



# ITCOcean

## International Training Course on "Biological Oceanographic Processes"

May 18- 22, 2015

Organized  
by  
International Training Centre for  
Operational Oceanography (ITCOcean)  
ESSO-INCOIS, Hyderabad, India  
and  
CSIR-NIO, Goa, India

## Background:

Indian National Centre for Ocean Information Services(INCOIS) under Earth System Science Organization (ESSO) is a dedicated institution for operational oceanography and the only institution in the Indian Ocean region that has been providing operational ocean information and advisory services over the past 10 years. It has expertise particularly, in ocean observations, ocean modelling and ocean information and advisory services in the Indian Ocean region.

ESSO-INCOIS and UNESCO's Intergovernmental Oceanographic Commission (IOC-UNESCO) signed a Memorandum of Agreement on 4 July 2013 during the 27<sup>th</sup> session of the IOC Assembly in Paris, to cooperate in conducting training courses at the International Training Centre for Operational Oceanography (ITCOcean) set up by ESSO-INCOIS in Hyderabad, India. The Centre aims at promoting the development and optimization of scientific base, technology and information system for operational oceanography at national, regional and global levels.

The National Institute of Oceanography (NIO) with its headquarters at Dona Paula, Goa, and regional centers at Kochi, Mumbai and Visakhapatnam, is one of the 38 constituent laboratories of the Council of Scientific & Industrial Research (CSIR), New Delhi. NIO was established on 1 January 1966 following the International Indian Ocean Expedition (IIOE) in early 1960s. The institute has grown today into a large oceanographic laboratory of international repute. The focus of research has been on observing and understanding the special oceanographic features that the North Indian basin offers. The inferences from this research have been reported in about 5000 research articles so far.

## About the Course:

Oceans, the continuum of water, are chemically the most complex ecosystems. There are local, regional and global variabilities of major and minor chemical constituents. Together with certain physical characteristics (mainly light, temperature and salinity), these give rise to different water masses that tend to govern the circulation, general biology and ocean-atmosphere exchanges. Understanding of how such general characteristics of marine environment impact the ocean processes is vital and will certainly prove beneficial.

Plankton, being at the foundation of the ocean food web, plays an important role in the biogeochemical cycling of many through a variety of biological processes by which organic matter is transported into the oceans' interior, which in turn affects atmospheric processes; CO<sub>2</sub> in particular. The composition and quantity of the plankton are known to vary seasonally and inter-annually. Success of fish stocks and harvests do depend largely on the plankton availability and productivity.

The Ocean is made of diverse habitats and a wide variety of organisms dwell in it. Each organism has a unique way of life. Response of their populations is influenced by inter- and intra-trophic processes. In order to gain a fair understanding of the processes involved one has to integrate the biology and ecology.

The capsule on marine ecosystem analyses, benthic ecology and resources, assessment of the health of the oceans and trans-boundary threats in the marine environment will relate to biological oceanographic processes at large.

Harvesting of marine living resources for meeting up nutrition/protein requirements has been an ongoing endeavour by the mankind. However, the dwindling stocks of edible fish and shellfish have been a major concern not only from the angle of conflict-free resource management but also from ecosystem damages due to pollution and other anthropogenic activities in the near-shore regions, in particular. Awareness on imminent sea-food security threats and the possible alternatives to meet the burgeoning seafood needs will be showcased during the course.

Climate is changing. Its 'Change' impacts physiology, growth, reproduction, ability to compete and to adapt. The changes in ocean temperature, pH and oxygen levels are the main causes of the adverse impacts on ocean biota. Ecological clues need to be known to realize the impacts those that can harm, in particular, the life cycles of commercially vital species will be presented. This is to sensitize the participants as to gear up with a prior knowledge of what climate change can do, or does, to marine life.

## Course Contents:

The focus of the training course is to provide an understanding of the characteristics of oceanic environment and relevance of oceanic processes in sustaining the ocean life and resources as well as to highlight the threats induced by nature and from human activities. The course will cover the following broad topics:

- ! Characteristics of Marine Environment
- ! Relevance of Biogeochemistry in the Management of Bio-resources
- ! Ocean Productivity Processes
- ! Benthic Ecology and Demersal Resources

- ! Marine Ecosystem Analyses
- ! Assessment of the Health of the Oceans
- ! Fisheries and Food Security
- ! Mariculture and Society
- ! Trans-boundary Threats in the Marine Environment
- ! Climate Change and Ocean Biology

## Faculty:

The faculty for the course consists of scientists/experts in different fields drawn from the host institute (INCOIS), CSIR-National Institute of Oceanography (CSIR-NIO) and other agencies. These experts have long and varied experience in the field of oceanography, biogeochemistry, ocean biology and management.

## Venue:

The training course will be held at ITCOocean, Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, India.

## Who can apply?

- ? University students pursuing their career in oceanography. Priority will be given to students from Indian Ocean RIM countries
- ? Staff of oceanographic centers
- ? Staff of Government departments and decision makers involved with oceanographic services and marine activities

## Course Fee and Financial support:

No course fee is charged for the training course. The participants are expected to make their own arrangements for all expenses, including International to and fro travel. However, INCOIS can provide local transportation, food and lodging at their Hostel for few deserving candidates.

Preference in admission will be given for candidates who are supported by their own organizations. International participants may approach UNDP, UNESCO, UN-ESCAP, IOC, SCOR and other agencies for financial assistance.

## Application:

The application form can be downloaded at the following link:

[www.incois.gov.in/documents/ITCOocean/BiologyCourseApplicationForm.pdf](http://www.incois.gov.in/documents/ITCOocean/BiologyCourseApplicationForm.pdf)

The completed and signed application form should be sent to the following address by April 05, 2015

## Contact Address:

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