

## *Editorial*

Dear Reader,

This is the Sixth Issue of the Newsletter *Al Sambouk* produced by PERSGA as it continues activities in capacity building alongside the implementation of regional projects. This issue also contains articles submitted by readers who have an interest in the marine environment and conservation of their natural resources. They are presented for everyone's benefit.

Comments and continuous encouragement from readers are appreciated. However we do hope to receive more contributions about current activities in coastal and marine environments in the countries of the region, in addition to articles of general interest.

Several articles are included in this issue including ones that cover Marine Protected Areas, Oil Spill Response Centre, a brief report on the results of surveys in the GEF/Yemen Project, in addition to workshops to be held by PERSGA during this year.

*Al Sambouk* has been produced in Arabic and English separately; however, as from the Fifth Issue, it has been produced as one copy in both languages. We expect that the following issues will follow this shape.

Finally, we hope you will find this issue both interesting and stimulating.

*Dr. Dirar Nasr*

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## *Survey of Environmentally Sensitive areas*

Among the projects approved by the PERSGA Council at its Second Meeting in Jeddah (26 October 1996) was the project: "Surveys of Environmentally Sensitive Areas and Plans for their Protection". ALECSO is sharing funding of this project within its contribution to the PERSGA budget. The project was also recommended for immediate implementation by the Regional Consultative Meeting for the Strategic Action Programme for the Red Sea and Gulf of Aden (Jeddah, 7<sup>th</sup> May 1997). The Project will be implemented in both Djibouti and Sudan.

Accordingly, PERSGA Secretariat hired Dr. William Gladstone to formulate Terms of Reference for this project in the light of the Country Reports from the two countries. As soon as the Terms of Reference were prepared, international firms and institutions were invited to bid for the project. Several offers were received by PERSGA and the results of the evaluation will be known within the next few days.

The Assistant Coordinator of PERSGA met with national experts and relevant government authorities in Port Sudan and Djibouti where national capabilities and available field equipment were discussed. It is planned that fieldwork will be completed by the end of this year while a coastal zone management workshop and submission of the final report will take place next year.

## *Tide gauges along the Saudi Arabian Red Sea Coast*

On 17 November 1992, the Meteorology and Environmental Protection Administration (MEPA), Saudi Arabia, installed a network of tide gauges along the Saudi Arabian Red Sea Coast in Haql, Wejh, Jeddah and Gizan. These gauges automatically record tidal fluctuations by sensors that operate from sound waves. Information is recorded and stored in the main system every six minutes. The network is connected through a telephone line to a computer based in MEPA where information is received and analysed. The computer provides information as tables or graphs and predictions of future tidal fluctuations are possible.

*Abdulla Bamahair*  
**MEPA**

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## *Yemen s Contribution to PERSGA*

PERSGA has received the contribution from the Government of Yemen to the budget of 1996. Such contribution will encourage PERSGA Secretariat to proceed in implementing the projects approved by the PERSGA Council and recommended by the Regional Consultative Meeting for the Strategic Action Programme for the Red Sea and Gulf of Aden (SAP) as they support the latter.

## *Oil Spill Response Centre - Jeddah*

The pollution resulting from oil spills may cause severe damage to the environment, as its impacts remain for years to come unless the affected areas are immediately cleaned.

The most important principle on which control of oil pollution must be based is 'forward planning'. With clear plans, the response team can keep the situation under control, and avoid unnecessary surprises.

The Kingdom of Saudi Arabia is a leading producer and exporter of oil in the region and worldwide. Recognising this, the Kingdom has taken the initiative in adopting a National Contingency Plan (NPC) for the control of pollution by oil and other harmful substances. The NCP has been approved by the Council of Ministers as per its resolution No. 157 on 20.11.1411 AH.

Accordingly an Operations Committee has been formed in the Red Sea and the Arabian Gulf for the implementation of this plan. The committee consists of the following:

1. Ministry of Defence and Aviation (Meteorology and Environmental Protection Administration - MEPA) as the Chairman.
2. Ministry of Interior (the Frontier Guards, the Civil Defence).
3. Ministry of Petroleum and Minerals.
4. Ministry of Municipality and Rural Affairs.
5. The Public Ports Authority.

MEPA has been mandated to be the national coordinator for implementation of the plan's articles. Accordingly, an Oil Spill Response Centre was

established in 1992. Since then the centre has taken several measures to ensure timely and immediate response operations for marine pollution accidents, particularly those involving oil spills. These measures include:

- Dissemination of the Notification Form to all parties concerned with implementation of the NCP as well as the organizations that have facilities on the coastlines of the Red Sea or the Arabian Gulf; the centre has also attempted to come up with a mechanism for notification of pollution incidents.
- Preparing an inventory of manpower and equipment available for each party. The inventory has been manipulated by the computer at the centre to be in service as needed.
- Establishing a database covering all data pertaining to marine oil pollution since the centre was established.
- Determining environmentally sensitive areas.
- Specifying local and international firms working in the field of combating oil pollution.
- Issuing annual reports on marine oil pollution and circulating them among the concerned parties.

### **Measures to Implement the NCP**

*First: On receiving the Notification Form by Fax from:*

1. Frontiers Guards.
2. The Public Ports Authority (Directorates of the different ports).
3. The Public Corporation for Water Desalination.
4. The Armed Forces.
5. The Royal Commission for Jubail and Yanbu.
6. The National Commission for Wildlife Conservation and Development.
7. Ships crossing the territorial waters of Saudi Arabia.
8. International and regional organizations.
9. Saudi and foreign companies in the field of oil transport, loading and unloading.
10. Any other party.

*Second: Ensure the Notification's Soundness:*

1. Put all the centre's workers on full alert.
2. Pay serious consideration to all the notification's details.

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3. Phone the notifying party to check the soundness and accuracy of the notification.
  4. Coordinate with the affected party.
  5. Send a team to conduct land, marine and aerial surveys in the area to define the location, volume and estimate amounts as per the particular circumstances and location of each accident.

*Third: The Response Operation follows:*

1. Forward a brief report to MEPA's top officials to request provision of all capabilities required by the response operation.
2. Forward a preliminary report to the Governor of the province for information.
3. Contact members of the Province's Committee, if necessary, as per volume, location, and sensitivity of pollution.
4. Hold a meeting for the centre's members to formulate the general response plan and determine the following:
  - Sites of operation on the attached maps.
  - The responsibility and duty of each person at operation site.
  - The equipment needed and methods of mobilisation.
  - Areas that should be protected due to their special significance - strategic, economic or environmental.
  - Areas where oil could be confined prior to skimming.
  - Devices for skimming oil and the final disposal methods.
  - The day and time of operations' commencement.

*Fourth: Operational stage, which is as follows:*

#### **1. Operations to stop leakage at source:**

After defining the source of pollution, the appropriate measures must be taken to stop leakage, whether it is from a loading process, a vessel, or other source. This is to minimise pollution and to prevent its spread.

#### **2. Protective Actions:**

Protective actions should be taken for a number of sites due to their strategic, economic or environmental significance. Such protection is to be done by deploying appropriate booms that would prevent the spread of the spill to the protected areas and deflect it into selected sites where it can be collected and removed.

#### **3. Collection and Removal Measures:**

Following the above-mentioned actions, oil will be collected from specific sites to be determined by the operations team. Oil will be removed from water by suitable equipment such as skimmers, mobile or stationary removal machines. These procedures will set the scene for the final disposal of oil.

#### **4. Clean-up Operations:**

When pollution reaches the beaches, clean-up actions must be started as soon as the source is certainly under control, and all spilled oil is removed. Several different techniques may be used to clean-up beaches, depending on the geological nature of the beach itself. For instance, rocky beaches have to be cleansed with water pumped at high pressure, whereas a coarse sandy beach is often better left for natural processes of rehabilitation.

#### **5. Oil Disposal:**

In the final stage of the response-operation, oil and oil-stained debris is to be taken to the final disposal site (to be determined in coordination with the concerned municipality). The final disposal can be either incineration in special incinerators or by biological degradation at specific locations.

#### **6. Documentation:**

Daily reports on the accident and the operations undertaken, including protection, removal, clean-up and disposal will be made and the daily reports are then compiled into a final report on the operations.

#### **Compensation Claim:**

A report is to be prepared on the expenses incurred by the parties involved in the response operations as well as the costs of the environmental damage. The party causing the pollution will be requested to reimburse all costs incurred.

*Osama Qurban*

*MEPA*

*A Regional Training Workshop on  
Surveys and Monitoring*

PERSGA, in cooperation and coordination with the GEF/Yemen Project in Hodeidah and the Environmental Protection Council in Sana'a, will organise a Regional Training Workshop on Surveys

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and Monitoring in Hodeidah during the period 6-11 December 1997. This Workshop is the third of three workshops to be held in the region within the context of the "Red Sea Regional Framework Plan". The two previous workshops were on 'Environmental Impact Assessment' and 'Marine Protected Areas' and were held in Jeddah and Sharm El-Sheikh respectively.

The Hodeidah Workshop will be attended by participants from Djibouti, Egypt, Jordan, Saudi Arabia, Sudan and Yemen in addition to consultants from the region and overseas. The Workshop will include field visits to coral reef and mangrove areas. Topics to be discussed will include the following:

- The role of surveys in protection of marine and coastal environments, and planning for sustainable use of resources.
- The context and results of surveys of the Red Sea GEF/Egypt and Yemen Projects.
- Surveying coral reefs and other marine living resources.
- Database and designing a monitoring programme.

## *Marine Protected Areas*

**Definition:** Marine protectorates are defined as ecosystems which have parts that are characterised by geophysical, geological or biological diversity. These protectorates are a part of the natural base of life. As a permanent reservoir of economic, aesthetic or cultural resources, under the threat of deterioration or extinction, they need various levels of protection from political, legislative and executive bodies.

### **The Role of Marine Protectorates:**

The roles played by marine protectorates include protection; rehabilitation; environmental recovery; scientific research and follow-up; understanding and sound use; and the sustainable utilisation of the marine resources.

### **General Policies:**

- Protection and sustainable management for samples of marine ecosystems in order to maintain their long-term presence and to conserve genetic diversity.
- Protection and management of areas with special interest to the quality of life - i.e. which provide us with sustainable economic resources.
- Conservation of endangered populations and species, as well as their habitats.

- Control of activities that affect protectorates.
- Ensuring sustainable benefits for individuals and communities living around marine protected areas.

Conservation and management of areas of significant economic, cultural and aesthetic importance for the present and future generations by means of:

- Maintaining and developing public awareness through explanation and recognition of the marine ecosystems.
- Permitting certain activities which have no negative impacts on the protectorates.
- Encouraging scientific research with the aim of understanding human impacts on the environment.

### **Legislation:**

Declaring and managing marine protectorates requires legislation, ranging from laws geared to supplement and modify the present ones to an entirely new law for the conservation of the environment. However, formulating new laws depends on the citizens' traditions and conventions as well as on the legal norms of the country.

One question often raised goes: *is there any need to include management details in the general laws of the country to comply with the management system of protectorates?*

In many cases, such regulatory laws are opposed by the local inhabitants residing near protectorates and over-exploiting, for instance, fish resources. These are usually short-sighted complaints advocating current economic benefits while laws should concentrate on establishing economic benefits for the long-term with the objective of realising the sustainability of the resources for the interest of the present and future generations.

Laws must include certain management details, bearing in mind that there should also be flexibility to deal with unexpected matters. There are some areas of concern that must be cared for when setting environmental legislation. For instance, if a protectorate is for multiple use, would implementation of legislation be vested in one party -or would the laws allow the different bodies to perform their activities in the protectorate?

In many cases there is a conflict between the activities taking place in the protectorate, particularly as each activity is under the jurisdiction of a specific organ of the government. For example, fishing is the responsibility of the Ministry of Agriculture and Fisheries, tourism belongs to the Ministry of Tourism

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and nature conservation to the Ministry of Environment.

The link between marine environments is an issue to be dealt with by the law. It is known that marine organisms, such as larvae, are in constant movement. They even sometimes follow a migration route that runs beyond the political boundaries of a country. Therefore, it is important that the laws address the links between environments and specially the activities allowed outside the protectorate. This will certainly necessitate coordination between the various authorities inside and outside the country for the sake of sustainable use and conservation of marine resources.

Finally, the laws must address the issue of protectorate's boundaries and compensation for inhabitants affected by the establishment of such protectorate. Moreover, definitions must be clear-cut and intelligible.

#### **Criteria for the Selection of Protectorates:**

The criteria for selecting marine protectorates include biogeography; wildlife; economic, scientific, social, and ecological importance; in addition to suitability and national or international importance.

#### **Guidelines for Planning, Designing and Management of Marine Protectorates:**

First: Planning:

Planning means the process of strategic development to survey an area as a potential protectorate. This process requires collection of all information about the area either by experts and technicians or in collaboration with the local residents. Such information includes the geographical location of the area, the biological resources, climate, and its potentiality to be managed as one unit for a specific use or as an integral unit for multiple uses.

Such information must then be reviewed and analysed to understand obstacles, problems and difficulties facing the present and expected activities. At this stage, risks facing nature conservation and environmental management should be defined and the objectives of the proposed protectorate set forth.

Second: Management:

Protectorate management is the process of control and channelling the proposed solutions such as conducting surveys, implementing day-to-day follow-up schedules and formulating the regulatory procedures to best achieve the objectives of the protectorate. This will involve a team of multiple specialities, whose members

and leader are carefully selected. This team must include specialists in oceanography, environment, sociology, economics, legislation, and other fields that serve the objectives of the protectorate. The leader of the team must be familiar with methods of information gathering and analysis as well as liaison with persons of various specialities. He should be resourceful in dealing with problems and conflicts in the processes of planning, designing, and management. Moreover, the leader must be competent in the modern methods of management such as maps designed by the computer, understanding remote sensing data, preparing graphics for locations in the protectorate, the capability to analyse underwater organisms and underwater photography.

#### **World System of Marine Protectorates:**

The need for scientific and practical methods of marine environmental and resources management appeared in the late 1950s and early 1960s. In 1962, the First International Conference on National Parks was held to issue proposals and legislation organising state's sovereignty for the use of the seabed and its resources. These regulations were not confined to the territorial waters of countries, but they included the international waters as well.

In 1958, four international conventions, collectively labelled as Geneva Sea Law Convention, were convened. Some concerned international organizations were established, including the International Maritime Organization, which was mandated to control marine pollution from ships. The United Nations Convention on the Law of the Sea, including regulation of fishing in the Exclusive Economic Zone, was elaborated. This was followed by legislation concerning the establishment of marine protectorates.

The seventies saw certain regional agreements geared to protect the marine environment, such as the Ramsar Treaty for protection of wetlands and water-birds, the World Heritage of UNESCO and the United Nations Environment Programme (UNEP) which adopted the Regional Seas Programme which includes PERSGA and ROPME. Similarly, UNESCO adopted several programmes such as Man and the Biosphere, Coastal Zone Programme and IOC.

In the 1980s, remarkable activities were observed in the international arena from WWF and IUCN. The latter played an important role in encouraging coastal states to establish marine protectorates and provided them with technical assistance. Accordingly a series of protectorates were declared around the world. Thus, in

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1985, the number of marine protectorates reached 430 in 69 countries compared to 118 in 27 countries in 1970.

At the Earth Summit in 1992 in Brazil, the world community adopted further international conventions, particularly the Convention on Biological Diversity. IUCN adopted the World System of Marine Protectorates, with the major objective of marine conservation and sustainable development.

In 1995, the World System of Marine Protectorates was published in five volumes detailing 1,306 protected areas declared by coastal states. The number of coral reef protectorates has risen to reach 274, whereas mangrove protected areas is in the range of 700. Most marine protectorates are located in the tropical and semi-tropical regions, characterised by biological diversity of great extent.

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### *A Regional Training Workshop on Oil Pollution Combating*

In the framework of the joint project between ALECSO, PERSGA and UNEP, PERSGA will organise a Regional Training Workshop on Oil Pollution Combating to be held in Jeddah during the period 20-24 December 1997 in cooperation with the Meteorology and Environmental Protection Administration (MEPA). The workshop will consist of lectures presented by consultants from relevant international organizations and from the Region in addition to field visits. The existence of the Oil Spill Response Centre within MEPA, and its experience in this field, were two important factors taken into account when choosing the Kingdom of Saudi Arabia as a venue for this Workshop.

The Workshop will deal with the following topics:

Planning for combating oil spills;  
Regional and international conventions;  
The experience of Saudi Arabia in developing a national contingency plan;  
Dispersants;  
Properties and fate of oil;  
Bioremediation;  
Care and maintenance of equipment;  
Boom deployment;  
Containment, recovery and storage;  
Debris transportation;  
Response strategies;  
Shoreline cleanup;  
Care for wildlife during the Gulf War;  
Navigation risk assessment;  
KSA's experience in settling natural resource damages claims;  
Issues in response to catastrophic spills;  
Role of public awareness in combating oil spills.

### *Protection of Marine Ecosystems of the Red Sea Coast - Yemen*

During May and June of 1997 two consultants were deployed in Yemen. The primary purpose of this deployment was to survey a sample of offshore marine ecosystems to the north of Hodeidah, and coastal marine ecosystems to the south of Hodeidah. Secondary purposes were to investigate further and to identify impacts of human use on the marine environment, assess threats to the Yemen Red Sea environment and to assist in on-the-job training of Yemeni counterparts in marine environmental operations, methods and survey techniques.

The most significant observations were as follows.

1. Large areas of coral reef exist in Yemeni Red Sea waters. All islands and shoals surveyed to the north and west of Hodeidah had adjacent reef complexes. As noted later, many corals on these reefs were dead, but this is believed to be a recent phenomenon. Additionally the limited areas surveyed to the south of Hodeidah also generally showed reef development. The presence of extensive reefs in Yemen's waters had been discounted

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in previous accounts of the coral reefs of the Red Sea. The surveys have thus disproved the theory that there are a few coral reefs in Yemen's waters.

2. Most of the reefs surveyed, especially those to the north and west of Hodeidah, had a high percentage of dead coral. The patterns of mortality between different coral groups (branching versus plate versus massive, *Acropora* sp. versus *Porites* sp.) varied from area to area. Interpretation of these differing mortality patterns may lead to conclusions regarding the cause of mortality. Possible causes of mortality being considered include Crown-of-thorns starfish outbreaks, snail infestations (*Drupella* spp), heat stress from high or rapidly changeable water temperatures, anoxic conditions and excessive solar irradiation. This type of coral mortality will not have been caused by fishing pressure, whether shrimp trawling, net fishing, or line fishing.

3. Most of the areas of the reef surveyed south of Ghulay Fiqah had less coral mortality. Reefs around Mayyun, Avoces Rock and north of Dhubab were in good condition with a high percentage of live corals.

4. Most reefs surveyed contained large fish populations. However, many reefs seemed to show the effects of considerable line-fishing pressure. This was evident from the lack of large predatory fish particularly serranids (groupers) lutjanids (snappers) and lethranids (emperors). Populations were dominated by fish not caught by line fishing - scarids (parrotfish), acanthurids (surgeonfish), haemulids (sweetlips), and the smaller lutjanids.

5. No obvious oil pollution in the form of oil slicks or tar balls was observed on offshore reefs and beaches. This is in contrast to tar balls seen in 1996 on coastal beaches in the area north of Hodeidah.

6. High levels of litter were evident on all beaches visited but litter was less prevalent far offshore in the Az Zubayr Island group compared to mainland and near-shore island coastal areas.

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## *Tide Gauge Systems for Sudan and Yemen*

Sea - level information provided by tide-gauges will be beneficial to shipping and coastal and harbour development. On regional and global basis, such information would assist the study of climate change. The fishing industry would also benefit from this study in addition to correlation of sea level with marine resources and physical parameters.

In 1981 the Division of Marine Science of UNESCO prepared a study of a plan for a network of tide-gauges for the Red Sea and Gulf of Aden in cooperation with the Programme for the Environment of the Red Sea and Gulf of Aden. Accordingly a consultant was sent to Egypt and Sudan to investigate the status of tide-gauges in these two countries. The Consultant submitted his report and recommendations to UNESCO. The old tide-gauge at Port Sudan, which has been operating since 1960, was recommended to be replaced by a new one.

Thus, within the framework of a joint project between the Arab League Educational, Cultural and Scientific Organization (ALECSO), UNESCO and PERSGA, the former funded the purchase of three tide-gauge systems for Port Sudan, Aden, and Hodeidah at a total amount of US\$ 33,000. UNESCO covered the expenses of the engineer who installed the system at Port Sudan. The other two systems should be installed at Aden and Hodeidah in the beginning of December this year.

It should be mentioned that the Assistant Coordinator of PERSGA visited Aden and Hodeidah and met the authorities in the two ports to investigate the most appropriate ways of installing the systems when the consultant arrives in early December 1997.

## *Meeting of the PERSGA Executive Committee*

During its Second Meeting in Jeddah (26 October 1996), the PERSGA Council formed an Executive Committee to follow up PERSGA activities, budget, and the implementation of projects. The objectives were to follow the general trends in most regional and international organizations, facilitate the tasks of the PERSGA Secretariat and to reduce the administrative expenditure of the Council meeting every year.

The Committee was formed in the following manner:

- (a) The present country chairing the Council - chairman
- (b) The following country chairing the Council - deputy chairman

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- (c) The previous country chairing the Council - member
  - (d) ALECSO also as an observer member.
  - (e) PERSGA Secretary General - member and the Secretary of the Committee.

The Executive Committee will hold its first meeting at the Headquarters of the Arab League in Cairo on Thursday 6 November 1997. The meeting will be followed by two other meetings:

1. The Executive Bureau for the Arab Ministerial Council Responsible for Environmental Affairs (8 and 9 November 1997);
2. The Ninth Session for the Arab Ministerial Council Responsible for Environmental Affairs (10 and 11 November 1997).

Among the topics to be discussed in the Committee meeting are the draft PERSGA Staff and Financial Rules, selection of an external auditor for PERSGA, and the follow up of the project briefs of the Strategic Action Programme for the Red and Gulf of Aden (SAP).

***Al Sambouk* is produced at the PERSGA office by Dr Dirar Nasr (Editor).**

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