

## **Resource Exploration and Inventorization System (REIS)**

Considering the worldwide initiative to document, investigate and protect the global biodiversity, exploration of deep sea ecosystems are vital. The lack of data has severely constrained our ability to understand the true species diversity of our seas, let alone be in a position to predict what could live there eventually. The Ocean Biogeographic Information System (OBIS) was conceived to address these issues and the Indian Ocean node (IndOBIS) has specifically been designed to improve coordination between domain experts and information technology managers. The IndOBIS programme will be continued exploring the hotspots, inventorying and documenting its biodiversity from all along the Indian EEZ and also in the areas beyond national jurisdiction (ABNJs). The data thus obtained will be stored as a database and disseminated through web portal “www.indobis.in” of CMLRE. The programme on Census of Marine Life (CoML), recommends DNA bar-coding as a standard tool for species identification. Barcode based on the mitochondrial gene cytochrome C oxidase subunit 1 (CoI) can provide accurate species identification across broad divisions of the animal kingdom.

### **Objectives:**

- Collection, collation and dissemination of spatially and taxonomically resolved marine species records from northern Indian Ocean region through systematic survey onboard the vessel FORV Sagar Sampada.
- Augment the existing marine species database (OBIS) and prepare checklist for all the species under different phyla reported from Northern Indian Ocean.
- Maintenance of voucher specimens and tissue samples, and development of barcodes of deep sea fauna covering major phyla

### **Implementation plan**

Besides the collections available with CMLRE, samples for new and rare species will be collected through regular cruise) onboard FORV Sagar Sampada. Attempts will be made to collect samples from sea mounts, guyots, ridges and slopes using variety of sampling gears like deep-sea dredge, deep-sea grab and fishing nets. Under water cameras will be used to characterize and documents bottom fauna and flora.

## **Deliverables**

- Map delineating the distributional patterns of native species and its temporal shifts in habitat due to disturbances both anthropogenic and climate induced.
- Map delineating ecologically and biologically sensitive areas within the Indian EEZ.
- Barcodes based on the Gene CO1 for deep sea species

## **Study area:** Arabian Sea and Bay of Bengal

Taxonomic studies and species discovery reveals high biodiversity hotspots in Indian waters which is desirable for conservation and sustainable use of marine resources. Classical taxonomy along with molecular systematics will apparently strengthens the understanding on the genetic variations, phylogenetic relationships between organisms, and the conservational significance in the recent climatic conditions. The marine mammal survey revealed high cetacean abundance and diversity in Indian waters within a short time period, thereby emphasizing the importance of shipboard based visual surveys over the existing shore-based method to bring out the comprehensive understanding the marine mammals of Indian EEZ. Continuous collection and estimation of fish eggs by CUFES gives an improved assessment of the distribution and abundance of eggs along the Indian EEZ.

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