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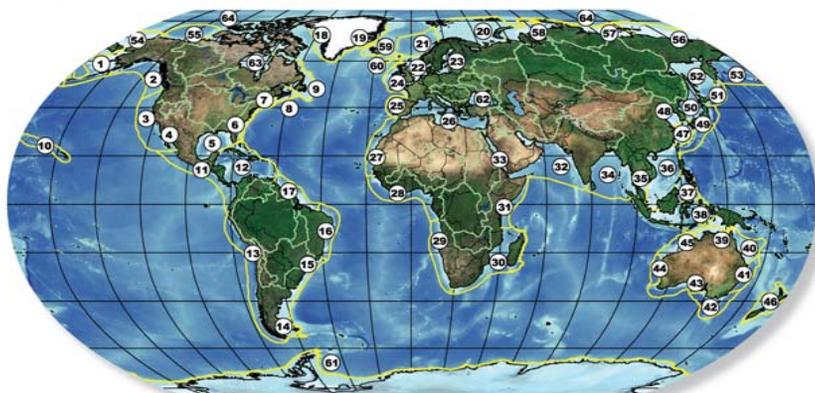
**10th Global Meeting of the Regional Seas
Conventions and Action Plans**

Guayaquil, Ecuador, 25th– 27th November 2008

NEW UNEP LME Report Brochure

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Large Marine Ecosystems of the World and Linked Watersheds



- | | | | | | |
|-------------------------------------|-------------------------|---------------------------|--|----------------------|------------------|
| 1 East Bering Sea | 13 Humboldt Current | 25 Iberian Coastal | 37 Sulu-Celebes Sea | 48 Yellow Sea | 60 Faroe Plateau |
| 2 Gulf of Alaska | 14 Patagonian Shelf | 26 Mediterranean Sea | 38 Indonesian Sea | 49 Kuroshio Current | 61 Antarctic |
| 3 California Current | 15 South Brazil Shelf | 27 Canary Current | 39 North Australian Shelf | 50 Sea of Japan | 62 Black Sea |
| 4 Gulf of California | 16 East Brazil Shelf | 28 Guinea Current | 40 Northeast Australian Shelf-
Great Barrier Reef | 51 Oyashio Current | 63 Hudson Bay |
| 5 Gulf of Mexico | 17 North Brazil Shelf | 29 Benguela Current | 41 East-Central Australian Shelf | 52 Okhotsk Sea | 64 Arctic Ocean |
| 6 Southeast U.S. Continental Shelf | 18 West Greenland Shelf | 30 Agulhas Current | 42 Southeast Australian Shelf | 53 West Bering Sea | |
| 7 Northeast U.S. Continental Shelf | 19 East Greenland Shelf | 31 Somali Coastal Current | 43 Southwest Australian Shelf | 54 Chukchi Sea | |
| 8 Scotian Shelf | 20 Barents Sea | 32 Arabian Sea | 44 West-Central Australian Shelf | 55 Beaufort Sea | |
| 9 Newfoundland-Labrador Shelf | 21 Norwegian Shelf | 33 Red Sea | 45 North-West Australian Shelf | 56 East Siberian Sea | |
| 10 Insular Pacific-Hawaiian | 22 North Sea | 34 Bay of Bengal | 46 New Zealand Shelf | 57 Laptev Sea | |
| 11 Pacific Central-American Coastal | 23 Baltic Sea | 35 Gulf of Thailand | 47 East China Sea | 58 Kara Sea | |
| 12 Caribbean Sea | 24 Celtic-Biscay Shelf | 36 South China Sea | | 59 Iceland Shelf | |

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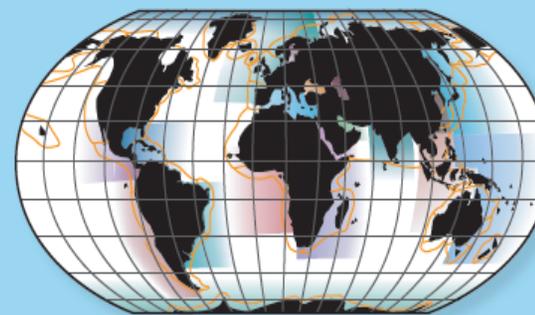
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The UNEP Large Marine Ecosystem Report

A Perspective on Changing
 Conditions in LMEs of the
 World's Regional Seas



UNEP Regional Seas Report and Studies No. 182



The UNEP LME Report

A Perspective on Changing Conditions in Large Marine Ecosystems of the World's Regional Seas

The World's coastal ocean waters continue to be degraded by unsustainable fishing practices, habitat degradation, eutrophication, toxic pollution, aerosol contamination, and emerging diseases. *Against this background is a growing recognition among world leaders that positive actions are required on the part of governments and civil society to redress global environmental and resource degradation with actions to recover depleted fish populations, restore degraded habitats and reduce coastal pollution.*

The World Summit for Sustainable Development (WSSD) which convened in Johannesburg, South Africa in 2002 recognized the importance for coastal nations to advance toward more sustainable development and use of ocean resources. Participating world leaders agreed to pursue four marine targets: 1) To achieve substantial reductions in land based sources of pollution; 2) To introduce an ecosystems approach to marine resource assessment and management by 2010; 3) To designate a network of marine protected areas by 2012; and 4) To restore and maintain fish stocks at maximum sustainable yield levels by 2015.

To promote movement of developing countries toward the WSSD targets, \$1.8 billion in financial support from the Global Environment Facility (GEF) and the World Bank is presently being applied by 110 countries in Africa, Asia, Latin America, and Eastern Europe in projects to sustain the goods and services of 16 Large Marine Ecosystems (LMEs) located within the Regional Seas of the United Nations Environmental Programme (UNEP). *Large Marine Ecosystems are regions of ocean space of about 200,000 km² or greater that encompass coastal areas from river basins and estuaries out seaward to the break or slope of the continental shelf, or out to the seaward extent of a well-defined principal current.* LMEs are defined not by political but by ecological criteria, including bathymetry, hydrography, marine productivity, and trophically linked populations.

The [UNEP LME Report](#) is the result of a collaborative effort with NOAA's Large Marine Ecosystems Program and five UN Agencies (UNEP, UNDP, UNIDO, IOC-UNESCO, FAO) to promote a global view of baseline ecological conditions of the World's 64 LMEs. It was coordinated by UNEP's Regional Seas Programme in Nairobi, Kenya.

In the summer of 2005, UNEP and NOAA's Large Marine Ecosystem Program agreed to provide synopses of ecological conditions for each of the world's 64 LMEs. The synopses are based on the five-module LME assessment framework of i) productivity, ii) fish and fisheries, iii) pollution and ecosystem health, iv) socioeconomics, and v) governance. The synopses of LME ecological conditions include standardized information on productivity (gCm⁻²yr⁻¹) and ocean fronts, sea surface temperature (SST) and anomalies in SST, 50 years of annual fisheries biomass yields, value, mean trophic levels, fisheries conditions relative to stock conditions and amount of primary productivity required to support the mean annual catch levels and information on nutrient over-enrichment and coastal eutrophication.

Chapters I through XVIII describe conditions of LMEs within the 18 Regional Seas areas, followed by Chapter XIX on the LMEs outside the Regional Seas. Three introductory background reports included in the volume are focused on: 1) A global fisheries assessment; 2) Effects of global warming on fisheries biomass yields; and 3) An assessment of nutrient over-enrichment of LMEs. The report clearly states the advantages of a standardized ecosystem-based approach that uses a generic suite of indicators to serve as the basis for assessing changing conditions within each of the World's 64 LMEs. The report provides for the first time science-based assessments relevant to the management and governance of LME goods and services.

The standardized indicator metrics allow for comparisons among LMEs of the effects of global warming on fisheries yields, where it has been observed that in conditions of accelerated warming 2 to 4 times faster than reported recently by the IPCC, half of the LMEs are showing increases in fishery yields during the past 25 years, while the other half are in linear declining trends. Increases in fisheries biomass yields due to global warming are reported for the Iceland Shelf, Faroe Plateau, Norwegian Sea, Gulf of Alaska and East Bering Sea LMEs, while linear declines are reported for the North Sea, Celtic-Biscay Shelf, and Iberian Coastal LMEs. Evidence of nutrient over-enrichment resulting in the increasing frequency and extent of eutrophication, hypoxia, and dead zones is reported for the first time for each of the World's LMEs. Quantitative estimates are provided for amounts of Nitrogen introduced into the LMEs in relation to specific sources and amounts from atmospheric deposition, manure, sewage, fertilizer, natural fixation, and agricultural fixation.