

UNDP-GEF International Waters Programme: 2008

Support to Implementation of the CBD Programme of Work on Marine and Coastal Biological Diversity

UNDP-GEF's International Waters programme strategically addresses several of the key issues and threats pertaining to the sustainability of the marine and coastal environment, including point and non-point source pollution (particularly from nutrients), unsustainable fishing practices, habitat protection and restoration, and invasive species, particularly from ship ballast water. UNDP applies 'top-down/bottom-up' approaches to promoting sustainable use of the oceans through its flagship integrated coastal management programme, PEMSEA, and through its Large Marine Ecosystem (LME) programme which facilitates the creation of regional policy, institutional and legal frameworks towards the sustainable management of these major ecosystems, from which ninety-five percent of the annual global wild fish catch is harvested. The GloBallast programme focuses on enhancing developing country capacity to reduce the environmental and socioeconomic risks associated with the transfer of aquatic invasive species in ship ballast water, the principal vector for exotic species introductions. As an Implementing Agency of the Global Environment Facility (GEF), UNDP's currently operational oceans portfolio totals \$109.62 m. in grant financing matched with \$359.45 m. in co-financing from governments, intergovernmental organizations, bilaterals, IFIs, NGOs and the private sector. Summaries of recent and current activities under the principal components of UNDP's ocean and coastal programme follow:

Large Marine Ecosystem Programme

Benguela Current Large Marine Ecosystem Programme

Countries: Namibia, South Africa, Angola

Partners: UNOPS, DANCED, BENEFIT, SADC, private sector industries and governments. EU (MCS Programme); SADCO, NOAA, FAO, IMO and others.

Website www.bclme.org/

Newsletter Benguela Current News

The Benguela Current Large Marine Ecosystem - one of the world's four major 'upwelling' marine ecosystems - is one of the world's most productive, providing energy materials, food security and foreign exchange earnings. The region's natural beauty and abundant wildlife provides substantial revenue from tourist activities while near shore and offshore sediments contain rich mineral deposits as well as oil and gas reserves.

Unsustainable pilchard and anchovy fishing led to the collapse of the South African and Namibian fishing industry in the '60s and '70s. Overfishing of hake, usually by foreign fleets, saw this resource severely depleted by 1973 and led to the declaration of 200-mile exclusion zones in 1977 (South Africa) and 1990 (Namibia).

Project description

The BCLME Programme was designed to improve the structures and capacities of Namibia, Angola and South Africa to deal with their transboundary environmental problems and manage the BCLME in an integrated and sustainable manner.

Transboundary issues include the migration of fish stocks across national boundaries, the introduction of invasive alien species, and the movement of pollutants or harmful algae from the waters of one country into another.

The programme assists governments to manage their shared marine resources - fish, diamond mining and petroleum exploration - in an integrated and sustainable way. Key areas also include environmental variability, coastal zone management, ecosystem health, socio-economics and governance. More than 75 different projects and activities are now being carried out by activity centres in the three countries in close cooperation with the commercial fishing, and oil and gas industries, as well as with the offshore diamond mining industries of Namibia and South Africa.

The three activity centres (see below) coordinating specific projects are:

Luanda, Angola; Biodiversity, Ecosystem Health and Pollution

Swakopmund, Namibia - Living Marine Resources

Cape Town, South Africa - Environmental Variability

SELECTED PROJECT RESULTS

Legal

- The establishment of an interim Benguela Control Commission (BCC) in August 2006 as a prelude to a formal commission was a landmark step for the project since protection of the BCLME was being undermined by gaps in the legal frameworks of all countries – particularly the lack of laws regulating transboundary projects. Harmonizing national environmental policies and legislation for marine mining and offshore petroleum exploration/ production between the three countries is a project priority.
- Legislation and capacity-building has begun to reverse threats including declining fish stocks, deteriorating water quality, alien species invasion, habitat destruction and alteration and has improved monitoring and management capacity. Primary productivity rates for fisheries have been significantly higher in the Eastern Cape in recent years compared with the 1990s.
- New legislation on aquaculture, including shellfish production, has been adopted by Angola and Namibia to facilitate development and quality of products. Recommendations include water quality guidelines for growing shellfish and contingency plans for harmful algal blooms. Implementation plan for the regional aquaculture policy options has been completed.
- A MARPOL (prevention of pollution) agreement adopted by the three countries and water quality guidelines has been drafted. A regional oil spill contingency plan project with a “polluter pays” principal is on target to meet end of project targets. Monitoring systems are in place to measure harmful algal blooms, temperature, salinity and oxygen.
- In 2005 Angola rejected an agreement allowing the EU to fish off Angola. Only Spanish vessels with 51 percent Angolan ownership were allowed to fish under strict Angolan regulatory control and monitoring.
- An Environmental Management Bill and Pollution Control and Waste Management Bill are being debated in Namibia.

- Measures have been adopted to reduce unwanted fisheries by-catch and reduce the impacts of longline fishing on seabirds, especially albatrosses.
- The BCLME governments have issued exploratory fishing licenses for various stocks that were not previously regarded as fisheries target species. (e.g. squid, clams, jacopecover).

General

- An ecosystem approach to fisheries is being adopted by the fisheries institutions of the three countries to address transboundary concerns. Key results from “shared stocks” projects are being translated into operational information and being presented to decision makers for incorporation into national management fisheries. Consultations are taking place on the shared management of sardine, hake and horse mackerel stocks.
- Significant capacity has also been built to undertake inshore monitoring with the provision of ‘ski boats’ for Angola and Namibia and one planned for South Africa. An Angolan research vessel has been refitted and modified for transboundary monitoring work.
- The first regional BCLME workshop (Cape Town in 1998) identified and prioritized environmental issues, problems and constraints; proposed possible solutions; forged consensus among stakeholders and role-players; and developed a feasible work plan and a mechanism for consultation and cooperation.
- Consultants were appointed to prepare six thematic reports on: fisheries; oceanography and environmental variability; diamond mining; coastal environments; off-shore oil and gas exploration/production; and socio-economics of key maritime industries. These, together with the output from the first workshop, served as a basis for the development of a Transboundary Diagnostic Analysis (TDA).
- A Strategic Action Programme was signed by seven ministers from Angola, Namibia and South Africa in January 2000. A legally binding Project Document was formally signed by Angola, Namibia and South Africa, UNDP and UNOPS in March 2002.
- A much more holistic approach has been initiated within the region, with more information on changing boundary processes that affect national priorities and concerns. A multidisciplinary approach has been adopted to the effects of fishing on the ecosystem and the relationship between fisheries and the ecosystem itself. A strong collaborative research programme, organised through BENEFIT, has helped predict sustainable catch levels.
- Regional cooperation has been promoted between institutes. Effective capacity building has helped a number of project-associated personnel to gain promotion from technical levels to senior management positions in national and regional organisations. Technical expertise has also been retained within the region which has had a positive effect on capacity building and training.
- Studies have been undertaken into non-commercial fish species especially those that constitute fishing by-catch, and how their removal may influence the ecosystem.
- Six Advisory Groups have been set up to provide technical expertise. They consist of two members from each countries and cover: Living Marine Resources; Environmental Variability; Biodiversity, Ecosystem Health and Pollution; Legal and

Maritime Affairs; Training and Capacity Building; and Information and Data Exchange.

- An environmental early warning system is being developed.
- Norwegian research ship Dr Fridtjof Nansen – which has conducted annual surveys of the BCLME – spent the first quarter of 2005 surveying fisheries, ecosystem health and pollution in the region before undertaking similar survey cruises of the coasts of Togo and Cote d'Ivoire, and in the Gulf of Guinea LME. In 2004 the German research ship Alexander von Humboldt conducted a seven-month intensive study of the BCLME.

Impacts and activities in Activity Centres

Luanda, Angola: Activity Centre for Biodiversity, Ecosystem Health and Pollution

- Harmonisation of national environmental policies and legislation for marine mining, dredging and offshore petroleum exploration and production activities.
- Baseline assessment of sources and management of land-based marine pollution.
- The development of a common set of water and sediment quality guidelines for the coastal zone.
- Data gathering and gap analysis for the modeling the cumulative effects of offshore petroleum exploration and production activities on the marine environment.
- Data gathering and gap analysis for assessment of the cumulative effects of marine diamond mining activities.
- Assessment of the cumulative effects of sediment discharge from on shore and near shore diamond mining activities.
- Assessment of the cumulative impacts of scouring of sub-tidal areas and kelp cutting by diamond divers in near-shore areas.
- By-catch of threatened seabirds, sharks and turtles in long-line fisheries
- Marine biodiversity status assessment and conservation planning.
- Mapping of the BCLME shoreline, shallow water, estuarine and offshore habitats.
- Identification of communities, biotopes, species along the BCLME shoreline and shallow sub-tidal zone and assessment of offshore biodiversity.
- Baseline surveying of species and biodiversity in estuarine habitats.
- Ecosystem Mapping and Biodiversity Consultative Workshop, 26-27 April, Swakopmund
- Luanda Bay Ecosystem Project
- Classification of coastline for aquaculture development

Swakopmund, Namibia: Activity Centre for Living Marine Resources

- Henties Bay Community project.
- An assessment of means of involving coastal communities.

- Introducing the BCLME Programme to the wider audience within the coastal communities.
- Development of a demonstration website for Artisanal Fisheries Institute, Luanda, Angola
- Review and audit of the institutional arrangements that impact on the artisanal fisheries sector.
- Overview and analysis of social, economic and fisheries information to promote artisanal fisheries management.
- Socio-Economic baseline surveys of coastal communities.
- Determination of optimal harvesting strategies for the hake trawl and longline fisheries in Namibia and South Africa.
- An economic and legal study to assess the policy prospects for formulating a balanced development of trade in fish and fish products.
- An analysis of right-based micro-economic systems and governance of the important commercial fisheries.
- Harmonisation of socio-economic policies and legal provisions for effective implementation of the BCLME programme.
- An analysis of revenue-raising instruments of the important commercial fisheries.
- Ecosystem Approaches for Fisheries (EAF) Management in the BCLME
- A Regional Ecosystem Monitoring Programme: Top Predators as Biological Indicators of Ecosystem Change.
- Development of a responsible aquaculture policy.
- Classification of coastline for aquaculture development.
- Development of a management plan for bronze whaler shark resources.
- Survey of transboundary demersal fish stocks in southern Namibia with special reference to hake.
- Assessment of variability of transboundary pelagic fish stocks particularly *Sardinella* from Gabon to central Angola
- Transboundary study with emphasis on deep water hake in the Luderitz - Orange River Cone area.
- Feasibility study into the application of genetic techniques for determining fish stock identity of transboundary populations.
- Feasibility study into the establishment of a permanent regional fish ageing centre in one of the BCLME countries.
- An assessment of the state of commercial fisheries catch data.
- Construction and delivery of two catamaran type ski-boats for inshore environmental and fisheries sampling in coastal waters of Namibia and Angola.
- Transboundary survey between Namibia and South Africa with focus on shared stocks of hake

- Retrospective analysis of Sardinella fisheries in Angola
- A review of the impacts of seismic surveying and toxicity of oil products on the early life history stages of pelagic fish, the benthos and the pelagic ecosystem with potential application to the Sardinella fishery (*Sardinella aurita*) in Angolan waters.
- Investigation of the pelagic fish stock resources in the Orange region in relation to transboundary management.
- Transboundary survey of pelagic fish particularly horse mackerel and pilchard in southern Angola and northern Namibia.
- Investigation of the pelagic fish stock resources in the Orange region in relation to transboundary management- Transboundary Survey
- Assessment of the ecological importance of mesopelagic fish and pelagic gobies in the functioning of the BCLME.
- Development and drafting of a state of the BCLME ecosystem reporting system including both oceanographic, biological and pollution components.
- Development and harmonisation of pilchard assessment and management between Angola and Namibia

Cape Town, South Africa: Activity Centre for Environmental Variability

- Analysis of Benguela dynamical variability and assessment of predictability of warm and cold events.
- Harmonisation of regulations for microalgal toxins for application in bordering countries.
- Development of an operational capacity for monitoring of Harmful Algal Blooms (HABs) in countries bordering the northern part of the BCLME.
- Development of a shellfish sanitation programme model for application in consort with the microalgal toxins component.
- Investigation into the diversity and distribution of cysts of Harmful Algal Blooms (HABs).
- Development of an operational capacity for real-time observation and forecasting of Harmful Algal Blooms (HAB) (Demonstration project in Namibia and South Africa).
- Investigation into the diversity and distribution of cysts of harmful algal blooms within Luanda Bay (Angola) and Luderitz Bay and Walvis Bay (Namibia)
- Critical review of the biophysical processes and variability that characterise the low oxygen water (LOW) variability and an improved monthly State of the Environment (SOE) reporting on low oxygen water.
- Assessment of key transboundary processes and measurement scales in respect of low oxygen water (LOW) variability: preliminary implementation and examination of the role of large scale and transboundary hydrodynamic control of LOW variability.

- Assessment of key transboundary processes and measurement scales in respect of low oxygen water variability: implementation of the LOW generation areas simulation that provide inputs to transboundary models.
- Management and industry capacity building and dissemination workshops for ecosystem, fisheries and industry managers.
- On-going international partnerships have been formed with biochemical modeling groups to secure the most up-to-date modeling capabilities.
- Comprehensive review and re-interpretation of oceanographic information on the Angola sector and assessment of the present state of oceanographic environmental monitoring.
- Upgrade communication systems for Angolan core partner institutions.
- Diagnosis of large scale South Atlantic modes that impact on the BCLME.
- Ichthyoplankton distribution, monitoring and training in northern Namibia/southern Angola.
- Oceanographic, hydrological and benthos monitoring in Angolan waters.
- Retrospective analysis of plankton community structure to provide an index of long-term change in the ecosystem.
- Participation in the Climate Variability Programme (CLIVAR/OOPC) Workshop on South Atlantic Climate Observing System in Angra dos Reis, Brazil.
- Feasibility study of the south-east extension of PIRATA (Pilot Moored Array in the Tropical Atlantic).
- Several international and regional oral presentations on PIRATA and BCLME Nino's given in 2003.
- SADC holdings of Namibian data: Assessment of historical oceanographic data available from SADC
- Feasibility assessment for the use of a towed undulating oceanographic recorder (TUOR) in the BCLME.
- 11th International Conference on Harmful Algae (Cape Town)
- Characterizing the spawning habitat (temporal, spatial and in terms of physical and biological attributes) of harvested pelagic species using continuous underwater fish egg sampler (CUFES) and net sampling

Projects administered by the BCLME Programme Coordination Unit (PCU)

- Training and capacity needs assessment.
- Publicising the BCLME project through audiovisual media
- Institutional review and analysis for Benguela Current Commission (BCC)
- Economic study and cost-benefit analysis of co-operative research and management for BCLME Region.

Working with regional industries

- Commercial fishing: The industry is working with the project to establish a ecosystem approach to sustained fisheries management; reduce the numbers of sharks, turtles and seabirds killed, improve scientific knowledge and develop a responsible aquaculture policy. Fishing is an important source of revenue and food security for the region. Fish provide almost 50 percent of animal protein consumed in Angola and fishing is the country's third largest industry, after oil and diamonds. In Namibia, fishing accounted for 6.6 percent of GDP (2002). South Africa has an established, sophisticated fishing industry.
- Diamond mining: The industry is collaborating with the project to assess the environmental effect of mining activities, including the effects of scouring sub-tidal areas and kelp cutting by diamond divers. Marine diamonds account for 10 percent of South Africa's production. In Namibia mining is the most productive sector of the economy, contributing 20 percent of GDP including a 5.6 percent contribution by diamonds. Angola's diamonds are mined inland. Although marine areas used for marine diamond exploration can recover within four to five years the recovery time is much longer in the more fragile coastal ecosystem of sand dunes.
- Petroleum and gas: The industry is helping investigate the cumulative effects of its activities on the marine environment and to harmonize national environmental policies and legislation for exploration and production. Oil provides 70 percent of Angola's GDP and 90 percent of exports. South Africa has made many new oil/gas discoveries and deep water drilling is expected to increase.

Communications

- A 25 min CD-ROM documentary (English and Portuguese versions) on the BCLME has been widely circulated though the region.
- New project brochure focusing on the three main industries in the BCLME region – fishing, diamond mining and oil and gas exploration – produced and distributed.
- Three issues have been published of a newsletter/journal containing science updates and features as well as project news.

Training

- A strong emphasis has been placed on training and capacity building. Bridging the skills gap between the north and south of the region is a priority. Around 20 percent of project funds were allocated to this area. Fish inspectors, fish observers, radio operators and patrol vessel officers are targeted for training.
- MSc courses are being set up at regional and national levels and there are programmes of regional and EU scholarships. Portuguese/English language training is also encouraged to facilitate international exchange. Students on the new MSc course in Marine Science at the University of Agostinho Neto are encouraged to also take English courses.
- A liaison committee between BCLME and the BENEFIT (Benguela Fisheries Interaction Training Programme) oversees training issues including contracts, implementation, and monitoring of projects.

Meetings

- The International Workshop on Forecasting and Data Assimilation in the BCLME and Comparable Systems (Cape Town 2004) was sponsored by the project.

- Regional Workshop on Ecosystem Approaches to Fisheries Management (South Africa 2004).
- Two-day symposium on Monitoring, Control and Surveillance of Fishing Activities (Cape Town 2004).

Black Sea Ecosystem Recovery Project

Countries: Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. Links to river basin projects also affect Bosnia and Herzegovina, Croatia, Czech Republic, Hungary, Moldova, Slovak Republic, Slovenia, and Yugoslavia.

Partners: UNOPS, World Bank, UNEP, Black Sea Commission

Web Site: www.bserp.org/

Newsletter: Saving the Black Sea

Overview:

The most significant process degrading the Black Sea in recent years has been massive over-fertilization by nutrients – compounds of nitrogen and phosphorus – largely coming from agriculture, but also from domestic and industrial sources. This has resulted in a process known as eutrophication, and has led to the wide-scale death of marine life which, allied with overfishing and the introduction of invasive species, such as the comb jellyfish (*Mnemiopsis leydi*), left some parts of the ecosystem in a state of collapse and other parts severely damaged.

During the 1970s and 1980s intense agricultural management practices were adopted in the Black Sea basin. Greater use of inorganic fertilizers and growing livestock numbers increased the amount of nutrients and organic waste. Other sources of pollution were poorly regulated industrial activity, ship discharges and tanker spillages, the dumping of solid waste into the sea or onto wetlands, untreated sewage and radioactive waste. These helped create pollution hot spots in the sea, severely affecting its ecology and economy and the quality of life and health of Black Sea residents.

Eutrophication has had profound consequences on fisheries and tourism. Although fish catches declined from 850,000 tons (mid 1980s) to a low of 250,000 tons (1991) there is evidence of recovery of some species, e.g. anchovy and sprat, but a worsening of the situation for others, such as spiny dogfish and whiting. In recent years the catch of bonito has increased massively. During the 1990s Turkey typically landed about 10,000 ton/yr, but in 2005 this jumped to 60,000 ton/yr, since when catches have remained high.

Black Sea tourism has suffered from poor water quality (it is estimated that poor bathing water alone has cost the region US\$ 500 million a year in lost tourist revenue), as well as a lack of industry training and poorly planned development of hotels and facilities. Tourist developments are now subject to environmental impact assessments.

Rivers form by far the most important pathway for land-derived nutrients contributing over 95% of the land-derived inorganic nitrogen load and over 85% of the land-derived phosphate load (i.e. excluding loads from the rivers Don and Kuban which flow into the Sea of Azov). Direct municipal/industrial discharges contribute only a minor proportion of the land-derived nutrient load. In recent years the Danube has carried over 80% of the total river-borne DIN load and over 50% of the total river-borne phosphate load to the Black Sea.

Background

Although the management of the Black Sea is the shared responsibility of the six coastal states until the early 1990s there was no common framework for cooperation.

After agreement on the 1992 Convention for the Protection of the Black Sea against Pollution, which established the Black Sea Commission, and with the support of the GEF-funded **Black Sea Environmental Programme** (1993-1996) the countries were finally able to launch joint, collaborative action.

The subsequent **Black Sea Strategic Action Plan** (1997-2000) supported them in drawing up SAPs, creating institutional networks and identifying priority national investments needed to improve the Black Sea environmental situation.

The long-term objective of the current **Black Sea Ecosystem Recovery Project** is to assist Black Sea countries to develop national policies and legislation and define priority actions that, while allowing economic development, can reduce levels of nutrients and other hazardous substances so that Black Sea ecosystems can recover to similar conditions to those observed in the 1960s.

BSERP seeks to reform agricultural policies; improve industrial and municipal wastewater treatment, rehabilitate key basin ecosystems, and strengthen the region's legislative framework and its enforcement.

Project Description

- BSERP has worked to reform agricultural policies; improve industrial and municipal wastewater treatment (including private sector incentives to invest in wastewater facilities); rehabilitate key basin ecosystems such as wetlands to act as nutrient sinks (including the creation of artificial wetlands); and to strengthen both the region's legislative framework and its enforcement.
- The Black Sea TDA (1996) has been updated using the latest data available for the Black Sea on the key transboundary issues, the Black Sea SAP (1996, updated 2000) is being also revisited to incorporate the results of a National Gap Analysis Study and the TDA (2007).
- The Black Sea – Danube Joint Technical Working Group (BS-D JTWG) was re-established between the Black Sea and Danube Commissions to develop a joint strategy on eutrophication and allow all 17 Black Sea countries to pursue common

targets. Under EC initiative a task force has been formed for financing investments in both Danube and Black Sea regions

- The project is closely linked with the Danube and Dnipro river projects and a joint working group reviews scientific findings and coordinates the activities of the Black Sea and Danube Commissions.
- An assessment has been made of options and opportunities for small and medium sized investment in three sectors – agriculture, industry and municipalities – in projects that could reduce nutrient loads and facilitate habitat recovery.
- The agricultural and industrial sectors have benefited from the promotion of ICZM and testing of best practices. Pilot projects have been implemented in ICZM, marine protected areas, fishery-free zones, nutrient export modeling and a Black Sea Vessel Traffic Oil Pollution Information System.
- A targeted research programme has been carried out on Black Sea eutrophication. Four international scientific cruises have been organized in the North-west shelf of the Black Sea by the project's International Study Group. Studies have also been made on inputs of nutrients to the Black Sea by atmospheric deposition, through River inputs, and the effects of livestock management.

Legal

- EU accession countries (Bulgaria and Romania) have harmonized their national legislation and policies on nutrient reduction with EU directives (particularly the Urban Waste Water Treatment and Nitrates Directive). This includes the development, adoption and implementation of Codes of Good Agriculture Practice and site-specific programmes on nitrogen export reduction in vulnerable zones.
- A study is being undertaken on cost-effective legal, administrative and investment practices relating to eutrophication control. Legal protocols governing pollution and resource use in the Black Sea have been revised.
- Continued support has been provided to the Black Sea Commission including promotion of revised protocols and the development of new ones, such as the drafting of a new legally-binding fisheries document and a new protocol on land-based sources of pollution.

Training

- BSERP has sponsored 55 training and workshop events, attended by more than 500 participants and 38 additional events, attended by more than 900 participants from NGOs.

Public awareness and communications

- Schools have incorporated Black Sea studies into their curriculum and some have adopted their own beaches for clean-up and conservation activities.
- More than 25,000 people have directly participated in over 100 BS Day events and activities; media coverage reached an estimated audience of over eight million people throughout the region.

Aided by nearly 14 years of GEF-funded interventions the Black Sea ecosystem is showing clear signs of recovery. These include:

- Since 2000, nutrient loads in the upper and middle stretches of the Danube have shown a clearly reducing trend.
- Between 1988 and 2003 livestock numbers in coastal country sub-basins fell by about two-thirds. Livestock numbers are now about half of what they were in 1960, with huge reductions in the volume of manure applied to fields or discharged to river from intensive rearing facilities.
- Levels of phytoplankton, which depend on nutrients for growth, have been reduced in the North-west shelf of the Black Sea (a decrease in biomass of about 50% compared with 1980s). In 1990 about 80% of the 50,000 km² area of seabed in the North west shelf was considered effectively dead. Low oxygen conditions still occur in NW shelf waters, but they now cover a much smaller area, are much less severe, and much less frequent.
- The number of macrozoobenthos species – an indicator of environmental quality – has increased. Large areas of the NW shelf are now characterized as being of moderate or good ecological status

Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem

Countries: Republic of Korea, China

Web Site: www.yslme.org/

Newsletter: YSLME PMO Newsletter

Background

Of the 64 large marine ecosystems in the world's oceans, the Yellow Sea is one of the most significantly affected by human development. It is bordered by land on three sides and many people depend on the ecosystem for food security and revenue from economic development. Bordering countries share common problems with pollution from municipal and industrial sites as well as agriculture. Degradation of the environment is shown by reduced fish catches; shifts in species biomass (partly caused by over-fishing); red tide outbreaks, degradation of coastal habitats (caused by extensive coastal development) and climate variability.

The Yellow Sea LME is also an important global resource supporting substantial populations of fish, invertebrates, marine mammals, and seabirds, many of which are threatened by both land and sea-based sources of pollution as well as loss of biomass, biodiversity, and habitat resulting from extensive economic development in the coastal zone, and by the unsustainable exploitation of natural resources.

Project description

The objective of the project is to promote ecosystem-based, environmentally-sustainable management and use of the Yellow Sea and its watershed; reducing development stress; and promoting sustainable use of the ecosystem.

In order to achieve its objectives the project is preparing a Transboundary Diagnostic Analysis (TDA), National Yellow Sea Action Plans and a regional Strategic Action Programme (SAP) The project will initiate and facilitate implementation of the SAP which

will consist of a series of legal, policy and institutional changes and investments to address the priority transboundary issues identified in the TDA.

The project will also address the lack of a formal infrastructure to bring about international collaboration and cooperation in monitoring and research activities on shared marine resource issues.

SELECTED PROJECT RESULTS

- The project has conducted consultations, consensus building, public participation exercises, issue and problem definition and analysis to prepare a full Transboundary Diagnostic Analysis which will guide the Strategic Action Programme, and National Strategic Action Plans.
- Memoranda of Understanding have been signed with the Yellow Sea Eco-region Planning Programme the Korea Ocean Research and Development Institute (KORDI), Wetlands International China Office, and the Marine Stewardship Council.
- A joint workshop between the YSLME Project and the Yellow Sea Eco-Region Planning Programme in 2005, produced a checklist of critical indicator species and a provisional GIS map of the ecologically important areas for the Yellow, Bohai and East China Seas.
- Regional Working Groups have been set up to guide the project's key components - ecosystem, investment, pollution, biodiversity and fisheries - and the Regional Scientific and Technical Panel have been established.
- Regional guidelines for pollution monitoring have been drafted. These include suggestions for areas to be monitored, parameters to be monitored; collaboration with current national monitoring programmes; and recommendations for future regional monitoring activities.

Communications

- The Yellow Sea Public Awareness and Communications Strategy identifies nine target stakeholder groups for whom key messages and expected outcomes have been defined. However, the strategy also seeks to target the communities living around the Yellow Sea coastal areas, especially those using its watersheds and resources, as well as the greater global community who are indirect stakeholders of the ecosystem.
- Training events, workshops and programmes have been for decision-makers, community trainers and local government officials in areas such as small grants, project documentation and fund-raising.
- Competitions, exhibitions, workshops and a 'call to action' for the region's youths have been held to increase public awareness. Multi-language information has been made available through print and electronic media. Brochures, posters and promotional items have been distributed.

Legal

- The Yellow Sea Project is working to encourage national and regional commitments to international conventions and agreements, such as the United Nations Convention on the Law of the Sea (UNCLOS), the FAO Code of Conduct for Responsible Fisheries, and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

Guinea Current Large Marine Ecosystem Programme

Countries: Angola, Benin, Cameroon, Congo, Democratic Republic of the Congo, Cote d'Ivoire, Gabon, Ghana, Equatorial Guinea, Guinea, Guinea-Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierre Leone, Togo

Partners: UNEP, UNIDO, NOAA, Norway, private sector

Newsletter: GCLME Newsletter

Web site www.gclme.org

Overview

The Gulf of Guinea Large Marine Ecosystem (GCLME) is an important global resource. Ranked among the most productive coastal and offshore waters in the world, the GCLME includes vast fishery resources, oil and gas reserves and precious minerals, has a high potential for eco-tourism and is an important reservoir of globally significant marine biodiversity.

Around 40% of the region's 280 million inhabitants live in coastal areas and are dependent on the GCLME for food security and exports. Almost all major cities, harbors, airports and other infrastructure are situated on or near the coast. Communities use rivers for transport and mangroves as a source of firewood, fish smoking, building material, salt production, oyster harvesting and medicinal plants.

However the GCLME's habitats and living resources are threatened by human activities including overexploitation of fish resources, pollution from land-based sources and degradation of coastal areas through erosion.

Most countries in the region are oil producers and some (Angola, Cameroon, Gabon and Nigeria) are exporters. Offshore platforms, import/export terminals and refineries create oil pollution. Untreated sewage, agricultural and industrial waste products also damage the environment.

Project description

The project is an ecosystem-based effort to assist countries adjacent to the GCLME to prevent pollution, conserve biodiversity and achieve environmental and resource sustainability. Activities included institutional strengthening, water quality and ecological monitoring, pollution control, setting up demonstration sites and developing institutional mechanisms.

The project's long-term objective was to facilitate changes in human activities in different sectors of national life to ensure that the GCLME and its multi-country drainage basins can support regional sustainable socio-economic development.

The Accra Declaration on Environmentally Sustainable Development of the GCLME was adopted a committee of ministers for the environment from the Gulf of Guinea states in 1998 during this project's pilot phase.

SELECTED PROJECT RESULTS

- An Interim Guinea Current Commission, 16 national inter-ministry committees and Five Regional Activity Centres have been established and are fully functional.

Countries have formed National Steering Committees to guide Integrated Coastal Area Management Plans.

- A regional coordination centre has been established in the Centre for Oceanographic Research in Abidjan, Côte d'Ivoire.
- Country coast profiles have been published and Integrated Coastal Area Management Plans adopted by all participating countries. Countries have formed National Steering Committees to guide these plans.
- Port reception facilities, which will enhance ballast water management capacity are being established in maritime ports in Nigeria, Ghana and Cote D' Ivoire.
- Public-private partnerships have also been formed to conduct a project that aims to use municipal solid waste for fertilizer production in Nigeria; and a waste oil reception facility in Tema Port, Ghana.
- A new mangrove reserve has been established in Calabar, Nigeria and additional mangrove areas are being delineated in Cameroon and Angola for adoption as reserves. Coastal communities have begun mangrove restoration as a result of awareness-raising campaigns conducted by NGOs.
- A Marine Protected Area has been established in Cotonou, Benin Republic.
- A management programme for reduction, recovery and recycling of municipal and industrial solid waste, which proved cost-effective in Ghana, is being extended to the other countries. Coastal erosion prevention technologies have also been transferred from Ghana to Benin.
- Plans have been developed for introducing novel low-cost technology options - including the use of settling pits in Ghana for sewage treatment and community sorting of domestic waste for recycling.
- . Public/private partnerships have been formed to reduce effluent discharges and aid restoration of the Lagos lagoon, Nigeria.
- A group of national GIS experts has been established to help develop a regional GIS database for data archiving and sharing.

Legal

- Regional effluent regulations and standards have been established for industries in coastal areas. A management programme for reduction, recovery and recycling of municipal and industrial solid waste, which proved cost-effective in Ghana, is being extended to other GCLME countries.
- A regulatory policy – with closed and open seasons has been adopted to conserve fisheries. Under the Accra Declaration the licensing of distant water industrial fishing fleets has been halted, other than for tuna vessels, and some jointly-owned Angola/Spanish vessels/ In the past large commercial offshore fishing fleets from the EU, Eastern Europe, Korea and Japan have placed extreme pressure on fisheries resources.
- Common industrial effluent standards for industries in the coastal area are being adopted and enforced in some countries.

Training

- Around 900 participants have taken part in 40 technical assistance and capacity building workshops and a regional network of 300 technical experts has been formed. More than 100 environmental experts have been trained in drafting and implementing common standards, policies and legislation.

Pacific Oceanic Fisheries Management (OFM) Project

Countries: Cook Islands, Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

Partners: Forum Fisheries Agency

Web Site: www.ffa.int/gef/

Overview

The Pacific marine environment is an enormous and largely unexplored resource. It has the most extensive and diverse reefs in the world, the deepest oceanic trenches and relatively intact populations of many globally threatened species including whales, sea turtles, dugongs and saltwater crocodiles. The ecosystems of the Pacific islands support an enormous and largely undocumented array of diversity including more rare, endangered and threatened species than anywhere else on earth. Its productive fisheries support the economies of nations, islands and communities.

However this environment is critically threatened with up to 50 percent of the region's total biodiversity at risk. Threats come from over-exploitation of resources; the fragmentation of ecosystems and habitat destruction from human activities; the impact of invasive species; climate change and destructive natural events. The root causes of these problems are a complex combination of socio-economic factors that includes smallness, geographic isolation and narrow resource bases, compounded by high population growth, lack of technical capacity and ineffective coordination among resource and conservation agencies.

Project description

The long-term objective of this project is to conserve and sustainably manage the coastal and ocean resources in the Pacific Region. Project activities are designed to encourage comprehensive, cross-sectoral, ecosystem-based approaches to mitigate and prevent existing imminent threats to these International Waters resources.

South Pacific fisheries provide 48 percent of the world's tuna catch from an area that covers one twelfth of the world's surface. Tuna fisheries earn the region more than US\$1.7 billion annually although only about one percent of the two million ton catch goes for local consumption.

The tuna fisheries of the Western and Central Pacific Ocean are one of only two remaining major fisheries in the world still considered to be in healthy condition and amenable to increased exploitation. The OFM project will target the Western Pacific Warm Pool ecosystem, whose boundaries correspond almost precisely to the Western Pacific tuna fishing grounds. It has been designed to improve knowledge of the ecosystem, including the effects of fishing, and to improve national and regional management regimes to optimize sustainable economic returns from the fisheries.

SELECTED PROJECT RESULTS

Legal

- GEF support facilitated the full participation of Pacific Island States as primary stakeholders in the negotiation and development process for the Convention and Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific which came into force in June 2004.
- The project helped establish the new Western and Central Pacific Fisheries Commission in 2004. The commission will work to secure a sustainable future for the industry, securing present and future economic and other benefits for the islands, while at the same time minimizing the impacts of fisheries, including by-catches of turtles and sharks and pollution caused by fishing. A compliance programme for the Convention, including appointing observers, boarding and inspection, and the application of sanctions has begun.
- With support from the OFM many Pacific SIDS are conducting reviews of the legal, policy and institutional arrangements, their national fisheries status, and management plans relating to the Convention. At the regional levels scientific, legal and policy workshops and consultations are taking place.
- At the Western and Central Pacific Fisheries Commission meeting in December 2005 conservation and management measures were adopted which maintain bigeye and yellowfin catches at current levels, cap purse seine at 2004 levels, limit bigeye longline catches and allow no increase in vessels fishing for albacore in both north and south Pacific waters.

General

- Regional consultation and coordination has been improved by strengthening the links between the Forum Fisheries Agency (FFA) and the Secretariat of the Pacific Commission (SPC). These organizations were the original proponents of the OFM project.
- Tuna management plans were developed and reviewed in the Cooks Islands, Fiji, Kiribati, Marshall Islands, Niue, Tuvalu and Vanuatu. Other countries were supported in their efforts to develop national tuna management plans for the 14 participating countries. Support was also given to the preparation of Tuna Management Plans by the Secretariat of the Pacific Commission.
- A Tuna Fishery Data Management System has been installed and is operating operation in seven of the 17 Pacific SIDS. National observer programmes have

been established in 10 SIDS. A baseline study on the oceanic fisheries resources of the Central and Western Pacific was conducted in 2002.

- The Pacific Island Forum Heads of State has established a ministerial committee to oversee regional fisheries affairs.
- The project achieved a high level of co-ordination between its activities and existing on-going tuna fisheries management projects and managed to integrate these into the overall strategic plan of the Oceanic Fisheries Programme.
- The project supported regional and nation observer training courses, port sampling training and evaluation, and created manuals and other materials to help observers. Support was provided to national observer coordinators in four countries (Fiji, Kiribati, Marshall Island and PNG). Port sampling contractors in Samoa and Tonga also received project support.
- Creation of models to describe the dynamics of transboundary fish stocks of the WCPO region including examination of the ecosystem issues relating to the western central Pacific tuna resource.
- The project has also supported Pacific islands' attendance to the annual meetings of the Standing Committee on Tuna and Billfish and to the meetings of other regional fisheries management organizations (e.g. IATTC, IOTC and ICCAT).

Environmental Protection of the Rio de la Plata and Its Maritime Front: Pollution Prevention and Control and Habitat Restoration (FREPLATA)

Countries: Argentina, Uruguay

Partners: Consortium of the Comisión Técnica Mixta del Frente Marítimo (CTMFM), Comisión Administradora del Río de la Plata (CARP), Joint Technical Commission of Salto Grande, Intergovernmental Commission of the Plata Basin, CARU (Bi-national Commission of the Rio Grande), CTMSG (Salto Grande Bi-national technical Commission), Undersecretariat for Water Resources, Secretariat for Industry, Commerce and Small and Medium Enterprises (Argentina) and Ministry of Industry, Energy and Mining, National administration of Water, Sanitation and Irrigation (Uruguay).

Website: www.freplata.org

Background

Río de la Plata and its Maritime Front is a very large river-marine system that receives the waters of the Rio de la Plata basin, the second largest river basin system in South America. Biological productivity in the project area is very high, particularly in fisheries, and contains globally significant biodiversity – river, coastal and high seas species develop all or part of their life cycle in the project area. A great superposition of species from warm, temperate and cold waters is found in the area. The exploitation of shared fishing resources is very significant for the economies of both countries

The main urban centers of both countries are located on the coasts of the Rio de la Plata and its Maritime Front, as well as leading economic activities. Industrial, agricultural and port activities, together with fisheries and tourism, are an important source of livelihood for a significant percentage of the population. In Argentina the coastal area concentrates 45 percent of all industrial activity and 35 percent of its population, while in Uruguay it contains approximately half of its total population and most of its economic, industrial and port activities. The waterbody is therefore a sink for substantial urban,

agricultural and industrial pollution, and suffers from habitat degradation due to dredging, sedimentation and the alteration of hydrological processes caused by construction of numerous dams in the basin.

Similarly, the development and operation of the Paraná-Paraguay Waterway (Hidrovía) will generate significant environmental impacts. Many of the main fisheries are subject to an intense exploitation and have reached their maximum sustainable yields. Toxic tides seem to be increasing in frequency and exotic bivalves already consider parts of the system home. The shallow nature of the waters translates into continuous dredging.

Strictly speaking, Río de la Plata and its Maritime Front cannot be regarded as an ecosystem (as defined in the Convention for Biological Diversity) as it is heavily dependent upon the influence of upstream rivers and downstream marine conditions. Nevertheless, it contains key habitats and communities and therefore the general 'systems approach' is applicable.

The Río de la Plata and its Maritime Front are actually part of the Southeast South American Shelf LME.

Project description

The project is assisting Argentina and Uruguay in preparing a Strategic Action Programme as a framework for addressing the most imminent transboundary issues and threats to the Rio de la Plata and Its Maritime Front. Preparation of the SAP would be preceded by finalisation of a Transboundary Diagnostic Analysis (TDA), building on assessments already completed during the Block B stage, by prioritizing issues, filling data gaps, and performing an in depth systems analysis of cause/effect variables, including socio-economic and ecological factors.

Activities would defray the transactions costs of developing a joint management paradigm, by i) raising awareness of priority transboundary concerns, ii) the catalyzing of enabling policy, institutional and financial reforms, iii) strengthening stakeholder communications, iv) identifying innovative management tools that may later be applied towards SAP implementation, including economic instruments, v) training resource managers to prepare and implement the SAP, vi) programming targeted investments and vii) supporting 'deal flows' by matching sources of capital with investment opportunities.

SELECTED PROJECT RESULTS

- The project has completed the TDA, which has been formally approved by the two bi-national government commissions CARP and CTMFM. More than 33 scientific and technical cooperation agreements – which included 58 specific operational agreements – were made with institutions and services during the preparation of the TDA. More than 250 scientists and technicians from 34 Argentinian and Uruguayan research institutions contributed to the TDA preparation.
- The full TDA is a technical document, expected to be most of interest to scientists, and a TDA for Decision-makers dealing with issues which were not covered has been prepared for wide distribution in English and Spanish through the project website. The TDA for decision makers will include issues such as the protection of biodiversity – including marine living resources and protected areas; stakeholder involvement in environmental management; institutional capacities for environmental management; and the adoption of clean technologies for industry.

- Eighteen small and medium size firms in five key industrial sectors are implementing Cleaner Production Practices with the support of national and local environmental agencies.
- A joint initiative by FREPLATA and a local NGO has resulted in 70 km² of coastal-marine area at Cerro Verde (on the Atlantic coast of Uruguay) being declared a Natural Protected Area.
- A high-level FREPLATA Inter-ministerial Commission with representation from five ministries and the Environment Secretariat of the provincial government has been established by executive resolution in Buenos Aires.
- 206 technical reports and publications on environmental issues have been published. Most are available through the project website.
- An analysis has been made of coastal area biodiversity and identification of priority areas for habitat restoration.
- Key research institutions and government agencies participated in the evaluation of the draft TDA at a bi-national technical workshop at the first Plenary Meeting of the Project Coordination Committee. The draft TDA was then reviewed by two external consultants.
- A list of priority actions has been identified in the TDA technical document and inter-sectorial teams have been established to undertake biodiversity, pollution and environmental impact analysis, find viable solutions to priority problems and secure the support of government agencies and other project stakeholders. In 2005 the team's biodiversity working group published the draft 'Uruguayan strategy for biodiversity conservation in the Rio de la Plata and its Maritime Front'.
- A CD, containing more than 200 technical reports and publications on different aspects of the project area's environmental characteristics and problems, has been prepared to complement the TDA. It has been distributed and made available on the project website.
- The project has established a working group for the study of red tides (algal blooms) and is working with local governments in a pilot red tide monitoring project. It has also set up a bi-national network for the exchange of information with local governments for monitoring water quality for recreational purposes.
- Two pilot projects – Increasing enterprise performance through cleaner production (Argentina) and Cleaner production and the reduction of pollution from industrial waste (Uruguay) have been established to demonstrate the viability of clean technologies which could decrease the amount of contaminants reaching the water environment.
- Agreements on technical cooperation have been made with two other GEF-funded projects (GEF-Patagonia and GEF-La Plata Basin) in the region to foster cross-cutting activities. Information and informatics tools are also exchanged with a number of projects including these two GEF projects.

Legal

- Three reports have been compiled on legal and institutional issues affecting the protection of the Rio de la Plata and its Maritime Front environment.

- A compilation of international agreements and legislation relevant to the area's environmental protection were made available on a CD and also on the project website in 2004.
- The project website (in Spanish) features a legal database.
- A report on the financial and economic arrangements for the protection of the Rio de la Plata and its Maritime Front environment was published in 2004.
- A report is being compiled on the legal instruments for the protection of biodiversity and water living resources is being drafted.
- Reports on the legal regime for the protection of the water environment from land-based sources of pollution and the legal status of the coastal zones of Argentina and Uruguay are serving as the basis of proposals to be included in the SAP.
- Support has been given to the government of the province of Buenos Aires for developing the legal basis of a coastal management strategy.
- Two studies – one for Argentina the other for Uruguay - are being made on issues relating to the institutional strengthening of the government agencies responsible for environmental protection. They will be used to formulate the project's institutional strengthening strategy.
- As part of a technical cooperation agreement with the Inter American Development Bank consultants in 2003 have undertaken studies in: legal and institutional proposals for environmental management; economical instruments for environmental protection; and specific projects for environmental protection and habitat restoration.

Communications

- A team of communications specialists has been set up to carry out the project's communications and environmental education strategy in order to increase public involvement and participation in the project. The communications team is also publicizing TDA findings in a series of events and exhibitions, including media presentations, a monthly bulletin, photo and painting competitions, games and posters to reach all levels and sectors of civil society.
- In partnership with CONICET (El Centro Regional de Investigaciones Científicas y Tecnológicas) the project has published a 377-page book on invasive species.
- A workshop was held on Martin Garcia Island (Argentina) for 25 journalists from Argentina and Uruguay in 2003. A seminar on environmental communication methodology was also held for journalists and NGOs.
- A 24-minute video on the project's aims and activities has been produced and 900 copies have been distributed in the two countries (including 108 copies to schools and 65 to NGOs). The video has also aired many times on TV and was also shown to a potential audience of 1,200,000 passengers on board ferries operated by Buquebus and at the company's terminals.
- The project's website (in Spanish), launched in March 2002, has increased its audience from 27,167 hits (May 2003) to 500,620 hits (May 2005). A monthly average of 7,000 visitors spends more than 30 minutes at the site.

The website provides access to the three elements of the project's integrated information system (SII) – the Geographical Information System (GIS), the Virtual

Information Centre (VIC) and the Decision Support System (DSS) and their databases. The project's constantly-updated GIS system features 130 thematic layers including charts of pollutants, fishery stocks and key environmental assets.

- The website also contains databases referring to natural sciences, scientific bibliography, legal and institutional framework and updated basic information on 610 NGOs.
- Pilot networks for the exchange of information have been developed with the Oceanographic National Data Centres of Argentina and Uruguay as with local municipalities and departments in the two countries. The project is also supporting the Uruguayan National Environment Agency in the digitization and geo referencing of data on industries and industrial effluents.

Public awareness/education

- TDA findings have been publicized in a series of events, exhibitions, media presentations and publications, competitions, games and posters. Workshops and seminars on environmental communications methodology have been held for journalists and NGOs.
- The project sponsored 10 students undertaking postgraduate courses on Environmental Impact Evaluation at the National University of Mar del Plata in 2005.
- The project has carried out a public opinion survey in Argentina and Uruguay on the importance of environmental protection of the Rio del Plata and its Maritime Front.
- The project has signed a cooperation agreement with the Government of the Province of Buenos Aires to incorporate environmental issues into the curricula of elementary schools. A three-day awareness event was also carried out in 2004 for 70 high school students as well as a bi-national event attended by 30 high school teachers.
- A project exhibition entitled Viento en Popa (Tailwind) which opened at the Laboratorio Tecnológico del Uruguay in July 2004 was visited by more than 24,000 people.

Training

- A bi-national Train-Sea-Coast training course for 25 local authorities on the coastal area protection management was conducted in 2005.

Meetings and workshops

- 1st Plenary Meeting of the Project Coordination Committee (Uruguay, Oct 2004) – included 19 relevant government institutions)
- Workshop for the presentation of the draft TDA. (Uruguay May 2004) The TDA was also presented at meetings of AIDIA (Asociación Interamericana de Ingeniería Sanitaria) in Argentina and Uruguay, (2004)
- Bi-national workshop on water quality surveying techniques (2005)
- A programme of workshops aimed at decision-makers and other users of the projects Integrate Information System was held in 2004.
- The project presented 40 of the scientific reports made during the preparation of the draft TDA to a group of scientists. (Mar del Plata, 2004)

Integrated Coastal Management Programme – PEMSEA

PEMSEA - Partnerships in Environmental Management of the Seas of East Asia

Countries: Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Japan, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Thailand, Vietnam

Partners: IMO, UNOPS

Website www.pemsea.org/

Newsletter PEMSEA E-Updates Tropical Coasts

Overview

The East Asian Seas (EAS) region comprises six Large Marine Ecosystems (LMEs) - East China Sea, Yellow Sea, South China Sea, Sulu-Celebes Sea, Indonesian Sea and the Gulf of Thailand. In the last 30 years, 11 percent of the region's coral reefs collapsed while 48 percent are currently in a critical condition and over 80 percent are at risk. Mangroves have lost 70 percent of their cover in the last 70 years while seagrass beds' loss ranges from 20-60 percent. Unless properly managed, the current rate of loss will result in the removal of all mangroves by 2030, while reefs face collapse within 20 years.

Project description

The PEMSEA programme was designed to enable the sustainable use and management of coastal and marine resources through intergovernmental, interagency and intersectoral partnerships. Emphasis is placed on the demonstration of actual management actions on the ground, the success of which will strengthen government confidence and increase the commitment and investment of the public and private sectors in addressing environmental problems.

PEMSEA has established a network of over 30 national ICM demonstration projects, parallel sites and sub-regional sea area/pollution hotspot management sites. The programme seeks to consolidate and build on the experiences gained from these sites by transferring the lessons learned and building the required skills and capacities across the region, supported by a comprehensive, systematic, region-wide strategy, action program and implementing mechanism.

SELECTED PROJECT RESULTS

- A Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) was developed and adopted by the Ministers of the 12 participating countries as the Putrajaya Declaration in 2003.
- The PEMSEA Programme Steering Committee was transformed into an EAS Partnership Council in 2006.
- Several participating countries, including China, Japan and the Democratic People's Republic of Korea, have agreed to share the costs of creating a PEMSEA Resource Facility.
- Regional networks and a Regional Task Force (RTF) of experts have been established. A Multidisciplinary Expert Group (MEG) of coastal and marine experts has also been formed.
- PEMSEA has facilitated a partnerships agreement for oil spill preparedness and response in the Gulf of Thailand.

Legal

- ICM legislation has been prepared to aid the establishment of an institutional arrangement at each site.

Results from selected PEMSEA ICM sites

Bali, Indonesia:

- A Bali Coastal Strategy was adopted in 2002; a Coastal Strategy Implementation Plan in 2005; and a Coastal Use Zoning Plan in April 2005. Bali's zoning plan has established protected areas for rivers, beaches and cliffs, mangroves, coral reefs and water resources.

Chonburi, Thailand:

- An Implementation Plan for Coastal Strategy, action plans and institutional arrangements for ICM implementation have been made. An ICM Consultative Committee and Secretariat have been established and US\$10 million of provincial and municipal government funds has identified to implement Chonburi's Coastal Management Plan

Danang, Vietnam:

- Coastal Strategy and implementation plans have been adopted along with a communication plan, coastal use zoning plan and institutional arrangements for ICM implementation, including draft local legislation. PEMSEA has also helped organise water segregation and beach clean-ups in two pilot communes.

Port Klang, Malaysia:

- PEMSEA's ICM program has chosen the Port Klang area as it hosts the mouths of two rivers that travel through Malaysia's mostly populated and highly urbanized areas. A coastal use zoning program which defines primary usage, compatible usage, and proposes a licensing or permitting system, has been launched.

Nampho, DPR Korea:

- A Coastal Strategy and Integrated Coastal Use Zoning Plan have been officially adopted and are under implementation. One of the strategy's major outputs has been the development of drinking water and sanitation supply project which benefits about 330,000 people.

Sihanoukville, Cambodia:

- Sihanoukville has adopted a Coastal Strategy and developed Implementation Plans in the areas of: tourism development, solid waste management and habitat protection.

Batangas, Philippines:

- Strengthening of local legislation and institutional arrangements in Batangas has allowed the sustainable operation of the ICM programme using its own resources.

Xiamen, China:

- An Oceans and Fisheries Bureau has been established. User fees collected from the utilization of the sea areas have been earmarked for marine management and environmental protection. Xiamen's experiences in the implementation of sea-use zoning contributed to the enactment of national legislation on sea area management in China. ICM implementation in Xiamen, particularly the zoning scheme, has aided the projection of marine habitats and endangered species such as the Chinese white dolphin, egret and lancelet.

Bohai Sea Environmental Management Program (BSEMP)

- A Bohai Sea Sustainable Development Strategy has been developed as well as a Legal Framework for Bohai Sea Management.

Manila Bay Environmental Management Project (MBEMP)

- A Manila Bay Coastal Strategy has been adopted and a Project Coordinating Committee established. A Coastal Use Zoning Plan has established areas for all major activities as well as sanctuary zones for fish, bird and marine turtles, and restoration and protection zones for coral reef, seagrass, mangroves and mudflats.

Gulf of Thailand Environmental Management Project

- A Gulf of Thailand Secretariat has been established by bordering nations. PEMSEA has also facilitated a Partnerships Agreement in Oil Spill Preparedness and Response in the Gulf of Thailand, signed in January 2006.

Communications

- An Integrated Information Management System (IIMS) now aids management and planning. Information sharing is enhanced by the Coast to Coast (C2C) network of country websites which gives facts and figures, coastal and marine topics and organizational contacts for each country. PEMSEA also encourages cross-project information exchange and sharing experiences through training, website linkage, technical workshop, and meetings, with PERSGA, Yellow Sea LME Project, NOWPAP and others.
- PEMSEA has produced videos and publications including case studies, scientific papers, books, magazines, brochures for distribution around the region.
- Specialized training workshops have been organized for environmental journalists. Media partnerships are encouraged through regular media conference forums.

Community awareness

- Regular public awareness initiatives have involved women, the youth and community associations. The success of a Summer Youth Camp organized by PEMSEA in the Philippines in 2002 has led to similar camps and clean-up campaigns across the region. Environment-related themes have also been introduced into school activities.

Training

- During the period 1999-2006, 72 training sessions – attended by more than 1,400 trainees – were organized, offered or supported by PEMSEA. Capacity-building has been enhanced by the establishment of an ICM regional training center in Xiamen, China and national training centers in Batangas, Philippines, and in DPR Korea. A professional apprenticeship program, internship and fellowship programs provide on-the-job training for interns and fellows.

Public private partnerships

- A recently launched medium-sized project East Asian Seas Region: Development and Implementation of Public Private Partnerships in Environmental Investments complements existing PEMSEA activities. The US\$ 1.81 million (GEF grant US\$1 million) project is designed to build confidence and capabilities in public-private sector partnerships as a means of financing environmental facilities and services in the region. It will operate pilot programmes at five of the existing PEMSEA sites and will build capacity to effectively develop, finance, implement and sustain new investments in environmental facilities and services using the PPP approach.

GloBallast Programme

Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries (GloBallast)

Countries: Brazil, China, India, Iran, South Africa, Ukraine
Partners: IMO, Private Sector, REMPEC, PERSGA, SPREP, ROPME, EBRD,
IUCN, CPPS, NIOZ, NIWA
Website: globallast.imo.org
Newsletter: Ballast Water News (Quarterly)

Overview

Shipping carries more than 80% of the world's commodities and is essential to the global economy. However the transfer of alien organisms through ship ballast water has become one of the greatest threats to the world's oceans. Between 3 and 10 billion tones of ballast water - carrying more than 7,000 different species at any given time - are shipped around the world every year.

It is almost impossible to eradicate or even control an invasive marine species once it has established itself. The cost of controlling invasive species in the USA alone is around \$138 billion a year. Invasive species can threaten marine-based economies, especially shellfish culture and can pose risks to human health. Ecosystems in Africa, Asia, Eastern Europe and South America are particularly at risk as globalization opens up new markets, ports and shipping routes.

Project description

The pilot phase of GloBallast was designed to help developing countries prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. The project, conducted in partnership with the IMO, established demonstration sites, national lead agencies and information clearing houses, assisted with laws and regulations, increased awareness and expertise, established best practices and stimulated innovative ballast water management solutions. The project also developed mechanisms for compliance monitoring and enforcement.

Other activities included sampling ballast water and making risk assessments, conducting port baseline surveys, education and awareness programmes, training and developing regional strategic action plans.

SELECTED PROJECT RESULTS

Legal

- The International Convention for the Control and Management of Ships' Ballast Water & Sediments was adopted at the IMO in London in February 2004. Among its measures are a requirement for ships to have a Ballast Water Management Plan, maintain a Ballast Water Record Book and whenever possible, conduct ballast water exchange in deep water at least 200 nautical miles from land. The Convention requires ratification by at least 30 states, the combined merchant fleet of which constitutes not less than 35 percent of the gross-tonnage of the world's merchant shipping, in order to enter into force.

General

- Six demonstration sites were chosen as representative of the six main developing regions of the world - South America, East Asia, South Asia, Arab Countries/Persian

Gulf, Africa and Eastern Europe – have been developed into “centers of excellence” in ballast water management, and have helped catalyse regional agreements and strategic action plans.

- GlobalBallast secured the support of the shipping industry and national governments. In some pilot sites, as many as 60-70 percent of ships submitted ballast water reporting forms, far in excess of the project’s 25 percent target. In most pilot countries the national governments extended the use of reporting forms to other ports.
- GloBallast was awarded the Queen's Golden Jubilee Medal for the Marine Environment in 2003.
- Port Baseline Surveys were made of native biota and introduced marine species in each pilot country and assessments undertaken to assess the risk of alien species introduction. Training packages were developed to train administrators, port and shipping personnel in IMO guidelines for ballast water management and ballast water legislation in each country was evaluated and improvements suggested.
- Awareness and expertise were increased through training and awareness campaigns. Best practices and standard models were established for technical activities and innovative and technical innovations—such as ‘flow through’ ballast water, UV or ozone sterilization were supported.

Communications

- The GloBallast Programme has established a collection of reports, monographs, papers and other publications as part of a global information resource centre. This collection is held by the IMO library in London and is made available through the GloBallast website
- A communications network including global and pilot country-specific web-sites, databases/directories, a regular newsletter and an information clearing house was established
- A photo competition, organized by IUCN and sponsored by Fujifilm, was held in 2004 to raise awareness of the impact of invasive species on native animals and plants.
- An awareness programme has published posters and brochures in Arabic, Chinese, English, Farsi, Spanish, Portuguese, Ukrainian and Hindi.
- Invaders from the sea – a TV documentary on ballast water issues – was produced by GloBallast, in cooperation with the BBC, and launched in March 2006. In April 2007 the film won the gold award in the category of "Best United Nations Feature" at the third annual United Nations Documentary Film Festival.

Training

- Modular ballast water management training courses have been conducted at pilot sites. A training package was also developed in 2003 in partnership with Train-Sea-Coast for regional delivery.

In 2007, a total of \$23 m. in new financing was mobilized for a new phase, **GloBallast Partnerships**, representing a significant upscaling and replication of the pilot project. GloBallast Partnerships which will assist developing countries to reduce the risk of aquatic bio-invasions mediated by ships’ ballast water and sediments and will expand and build on the successfully completed GEF-UNDP-IMO pilot project. With the help of tools developed and lessons learned from the pilot project, the GloBallast Partnerships project will expand government and port management capacities, instigate legal, policy and institutional reforms at the country level, develop mechanisms for sustainability, and

drive regional coordination and cooperation. The project will spur global efforts to design and test technology solutions, and will enhance global knowledge management and marine electronic communications to address the issue. The partnership effort is three-tiered, involving global, regional and country-specific partners, representing government, industry and non-governmental organizations. Private sector participation will be achieved through establishing a GloBallast Industry Alliance with partners from major maritime companies. 13 countries, from 6 high priority regions, have agreed to take a lead partnering role focusing especially on legal, policy and institutional reform. All told, more than 70 countries in 14 regions across the globe will participate, including the six pilot countries whose expertise and capacities will be drawn on for this global scaling-up effort