

**REMOTELY OPERATED VEHICLE (ROV) DEVELOPED BY NATIONAL INSTITUTE OF OCEAN TECHNOLOGY (NIOT), MINISTRY OF EARTH SCIENCES MAPS THE CORAL REEFS IN ANDAMAN & NICOBAR ISLANDS**

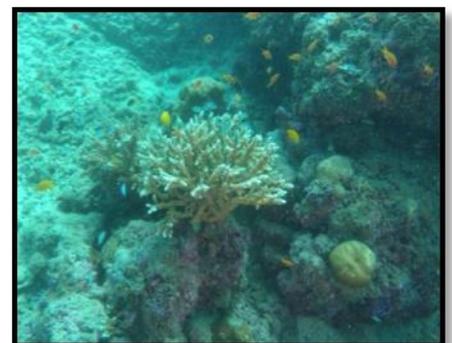
Andaman and Nicobar Islands of India are the hot spots of biodiversity with their unique Coral Reef bio-reserve. They are under constant threat in recent decades due to global warming and sea level rise. Coral reef biodiversity at Andaman region (11,000 sq km) was seriously affected during the 2004 Tsunami event and also are undergoing the stress from the increasing sea surface temperature. Currently, there is no mechanism other than Scuba diving to examine the corals and assess the extent of damage or rejuvenation that might be taking place since the great damages happened in 2014. NIOT, for the first time, used the Remotely Operated Vehicle (PROVe) developed indigenously, to map the coral reefs in Andaman & Nicobar Islands (North Bay and Chidiyatopu) and demonstrated to the Department of Fisheries and Department of Forests of Andaman & Nicobar Islands that the ROV can be used for this purpose efficiently. The ROV could effectively map 4-6 sq. kilometers of coral reefs in a day when the same job takes about a week for a Scuba diver. The images of corals recorded by the ROV are useful to study the biodiversity of coral reefs and their evolution. The underwater visuals had shown the coral debris and boulders caused by the 2004 Tsunami and the rejuvenation of the colonies of branching corals, stony coral, brain corals at some locations. The water temperature ranged between 31<sup>0</sup>C at surface and 30.5<sup>0</sup>C at 1 m water depth and decreases further in deeper waters as recorded by the ROV based sensor. The radiometer attached on the ROV provided the spectral signatures of different types of corals in Andaman. The spectral signatures of the corals are valuable in developing algorithms to map the coral reefs using sensing techniques, especially the satellite remote sensing. A good news is that there are no evidences of coral bleaching at Andaman reef during the mapping period in April 2016 but will require constant monitoring to know what would happen when the temperature raises further.



Remotely Operated Vehicle underwater



Damaged coral fragments and stony coral



Branching Coral with fish



Coral Reef



Stony Coral



Octopus sitting on a boulder