More on the latest LME publication, "Sustaining the World's Large Marine Ecosystems"

Although the world's oceans are under serious threat from the effects of overexploitation of marine life, pollution, and global warming, a massive effort is underway to reverse the downward spiral of resource depletion.

Since the early 1990s, the Global Environment Facility (GEF) has funded nearly $2 billion in international projects that focus on the world's Large Marine Ecosystems to reverse these downward trends. The GEF funded LME projects are predicated on a pragmatic, ecosystem-based approach that measures changes in LME (i) productivity, (ii) fish and fisheries, (iii) pollution and ecosystem health, (iv) socioeconomics, and (v) governance.

Fish harvest decisions are often made on a species-by-species basis, without recognizing the numerous interactions such as climate change or competitive relationships. The LME approach represents a paradigm shift away from a sector by sector approach.

Some of the major problems along with overfishing are climate change, biodiversity loss, pollution, and disruption of the nitrogen and phosphorus cycles resulting in nutrient over-enrichment. GEF International Waters projects based on LMEs are focusing on these areas and aiming to reverse these trends.

"Agricultural runoff causes new problems," said Alfred Duda, Senior Advisor for International Waters projects at the GEF. After farmers fertilize their crops, nitrates and phosphates pouring down rivers cause an explosion in algal growth in the ocean as the algae absorb the nutrients. The algae populations grow explosively, then die and decompose. This process depletes the water of oxygen on a vast scale, creating a suffocating dead zone where few marine organisms can survive.

Nutrient supply and phytoplankton biomass in shelf waters are highly sensitive to variation in coastal upwelling-driven circulation, altering carbon fluxes through marine food webs resulting in dead zones in upwelling systems such as the California Current and Benguela Current LMEs.

"Sustaining the World's Large Marine Ecosystems" , a collaborative effort of the IUCN, 5 United Nations Agencies, NOAA's LME Program, and the GEF, provides examples of advances made in the Yellow Sea, the Benguela Current, and the Baltic Sea LMEs, based on the LME approach.

Other projects supported by the GEF in the Black Sea and Baltic Sea have been successful in reducing the amount of nutrients entering the marine environment through a combination of new waste water treatment plants and the reduced use of fertilizers upstream. Following the reduction of nutrients in the

Black Sea Large Marine Ecosystem, fishing has again become a major economic activity in the region after a significant reduction of its dead zone.

"The pragmatic, science based, joint management approach piloted by the Benguela Current LME project and other GEF LME projects must succeed – nothing less than the future of our coastal oceans and coastal communities is at stake," said Al Duda about the LME movement.

"Sustaining the World's Large Marine Ecosystems" is available online at: http://www.lme.noaa.gov/). To obtain a CD of the 142 page book, please contact: NOAA Large Marine Ecosystem Program, Tarzwell Drive, Narragansett, RI 02882, USA. Tel: +1 401 782-3211 FAX: +1 401 782-3201.

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