



GEF-UNDP-IMO GloNoise Partnership project

IMO-WMU WORKSHOP ON URN at Malmo
A Presentation by India
15th-16th Oct 2024



सत्यमेव जयते



SHRI MAHESH KORADE (ENGINEER AND SHIP SURVEYOR CUM DDG)

Educational Qualification :

- Degree in B-Tech Marine Engineering, 2007
- MEO Class 1 Certificate of Competency(Motor), 2017
- Extra First Class Certificate of Competency, 2023
- Post Graduation Diploma in Shipping Management and Logistics, 2022

Training :

- ISO 9001 :2015 , ISM / ISPS / MLC

Sailing Experience : Having 12 years of Sailing experience which includes 20 months as Chief Engineer.

Shore Experience :

- 3 yrs of Survey (Class and Statutory) experience with Indian Register of Shipping as Surveyor 1,
- 1 year of working experience with Maharashtra Maritime Board as Deputy Chief Surveyor,
- Joined DGS in Oct 2023.





DR. M. ASHOKAN, Scientist-D, Ministry of Earth Sciences (MoES)



Educational Qualifications:

- Ph.D., in Physical Oceanography (Underwater noise)
- B.Ed., in Physical Sciences
- M.Phil., in Physical Sciences
- M.Sc., in Physics

Trainings:

- Hydrophone Low Frequency Calibration System, Processing Backscatter Signals and Ocean Acoustics.

Significant Achievements:

- Travelled to North Pole, Arctic Sea for carrying out passive acoustic monitoring activities such as testing, assembly and deployment of passive acoustic system and data analysis of underwater ambient noise in the Kongsfjorden region, Arctic.
- M. Ashokan et al., 2016, "A computer implemented System for transmitting High frequency Ocean ambient noise in Real time (SHOR)", **Indian Patent No. 394789.**

Major projects involved:

- Measurement and Characterization of ocean underwater ambient noise
- Establishment of network of ambient noise stations
- Ambient noise measurements at Polar regions

Current Position:

- Program Officer for the Ocean Science & Technology Division, MoES.
- Managing the MoES research vessels (Sagar Nidhi, Manjusha, Tara, Anveshika, Sampada & Kanya).

Publications & Patents:

- 25+ papers and 2 patents.





Maritime Profile of India



- India's Vast Maritime Network:
 - India has one of the world's largest Exclusive Economic Zones (EEZ) covering 2.37 million sq. km.
 - 13 major ports and around 200 smaller ports contribute significantly to global trade, with heavy vessel traffic in critical zones such as Mumbai, Chennai, and Kolkata.
 - Major shipping lanes, anchorage areas, and fairways include the Arabian Sea, Bay of Bengal, and the Indian Ocean—all crucial for international shipping routes.



Maritime Profile of India





सत्यमेव जयते
Ministry of Ports, Waterways & Shipping
Government of India

Maritime Profile of India



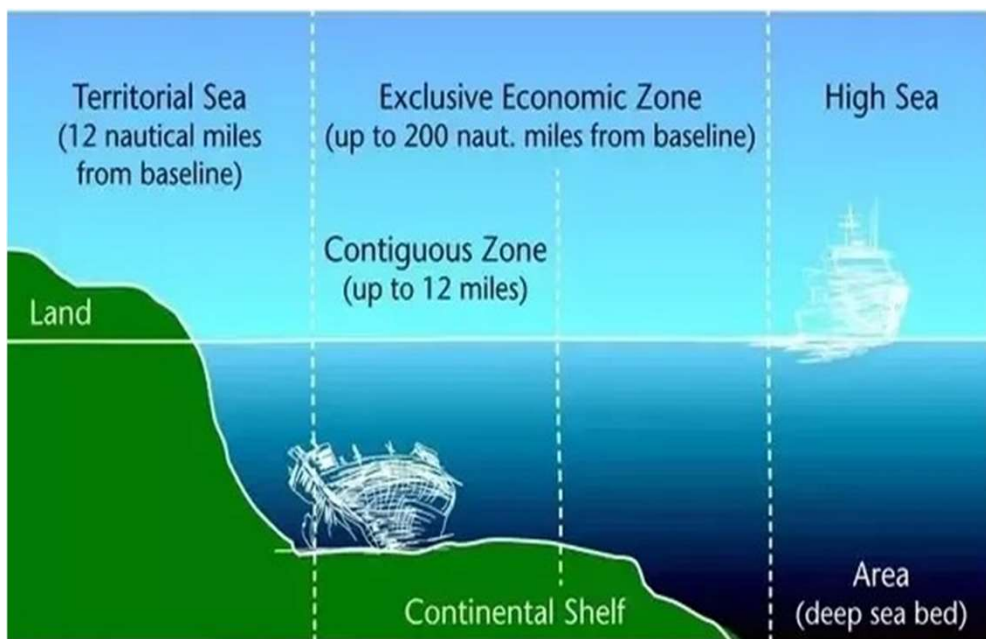
India's Exclusive Economic Zone

India has the 18th largest Exclusive Economic Zone globally with a total area of more than 2 million sq km. In the southwestern coast of India lies the Lakshadweep group island in the Laccadive Sea, and the Andaman and Nicobar lie in the Bay of Bengal and the Andaman Sea. In the west, India's EEZ is bordered by Pakistan, in the south by the Maldives and Sri Lanka, and in the east by Bangladesh, Malaysia, Myanmar, Indonesia and Thailand.

India has a greater benefit as it has a coastline stretch of 7,500 km and India's exclusive control over the EEZ resources is the navigation of seafaring trade and transport vessels in the zone.



Maritime Profile of India



EXPLOITING EEZ

INDIA

Mumbai, Vishakapatnam, Marmagao, Chennai, Kochi

SRI LANKA

Bay of Bengal

200m

200 nautical miles

EEZ

AN exclusive economic zone (EEZ) is an area prescribed by the UN Convention on the Law of the Sea, over which a country has rights over the use of marine resources

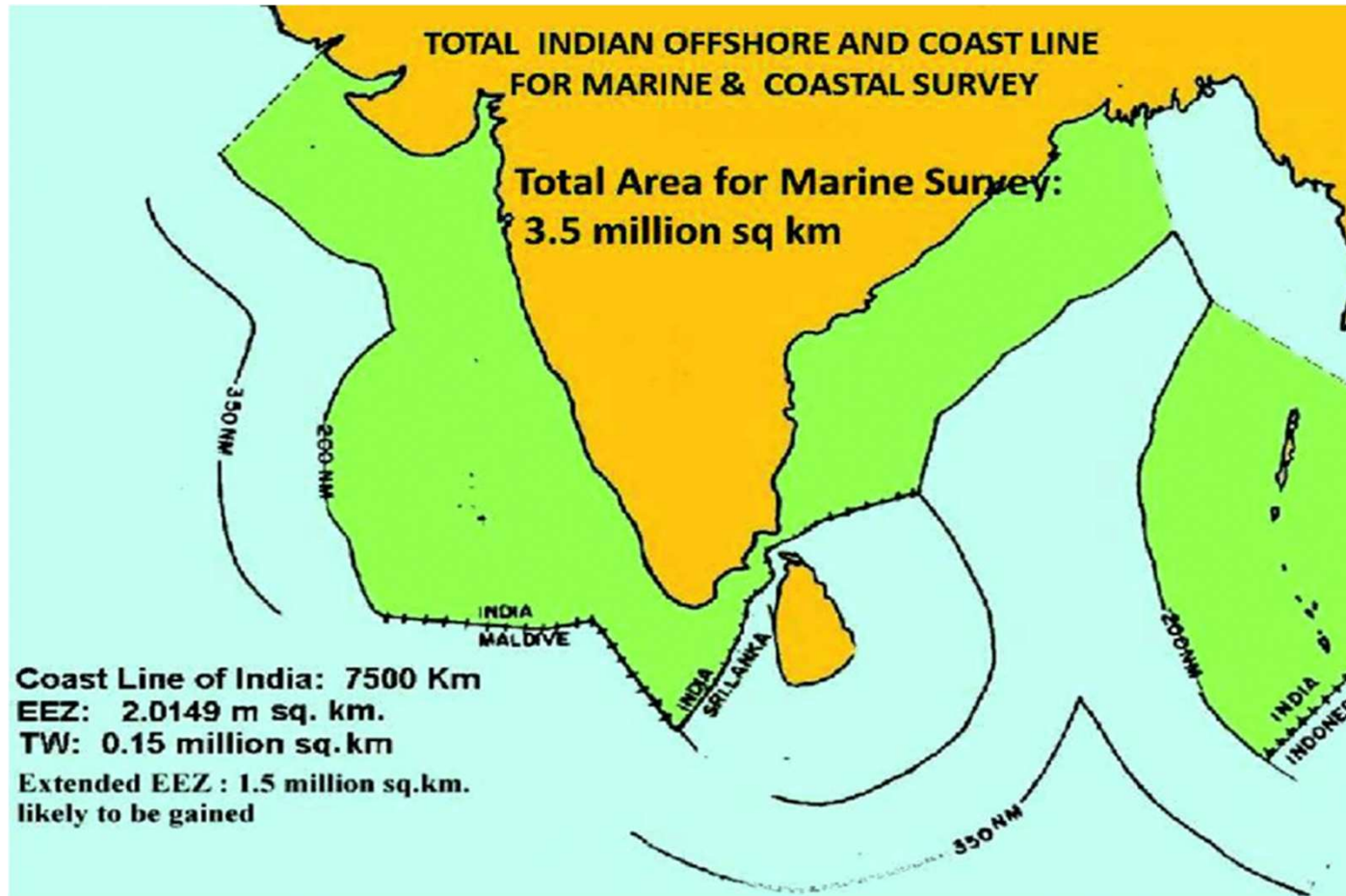
EXPERT committee on deep sea fishing has said that with limited technology, fishing has been confined to near-shore waters and this may deplete stocks there

THERE is a need to streamline policies to take advantage of technical knowledge and to properly train fishermen to practice deep sea fishing

THERE are now vessels equipped with technology and specialised gear that can go on longer voyages. They need to be put to use



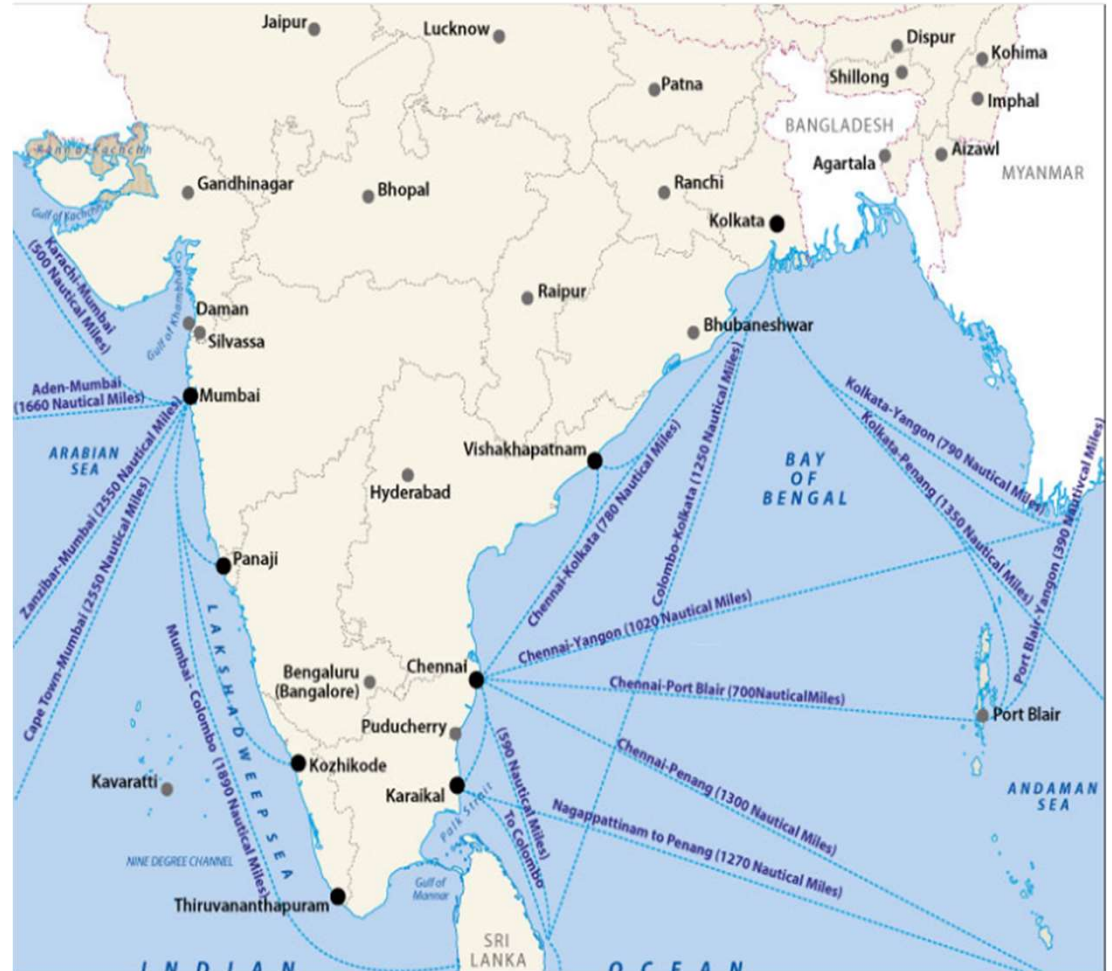
Maritime Profile of India





Maritime Profile of India

- ❖ Shipping Traffic:
- India's maritime industry consists of container ships, bulk carriers, oil tankers, fishing vessels, and coastal ferries.
- The Indian Ocean Region (IOR) witnesses heavy maritime traffic, making it a hotspot for low-frequency noise pollution from commercial vessels.



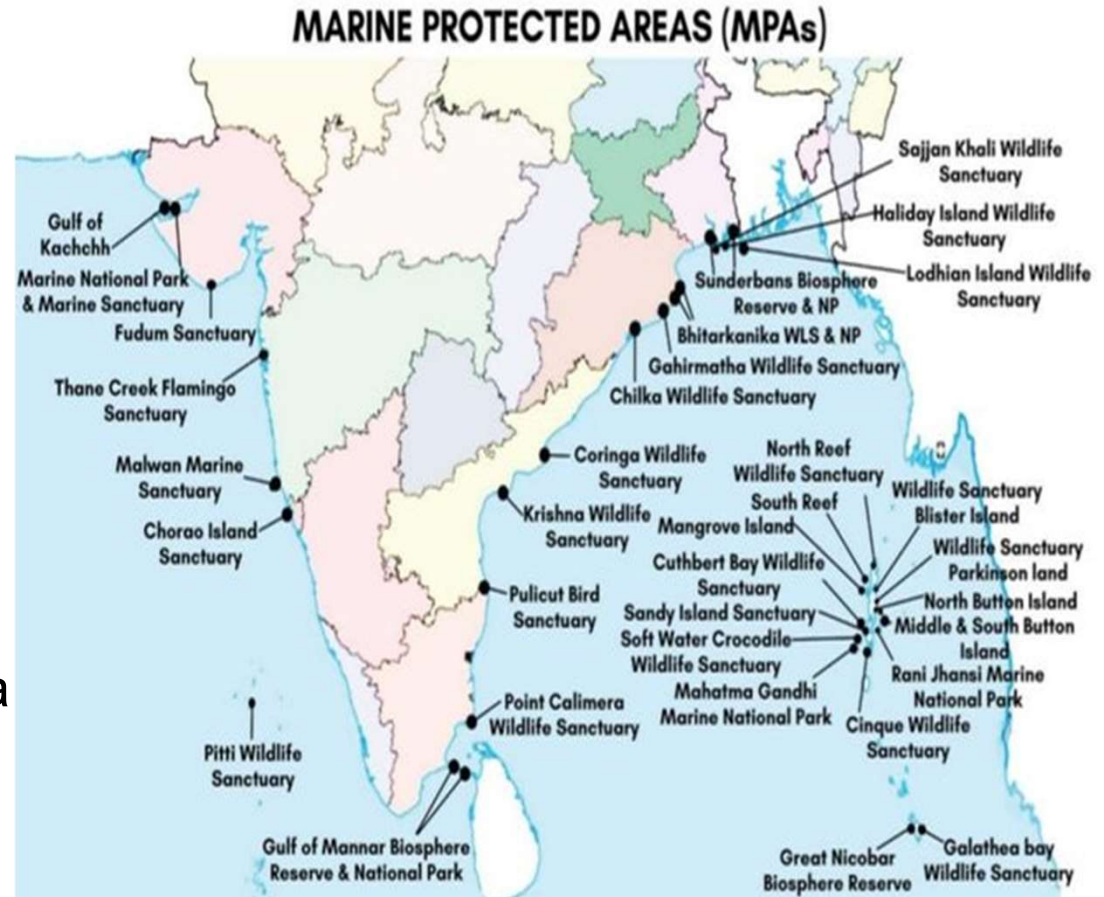


Maritime Profile of India



❖ Protected Areas & Vulnerable Ecosystems:

- India has 31 Marine Protected Areas (MPAs), with some of the most ecologically sensitive zones, like the Sundarbans, Gulf of Mannar, and the Nicobar Islands.
- Although India doesn't have a Particularly Sensitive Sea Area (PSSA) designation, efforts are underway to improve the protection of key marine biodiversity zones.





सत्यमेव जयते
Ministry of Ports, Waterways & Shipping
Government of India



Current URN Scenario in India

India's Coastal and Marine Environment:

- India's extensive coastline and rich marine biodiversity are vulnerable to URN. Fisheries, tourism, and marine species facing the risk.

Ministry of Earth Science (MoES):

- The Ministry conducts oceanographic studies, focusing on marine biodiversity. They have initiated collaborations to assess the impact of URN on India's marine ecosystems.

Ministry of Environment, Forest and Climate Change (MoEFCC):

- MoEFCC oversees environmental protection laws, including the Coastal Regulation Zone (CRZ) notification, which indirectly touches upon marine protection. They are exploring guidelines to mitigate URN within protected marine areas.

Maritime Research Centre (MRC):

MRC is working on acoustic technologies to assess and mitigate URN. Their projects include developing real-time monitoring systems for ship borne noise, with a focus on the Indian OCR



Policy and Regulatory Framework



MEPC 82 OUTCOME ON URN

- Endorsed the revised version of the URN Guidelines (circulated MEPC.1/Circ.906/Rev.1) with the insertion of a “planning reference chart” as a tool to support URN management planning for the various parties involved (Administrations, ship designers, operators, suppliers
- extended the work on reducing URN from ships within the Experience Building Phase (EPB) to 2026; and
- Changed the title of output 1.16 to "Experience-building phase (EBP) for the reduction of underwater radiated noise from shipping".



Policy and Regulatory Framework



Existing Legislation:

- Coastal Regulation Zone (CRZ) Notification: Primarily aimed at managing India's coastal areas, but the regulations could be adapted to include noise pollution.
- Environmental Protection Act: Covers pollution controls, with opportunities to expand into marine noise regulation.
- India has various laws for the protection of marine biodiversity, including the Wildlife Protection Act (WPA) of 1972 and the Coastal Regulation Zone (CRZ) Notification (2011/2019). These provide indirect protection against noise pollution by safeguarding habitats of marine species like dolphins and sea turtles.
- However, no specific legislation exists for URN in India currently. This represents a significant regulatory gap, which is being evaluated.



सत्यमेव जयते
Ministry of Ports, Waterways & Shipping
Government of India



Previous, Ongoing, and Future Initiatives

- Assessment of URN:

Pilot projects have been conducted in collaboration with institutions like the Ministry of Earth Sciences (MoES) and National Institute of Oceanography (NIO) to assess underwater noise in Indian waters.

Installation of hydrophones in select areas to monitor the noise levels from shipping activities, particularly around Mumbai port, is part of an ongoing initiative.

Technical Infrastructure:

India is in the process of building a network of URN monitoring stations along major shipping lanes, using hydrophones to track noise levels and establish baseline data.

Collaborations with international bodies, including the IMO's GloNoise Partnership and the International Whaling Commission (IWC), have enhanced India's technical capacity to assess URN impacts.



Previous, Ongoing, and Future Initiatives

1. Port Efficiency Programs:

India has launched programs like 'Just in Time Arrivals' at some major ports, including Mumbai and Cochin, reducing ship idling times and thus lowering noise generation.

India is exploring ways to enhance vessel traffic management systems to minimize noise pollution in critical zones.

2. Renewable Energy Integration:

The growing adoption of wind and wave energy along India's coasts also creates opportunities to integrate noise reduction strategies in energy-related marine activities.

3. Future Plans:

India is planning to initiate more comprehensive studies on URN impacts, especially around Marine Protected Areas (MPAs), to fine-tune mitigation strategies.

The government is in talks with IMO's GreenVoyage2050 project to explore more fuel-efficient, noise-reducing technologies for India's expanding fleet.



Previous, Ongoing, and Future Initiatives

Legal Framework:

India's Wildlife (Protection) Act of 1972 (WLPA) provides legal protection to marine mammals along the Indian coastline.

Shore Power Implementation:

All Indian ports are committed to supplying shore power to ships whenever possible, reducing the need for ships to run their engines while docked.

The Directorate General of Shipping (DGS) has issued Standard Operating Procedures (SOPs) for the implementation of shore power supply in Indian ports.



Previous, Ongoing, and Future Initiatives

Legal Framework:

Green Port Initiatives:

The "Harit Sagar" Green Port Guidelines aim to reduce carbon intensity and create an environmentally friendly ecosystem at all major ports.

Target: 60% green power by 2030 and 100% green power by 2050.

Just-in-Time Arrivals:

Major shipping companies are adopting just-in-time arrival practices to reduce carbon emissions and associated noise pollution.

By minimizing idle time, ships can reduce their engine runtime and noise levels.



Technology and Innovation for Mitigation

Noise Reduction Technologies:

- Propeller modifications and innovative hull designs can reduce URN. India is exploring quieter engines and operational changes (e.g., reducing vessel speed) to minimize noise impacts.

Acoustic Monitoring Systems:

- India is working with global partners to install real-time underwater noise monitoring systems, especially near sensitive marine environments like coral reefs and marine parks.

Indian Register of Shipping (IRS):

- IRS is involved in testing and certifying ships to ensure compliance with noise reduction standards. They are collaborating with shipbuilders to integrate URN mitigation in new builds.



Stakeholders and Collaborative Efforts



Government Agencies:

MoES and MoEFCC are key players in policy and research. MoES funds marine research institutes, while MoEFCC regulates environmental impacts



Private Sector:

Indian shipbuilders and the shipping industry are investing in quieter technologies. Cochin Shipyard and Goa Shipyard have initiated design modifications aimed at reducing URN.



Non-Governmental Organizations (NGOs):

NGOs like Wildlife Trust of India and international collaborators like WWF are working on awareness and advocacy for quieter seas.



Challenges and Future Prospects

Challenges:

Data Limitations:

There is limited real-time data on URN impacts in India. Most research is in the early stages.

Costs:

Implementing noise-reduction technologies in older ships can be expensive

Lack of Awareness:

Many in the maritime industry are still unaware of the ecological impacts of URN.

Future Directions:

Research Expansion:

Increased funding and research into URN's impact on Indian marine life.

Technology Transfer:

Collaboration with international entities like the IMO and World Maritime University can help transfer noise-reduction technologies to India.

Indian National Task Force:

This body, formed as part of the GloNoise project, is tasked with integrating international guidelines into India's maritime practices.



सत्यमेव जयते
Ministry of Ports, Waterways & Shipping
Government of India



Underwater noise measurements – India's progress

Dr.M. Ashokan
Scientist - E,
Ministry of Earth Sciences,
Govt. of India, New Delhi.

Ministry of Earth Sciences (MoES)

Brief:

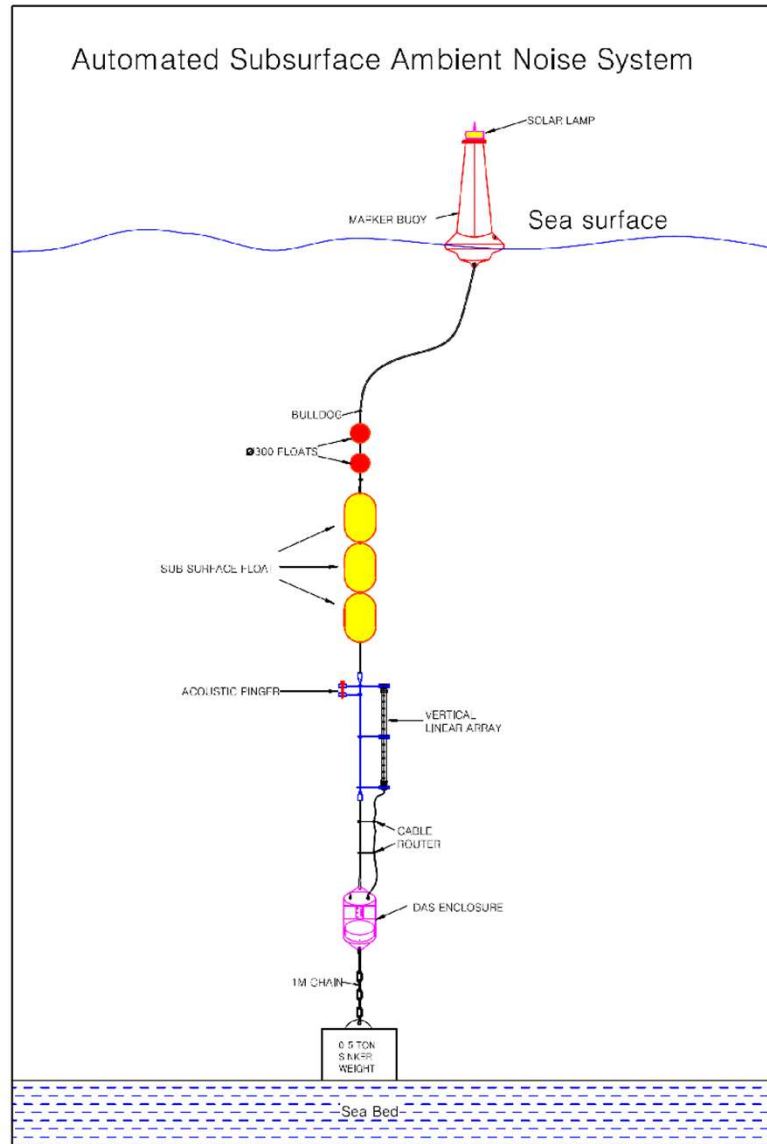
- MoES has been focusing on development of acoustic systems for Passive Acoustic Monitoring in the shallow and deep ocean and further analysis along with ancillary data such as CTD, wind/ wave/ rainfall, and sediment for acoustical oceanographic applications, underwater communication and coastal surveillance.
- MoES has developed an Autonomous ambient Noise Measurements system (ANMS) and operated successfully at many coastal regions of India.
- Acoustical oceanographic, anthropogenic, geo-acoustics and bio-acoustic applications have been studied in detail from time series data obtained from the system including during extreme events such as cyclones.
- The underwater Acoustic Test Facility in NIOT is the only accredited facility in India which caters to testing and calibration underwater acoustic sensors.





सत्यमेव जयते

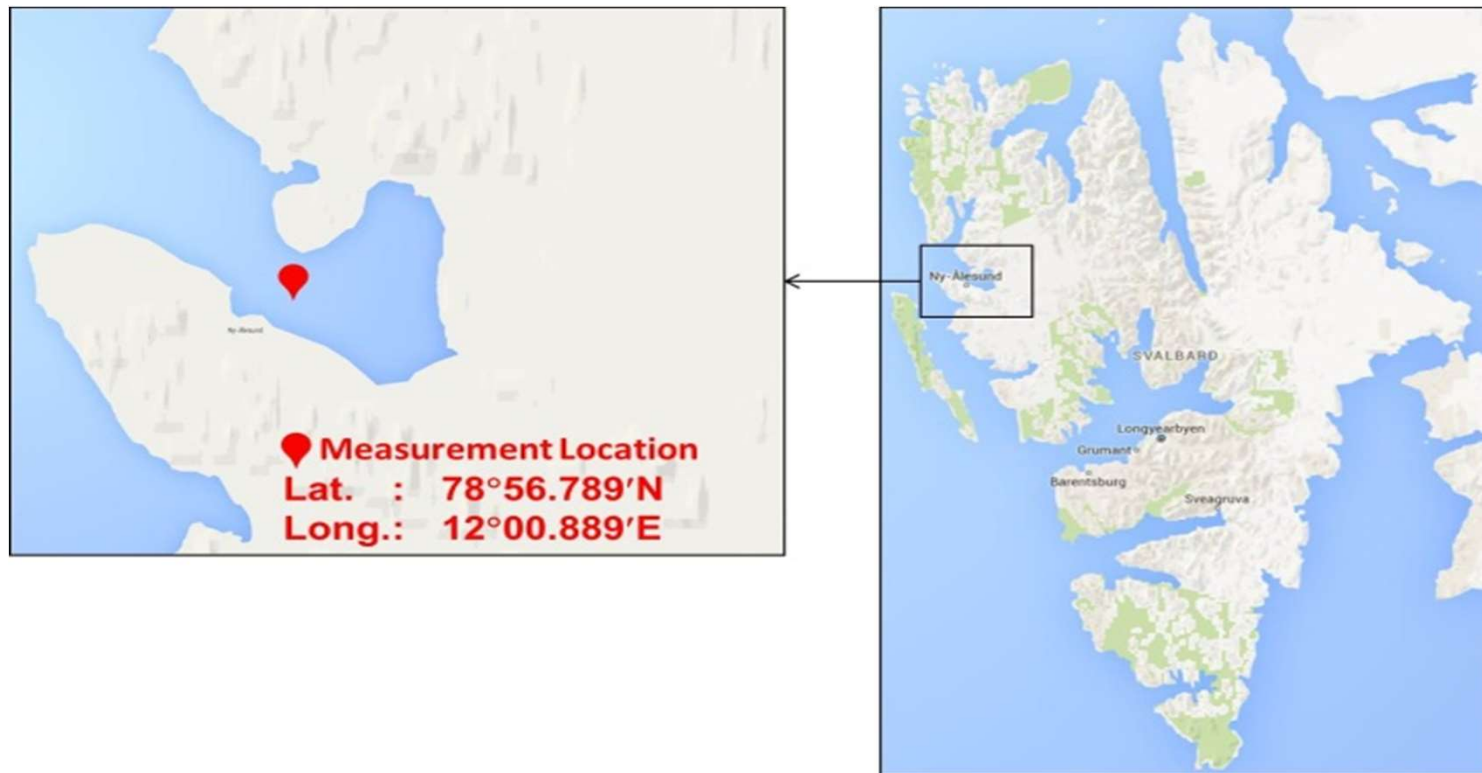
Ministry of Ports, Waterways & Shipping
Government of India



- Audio files to be played



Experiment site





सत्यमेव जयते

Ministry of Ports, Waterways & Shipping
Government of India



THANK
YOU