Development of a Continuous Plankton Recorder (CPR) Sister Survey in the BCLME (BCC Project Ref. No.: OCM/09/07)

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Abstract

Continuous Plankton Recorder (CPR) surveys are globally recognised as a cost-effective means of ecological monitoring at a basin scale through systematic plankton assessment. Following a successful proof-of-concept CPR tow between Cape Frio (Namibia) and East London (South Africa) in October 2005, the BCC awarded funds to the SA Department of Environmental Affairs in November 2009 to develop – through a partnership with the Sir Alister Hardy Foundation for Ocean Science (SAHFOS, UK) – a regular, long-term CPR survey in the BCLME. The objectives were: to deploy a CPR quarterly from ships-of-opportunity operating along the west and south coasts of the BCLME, sampling water masses influenced by the Agulhas, Benguela and Angola currents and the Congo River; to develop skills to analyse CPR samples locally according to standard protocols; to establish a regional CPR Centre and an autonomous, self-financing, regular, long-term CPR Sister Survey in the BCLME. This survey could then link with the one in the Guinea Current LME (GCLME). It has already expanded into the Southern Ocean and most recently, in July 2013, a CPR was also towed for the first time in the Agulhas Somali Currents LME (ASCLME) in the SW Indian Ocean.

Samples collected during the inaugural BC-CPR survey (Luanda – Durban) in September 2011 from MV *Horizon* were sent to SAHFOS for analysis. A second set of samples (Luanda - Port Elizabeth) collected in March 2012 from the same vessel is being analysed. Unfortunately, this vessel was decommissioned in June 2012 and the search for an alternative vessel committed to long-term CPR tows in the region is still ongoing.

Once established in the BCLME, a regular, long-term CPR survey will provide advice to the Angolan, Namibian and South African governments on several marine management issues. These include management of the ecosystem including their transboundary resources and biodiversity, and the transboundary impacts of maritime activities such as fishing, pollution, eutrophication, mining, oil and gas exploration and extraction, shipping and the introduction of alien invasive species and toxic algal species in ballast water. In addition, ecological changes in the plankton are recognized as some of the most sensitive biological indicators of the effects of climate change on the oceans.

This regional CPR survey will culminate in a plankton database as an open source for local marine scientists and modellers. It will aid the achievement of marine policy objectives and act as an essential tool for marine environmental managers and decision makers both at the national and regional levels. The database will be integrated with a global database created by the Global Alliance of CPR Surveys (GACS), constituted in 2011 to understand changes in plankton biodiversity at ocean basin scales through a global alliance of CPR surveys, using common working standards and methodologies.