The Management of the Main Sources of Pollution in the Gulf of Mexico Large Marine Ecosystem

Carolina Quiroz
United Nations Nippon Foundation Fellow 2013 - 2014

June 7th, 2013
Outline

1. Introduction and objective of the Presentation
2. The Regional Seas Programme (RSP)
3. RSP Key Issues (Pollution)
4. The Wider Caribbean Region
5. The Global Programme of Action of UNEP
6. The Large Marine Ecosystems (LMEs)
7. Establishment of Mechanisms of Collaboration
8. Conclusions
1. Introduction & Objective of the Presentation

Describe existing international and regional frameworks for the management of pollution in the ocean and identify links and connections that facilitate the management of pollution in the GoM.
2. The Regional Seas Programme (RSP 1974)

UN Conference on the Human Environment held in Stockholm that aims at the reduction of degradation of the world’s oceans and coastal areas:

- The sustainable management and use of the marine and coastal environment

Engaging neighbouring countries in comprehensive and specific actions to protect their shared marine environment.

- Environmental Assessment
- Environmental Management
- Environmental Legislation
- Institutional Arrangements
- Financial Arrangements

PARTICULAR ENVIRONMENTAL CHALLENGES

1. Black Sea
2. Wider Caribbean
3. East Asian Seas
4. North East Pacific
5. Northwest Pacific
3. RSP key issues

**Land based Sources of Pollution**
- Global Programme of Action
- Caribbean Regional Programme

**80% of marine pollution**

**Shipping and Sea based Pollution**
- London Dumping Convention (1972), IMO Conventions

**20% of marine pollution**

[Link to UNEP Regional Seas Programme](http://www.unep.org/regionalseas/)
4. The Wider Caribbean Region (WCR)

The Wider Caribbean Region (WCR) comprises the insular and coastal States and Territories with coasts on the Caribbean Sea and Gulf of Mexico as well as waters of the Atlantic Ocean adjacent to these States and Territories and includes 28 island and continental countries.

<table>
<thead>
<tr>
<th>Action Plan in the Regional Seas</th>
<th>Wider Caribbean Region Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocols</td>
<td>1. LBSP (1999 -)</td>
</tr>
<tr>
<td></td>
<td>2. Oil Spills (1983, 1986)</td>
</tr>
</tbody>
</table>
Oil Spills Protocol

RATIFICATION OF CARTAGENA CONVENTION & OIL SPILLS PROTOCOL

*Caribbean Netherlands: Special Public Bodies of the Netherlands. Alternatively known as Bonaire, St Eustatius and Saba, BES Islands.
5. Global Programme of Action (GPA 1995)

Preventing degradation of the Marine Environment from Land based activities. Problems at regional, sub-regional and national levels, and thus helps to guide the efforts of the individual RSP to deal with land based pollution and facilitate the duty of states to preserve and protect marine environment.

Connection: Terrestrial, freshwater, coastal and marine ecosystems.
GPA

Key component

Development and implementation of the National Programmes of Action (NPAs) through a cross sectoral participatory approach

Regional Implementation of GPA

The RSP provide an integrated framework for national action programs. A successful example is within the Cartagena Convention.
Land based Sources of Pollution

6. Large Marine Ecosystems

- Areas of ocean space: 200,000 km²
- Continents in coastal waters where primary productivity (e.g. production of ocean phytoplankton (microscopic plants)) is generally higher than in open ocean areas.
- There are also centers of ocean pollution and nutrient overenrichment, habitat degradation, overfishing, invasive species, biodiversity loss, and climate change effects.
- This approach develops indicators through its five module assessment.
- LMEs are located within Regional Seas Programmes.

Source: UNEP (2011) Catalysing Ocean Finance
Large Marine Ecosystems

Relatively large areas of ocean space of approximately 200,000 km² or greater, adjacent to the continents in coastal waters. Physical extent (linked ecological criteria):

i) Bathimetry (depth)
ii) Hydrography
iii) Productivity
iv) Trophic relationships

Five modules are typically used to characterize the LME approach:

1. Climate Change
2. Environmental Education
3. Productivity Module Indicators
   - Photosynthetic activity
   - Zooplankton biodiversity
   - Oceanographic variability
   - Zooplankton biomass
   - Ichthyoplankton biodiversity
4. Pollution & Ecosystem Health Module Indicators
   - Eutrophication
   - Biotoxins
   - Pathology
   - Emerging disease
   - Health indices
   - Multiple marine ecological disturbances
5. Socioeconomics Module Indicators
   - Integrated assessments
   - Human forcing
   - Sustainability of long-term socioeconomic benefits

6. Governance Module Indicators
   - Stakeholder participation
   - Adaptive management
7. Fish & Fisheries Module Indicators
   - Biodiversity
   - Finfish
   - Shellfish
   - Demersal species
   - Pelagic species
LMEs

- Ecosystem Based Management by identifying driving forces of ecosystem change.

- GEF recommends the use of LMEs as the geographic focus for ecosystem based strategies to reduce coastal pollution, restore damaged habitats, and recover depleted fisheries.

- LMEs are now being used as operational/management units for translating the RSP into concrete actions through the use of Transboundary Diagnostic Analysis (TDA) and Strategic Action Plans (SAP) and future National Action Plans (NAPs).
LMEs Pollution

- Excessive levels of nitrogen contributing to coastal eutrophication and oil spills accelerate this damage.

- Excessive nitrogen loadings have been identified as problems in the Baltic Sea, Black Sea, Adriatic portion of the Mediterranean, Yellow Sea, Gulf of Mexico.

- Future expected increases in population and in fertilizer use, without significant mitigation of nitrogens: harmful algal bloom events, reduced fisheries, and hypoxia that will further degrade marine biomass and biological diversity.
Gulf of Mexico Large Marine Ecosystem
Dead Zone in the GoM

Threatens valuable commercial and recreational Gulf fisheries that generate about 2.8 billion annually.
7. Establishment of Mechanisms of Collaboration (Black Sea)

- One of the major threats of the Black Sea has been eutrophication because it has modified the structure and functioning of the ecosystem during the past 30 years.

- In the Black Sea was established a Commission which works for the reduction of pollution in the region, particularly nutrients. (Danube River). Nevertheless this project started since 1993 and was a particular interest from five countries. (Black Sea LME).

- The Commission implements now the SAP and updates it whenever is necessary.

- GEF provided important funding for the continuation of these projects.
<table>
<thead>
<tr>
<th>Identifying Connections between RSP – GPA -LMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Seas Programme</td>
</tr>
<tr>
<td>Global Programme of Action</td>
</tr>
<tr>
<td>Large Marine Ecosystems</td>
</tr>
</tbody>
</table>
GEF Lessons Learned in managing sources of pollution in LMEs

GEF funding have catalyzed sufficient financial flows to restore large marine ecosystems severely degraded by pollution.

Some lessons learned from past experiences are:

1. Correcting market and policy failures through application of science based integrated ocean planning and barrier removal instruments.

2. Importance in investing in capacity development for ocean policy makers and other stakeholders.

3. To reach consensus among all stakeholders about the most effective mix of public instruments to remove barriers to investment and necessary transformations.
8. Conclusions

- The effectiveness of a project for the management of main sources of pollution depends on the availability of funding for the long term.

- RSP, GPA, and LMEs share similar tools that can be easily adapted and linked.

- Current legal and institutional frameworks available at the regional level, could facilitate the implementation of projects for reducing pollution.

- The experience of other LMEs will be very useful in the development of projects for addressing LBSP and Oil Pollution.

- Pollution problems in the Gulf of Mexico will increase if the population keeps growing.
Thank you!
Sources
The Black Sea

- The signing of the Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention) in 1992, followed closely by the first Black Sea Ministerial Declaration (the Odessa Declaration) in 1993 inspired the GEF, to support the region in implementing the Odessa Declaration and to formulate the longer-term Black Sea Strategic Action Plan (BS SAP).

- Following the signature of the BS SAP, GEF funding was sustained in order to enable countries to complete National Black Sea Strategic Action Plans and for the negotiations on the institutionalisation of the Istanbul Commission’s Secretariat to be completed. Progress was made in implementation of existing BSSAP, with the GEF, EC and other donors’ assistance. In October 2000, the Secretariat for the Black Sea Commission became operational.

- The 1996 BS SAP was a groundbreaking document for the Black Sea region which established specific targets and timetables for implementing the objectives of the 1992 Bucharest Convention. However, it was an overly ambitious document and very few of the targets were accomplished on time. Furthermore, the 1996 BS SAP also suffered from problems of enforcement of national environmental laws and legislation, and the lack of a regional mechanism to ensure compliance with different policy actions. An amendment in 2002 (the 2002 Sofia Ministerial Declaration) aimed to resolve some of these issues and reconfirm commitments of the Black Sea coastal states to implement the BS SAP.

- The 2009 BS SAP has been formulated through careful consideration of inter alia the 1996 SAP, the 2007 BS TDA and the 2007 BS SAP Gap Analysis. It aims to help resolve the transboundary environmental problems of the Black Sea and is a joint effort between the six Black Sea countries. The SAP was elaborated from consensus reached at a multinational level in relation to a series of proposals that include: Ecosystem Quality Objectives (EcoQOs); short, medium and long term targets; and legal and institutional reforms and investments necessary to solve main environmental problems identified within the 2007 BS TDA. The process of elaboration of the SAP was characterized by the participation and commitment of the main social stakeholders and key institutions of the Black Sea countries.
Dead Zones