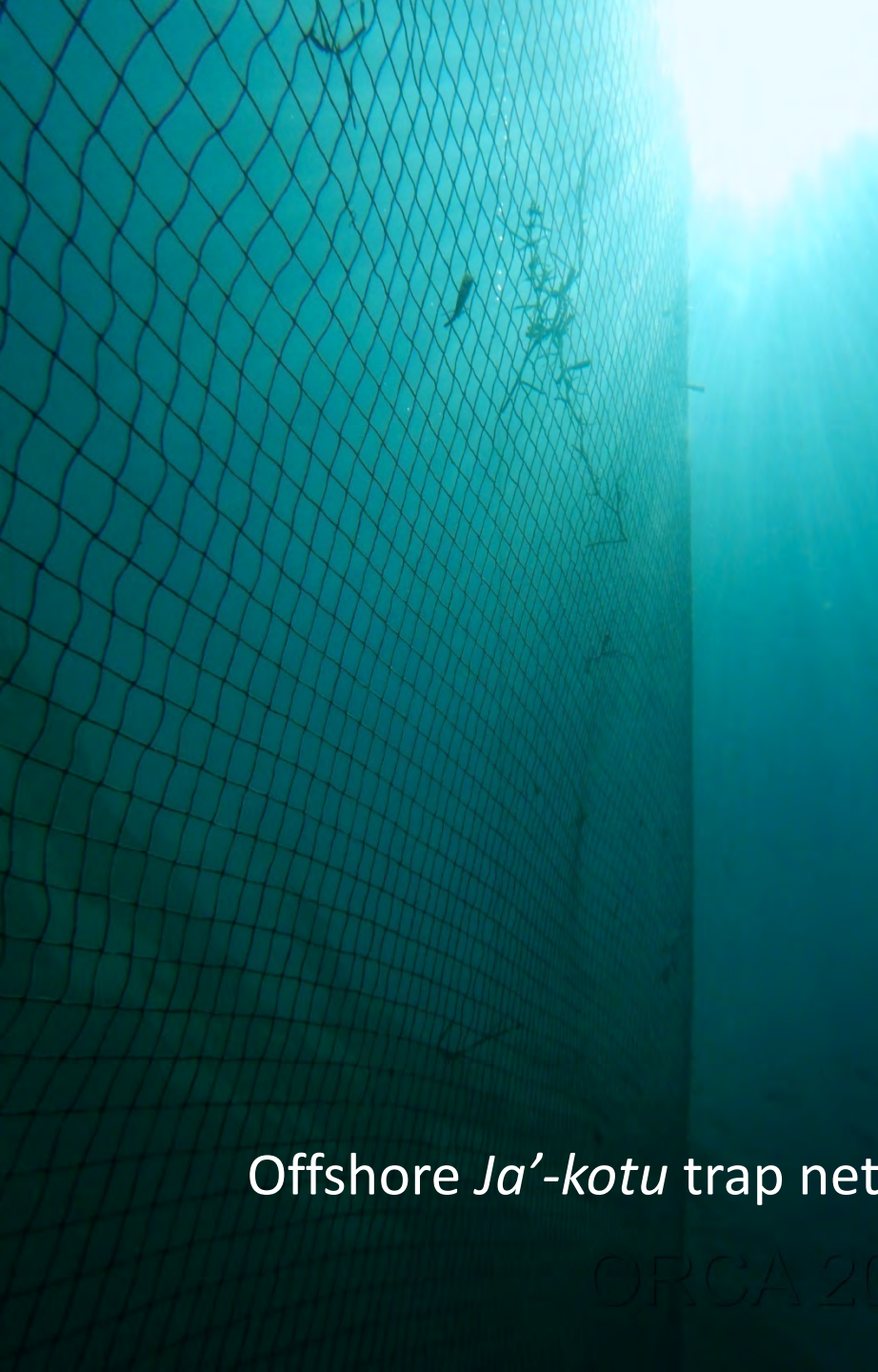
ORCA 30th April 2016



ORCA 2016 April
Mollikulam



It is reported upto 5 turtles are killed per day per net as By-catch in the Gill net fishery for rays in the South of Mannar Area.



Offshore *Ja'-kotu* trap nets

ORCA 20



ORCA 2016



ORCA 2016

Some sea grass areas contain significant populations of Algae *Caulerpa taxifolia*. This species is reported as a possible invasive species on Sea grass ecosystems and it is necessary to monitor populations



Dugong conservation and Management considerations

- Based on the information available on average one dugong is captured and sold for meat per month within the area.
- There are significant number of young animals being caught or reported which may mean that there is still a good breeding population surviving.
- Based on the available data it is probable that the core area of Dugongs in the Gulf of Mannar is in the area of the West Cheval Banks and Periya-paar located North of Battalangundu Island and 15-20 km. West of the coast at Mollikulam.

- A high incidence of Dugong takes are also recorded from the outer area of the Vankale reef. While the area contain some good areas of *Halophila ovalis* sea grass there may be a bias in the popularity of reports here due to the fact there is a high density of fishing activity here ranging from Bottom set nets, Blast fishing to Trap nets set up 10-12 km off shore over the vankale banks.

- some records of dugong are found in the area between Battalangundu Island and Kudiramale point at the entrance to the puttalam lagoon.

- Very few records of Dugong entering the Puttalam lagoon are found mostly among early records. it is highly likely that Dugongs entering the Puttalam lagoon are now very rare; and would move no further south than Kalpitiya

- Most of the Dugong killed are caught as by catch in the Bottom set gill net fishery for Rays (madu-dal). the nets are on average 2km long and stand 10-15 feet high in the water column. this net is considered highly destructive and is reported to kill up to 5 turtles per net per day within the area.
- Some instances of direct hunting was also reported using dynamite.
- The large trap-nets "Ja-kotu" found in the area close to Mannar from Vankale and on the North side of the Island is also reported to be a fishing gear of significant concern. the difference being that; the individuals caught in these traps are not harmed in the net and stay in the pen till the fishermen arrive. if the animal is killed in this situation it becomes the result of direct hunting and not taking an animal killed as by-catch

- Dugongs when caught are almost always brought ashore for sale. The greatest threat to Dugongs come from the gill net fishery for Rays and as this is one of the primary fisheries of the area contributing significantly to the local economy
- It would be difficult to ban the use of it without a significant effort to promote an alternative and less destructive fishery practice.
- Such efforts in promoting alternative livelihood must focus on the fishermen in the area of Battalangundu Island, and North along the coast from Mollikulam to Mannar Island with prominence given to South Bar area.

- The killed dugongs are taken to specific areas where they are regularly processed including The Battalangundu island, Palugahathurai fishing camp within Wilpattu National Park and South Bar in Mannar.
- The trade in Dugong meat is very lucrative. the high demand for Dugong meat make it easy to sell as well as fetching high prices. a Large individual can fetch upto Rs.600,000 at the point of selling it off on the beach.
- Apparently most turtles that drown in the nets are thrown away and not butchered as the risk of getting caught does not make it worthwhile. (This is corroborated by the numbers of dead turtle carcasses found adrift at sea or washed up on beaches.)

The possible management measures for the conservation of Dugong in the Gulf of Mannar area

- Management measures to reduce impact of Ray gill net fishery and Jakotu fishery.
- Awareness and alternatives promotion focusing on Battalangundu and on the coast north of Wilpatthu up to Mannar with special attention on South Bar area.
- Monitoring of remotely located safe Dugong processing points including Battalangundu and Palugahathurai.
- Establishment, monitoring and enforcing a special marine protected area for Dugong in the area of West Cheval banks and Periya paar area.

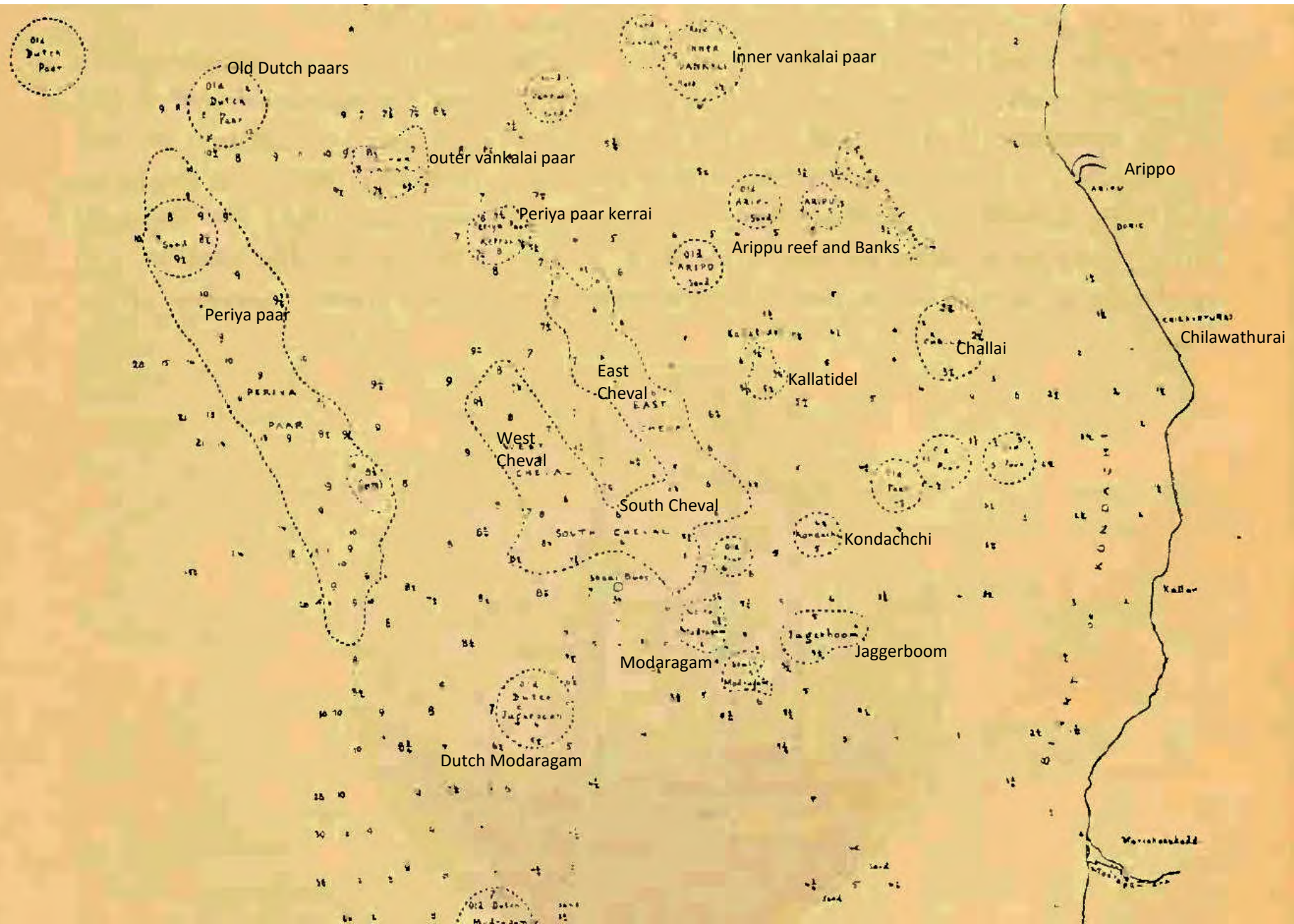
Poaching by Indian Trawlers

The illegal poaching in the area by large Indian trawlers are of serious concern both for sea grass beds as well as the Dugongs. every night it is reported over 1000 large trawlers enter Sri Lankan territorial waters and according to local fishermen sometimes coming almost 3 km. to the coast and deploy their bottom trawls and run back towards Indian waters clearing large tracts of all marine life in the area, This illegal practice must be stopped at all costs as the harm to the marine environment, fishery resources, Sea grass beds and Dugong populations is high.

Biodiversity



Old paars of the Pearl fishery from Herdman Reports



Thank You

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