Marine Conservation Forum 2010

EWS

WWF

for a living planet

Local Actions for Global Challenges

In partnership with

The PEW Environment Group

CONTENTS

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FOREWORD

RAZAN KHALIFA AL MUBARAK

Managing Director of Emirates Wildlife Society in association with WWF

The work for marine conservation in the Gulf is just beginning. Earth's marine habitats are interconnected and share the same threats from over-fishing, marine pollution, coastal development, habitat destruction, and natural disasters. It is with a renewed urgency that we continue our work as scientists, regulators, and activists to mitigate these threats and help our species survive.

Here in the Gulf waters we are especially concerned about the survival of dugongs, mangroves, marine turtles, fish stocks, coral, sharks, and resident whales. The Marine Conservation Forum was organized to address the conservation issues and challenges facing the marine environment – especially along the Arabian Peninsula.

As organizers of the Marine Conservation Forum we didn't anticipate the level of participation from the region including strong representation from Yemen, Oman, Saudi Arabia, Qatar, Bahrain, Kuwait, Iraq, Iran, and the United Arab Emirates.

We are grateful to all the experts that joined us from the region and those who traveled from more distant international locales. Your contributions, as demonstrated in this volume, represent the commitment and concern, as well as the expertise and authority to carry on the fight to save our marine species.

We look forward to the upcoming period where all of us diligently carry out our work and extend a hand of cooperation and collaboration across disciplines and international borders. The Marine Conservation Forum 2010 provided a platform from which we plan our actions. Now it is time to act. We must move our discussions from abstract to real-world actions that directly improve our marine environment and provide our species a chance to survive.

Thank you for your continued commitment to conservation action in this region of ecological significance.

FOREWORD

DR. SUSAN LIEBERMAN

Director, International Policy
Pew Environment Group

It is a great pleasure for me to introduce the Proceedings of the 2nd Marine Conservation Forum, which was held in Abu Dhabi, UAE from 14-16 December 2010. The Forum was hosted by EWS-WWF, in partnership with the Pew Environment Group. On behalf of the Pew Environment Group, I would like to highlight the significance and importance of this Forum, the second of its kind ever held in the Gulf, and also to thank all of those who worked hard to make it possible. I was honored to co-chair and facilitate this forum with H.E. Razan Khalifa Al Mubarak, Managing Director of EWS-WWF.

At the 1st Marine Conservation Forum in 2006, which I also facilitated, participants discussed marine and coastal biodiversity issues, focusing on coral reefs and sea turtles, and made many recommendations for future actions. It is important to stress that much progress has been made in the Gulf region on marine conservation in the past 4 years—although of course so much more still needs to be done, and the challenges are great.

Our shared marine environment and marine species are not only important in themselves, but also because our very well being on earth is dependent on our planet's natural resources. When we rapidly destroy our planet, upset its balance and interfere with fragile ecosystems, the damage caused is often irreversible. Marine species and ecosystems are threatened by a wide array of factors including over-fishing, illegal, unregulated and unreported (IUU) fishing, discards and bycatch, unsustainable international trade, habitat loss, coastal and ocean pollution, and the adverse effects of climate change.

The Gulf region supports rich and diverse populations of marine species such as coral, marine turtles, whales, dolphins, dugongs, sharks, and other fish. Many of these species are threatened or endangered due to a wide range of human-caused threats. The Forum provided an outstanding opportunity for government, academic, conservation, and civil society representatives from the Gulf Region, and indeed from around the world, to share scientific and technical information and experiences on these species and threats, and to stimulate dialogue on solutions.

The Forum was attended by approximately 140 participants, including government representatives, scientists, private institutions, and intergovernmental and non-governmental organizations, from UAE, Saudi Arabia, Oman, Yemen, Qatar, Bahrain, Kuwait, Iran, Lebanon, and Jordan. There were also participants from the Maldives, Belgium, Canada, UK, Australia, Switzerland, the US, and UN agencies and treaties (UNEP, CMS).

Participants benefited from more than 30 outstanding presentations, as well as several breakout sessions that generated good discussions and excellent conservation recommendations. All participants shared in a spirit of openness and collaboration, working together to find common ground and solutions to address the threats to the ecologically and culturally important marine biodiversity of this region. Key themes and conservation challenges that were discussed, at the national and regional level, included marine species conservation, habitat protection, and the mitigation of the environmental impact of coastal developments.

One issue of particular significance that generated excellent discussion and recommendations for future action is that of shark conservation. I am hopeful that the discussions will lead to positive policies for sharks in the region, including possible shark sanctuaries and restrictions on international trade in shark fins, as participants discussed.

On the flight over, I sat next to a young student from India who was surprised that I was coming to the UAE to talk about marine conservation. He asked, "Do they have any marine species? Do they care about conservation"? My answer was yes, to both questions. Indeed, the Gulf has important populations of whales, dolphins, dugongs, marine turtles, sharks, and corals, and a long history and very rich culture of relating to the sea.

You will see in these summaries of presentations, and recommendations, a reflection of the excellent dialogue and conservation commitment in evidence at the Forum. Now it is time to take these recommendations forward into reality. For the sake of the conservation of the rich biodiversity and marine and coastal heritage of the Gulf Region, and indeed our entire planet, I look forward to seeing significant positive policy and other conservation actions in the coming years, building on the discussions, recommendations, commitments and energy of the 2nd Marine Conservation Forum.

EWS-WWF'S SECOND MARINE CONSERVATION FORUM:

LOCAL ACTIONS FOR GLOBAL CHALLENGES

Venue:
Galaxy Ballroom, Radisson Blu Hotel,
Yas Island, Abu Dhabi

Date:
December 14 - 16 2010

The Marine Conservation Forum 2010, held by the Emirates Wildlife Society-WWF in partnership with the Pew Environment Group, focused on the theme 'Local Actions for Global Challenges.' Presentations and discussions covered turtles, sharks, corals, fisheries, climate change and governance.

In September 2006, EWS-WWF hosted its first Marine Conservation Forum in Abu Dhabi, UAE. It was at this Forum that delegates from across the region and beyond focused on collaborating their efforts towards the conservation of marine turtles and coral reefs. At the Second Marine Conservation Forum 2010, representatives from governments, the private sector, NGOs and the scientific community were once again brought together to evaluate the state of the Gulf's marine environment and to work towards common solutions for habitat and species conservation.

The forum lived up to its tagline, "Local Actions for Global Challenges," by serving as a professional platform for communication within the Gulf States on their shared responsibility for conserving the region's unique marine habitats. It emphasized the management of species and habitats, protected areas, threat assessments, and mitigation and collaborative initiatives. Several case studies from across the region were presented, highlighting common threats and conservation challenges as well as the need to share information, research and expertise. Facilitated discussion and breakout sessions provided an opportunity to share ideas and knowledge, with special working groups covering shark conservation and fisheries management, habitats and coastal use, as well as the conservation of turtles, dugongs and cetaceans in the region. These discussions allowed the development of a number of recommendations for improved management. They also explored areas for future collaboration.

During the forum's final session the threat of climate change was discussed in light of recent studies predicting that Gulf species and habitats are likely to be amongst the worst affected by rising temperatures. The role of public awareness and involvement was also highlighted as a catalyst for conservation efforts and a key to their success.

We thank all our partners, speakers, participants and volunteers for their help in making the Forum a great success. We received a considerable amount of positive feedback. Many participants said that the forum encouraged them to strengthen collaboration on research initiatives and enhance efforts to raise awareness about local conservation issues.

It is our pleasure to offer you the proceedings of this event. We hope to see you at the Third EWS-WWF Marine Conservation Forum!

AGENDA

Tuesday, 14 December 2010

8:15 - 9:00 REGISTRATION

9:00 - 10:15 OPENING OF FORUM

Introduction and Overall Workshop Objectives

Razan Khalifa Al Mubarak (Co-Chair)
Director, EWS-WWF

Dr. Susan Lieberman (Co-Chair)
Director, International Policy, Pew Environment Group

10:15 - 10:30 COFFEE BREAK

10.30 - 1.30 **THEME 1 SESSION 1:** Marine habitat conservation in the region

The Gulf: a small sea under increasing stress-Charles Sheppard (University of Warwick)

Marine environment conservation & management programs in the Emirate of Abu Dhabi-Thabit Abdelsalam (Environment Agency Abu Dhabi)

Marine conservation in Qatar: challenges vs efforts -Alaa Abdel Moati (Ministry of Environment Qatar)

A summary of legislative efforts by the Republic of Yemen in the protection of marine environmental pollution-Ali Al Ansi (Yemen Member of Parliament)

Efforts towards marine conservation for the sustainable use of Kuwait's marine environment-Faiza Al Yamani (Kuwait Institue for Scientific Research)

Marine Ecological Projects in Oman-Nader Al Abri (Ministry of Environment and Climate Affairs, Oman)

Marine Conservation Efforts by the Saudi Wildlife Commission - Saudi Wildlife Commission

1.30 - 2.30 LUNCH

2:30 - 3:30 **THEME 1 SESSION 2**: A closer look at coral reefs

Status of reef communities in the United Arab Emirates: a shifting baseline under extreme conditions- John Burt (New York UniversityAbu Dhabi)

Kuwait's coral reefs-Shaker Al Hazeem (Kuwait Institute for Scientific Research)

Coral Larval Connectivity in the Northern Arabian Sea: consequences for conservation policies- Michel Claereboudt (Sultan Qaboos University, Oman)

Massive mortality of coral reef along some near shore islands of the Red Sea coast of Yemen- Mohammed Ali Al Saafani (San'aa University)

3:00 - 3:45 COFFEE BREAK

3:45 - 5:00 **THEME 2 SESSION 1:** Population trends and management

Marine Species-Global and Regional Trends and Threats- Simon Stuart (IUCN)

Results of sea turtles study in Iran and the conservation needs- Asghar Mobaraki (Departement of Environment, Tehran)

Small grant support for species conservation-a marine context- Nicholas Heard (Mohammed Bin Zayed Species Fund)

Wednesday, 15 December 2010

9:00 - 11:00 **THEME 2 SESSION 1** continued: Population trends and management

Vessel strikes with cetaceans: solutions for a global issue- Alexandre de Lichtervelde (International Whaling Commission, Belgium)

Humpback whales of oman: canaries of the Arabian Sea?-Robert Baldwin (Environment Society of Oman)

Dugong and coastal dolphin distribution and abundance in the Arabian Gulf: current knowledge and research needs- Amanda Hodgson (Murdoch University Cetacean Research Unit)

Dugongs in UAE: population status, distribution and threats- Himansu Das (Environment Agency Abu Dhabi)

CMS conservation agreements for marine species-Donna Kwan (UNEP/CMS)

11:00 - 11:15 COFFEE BREAK

11:15 - 1:30 **THEME 2 SESSION 2**: A closer look at sharks and fisheries

An overview of fisheries and marine conservation in Bahrain: efforts and challenges-Khalifa Al Khalifa and Ibtisam Al Khalaf (Public Commission for the Protection of Marine Resources, Environment and Wildlife, Bahrain)

Ecosystem appoach to fisheries management in state of Kuwait- Haidar Ali Murad (Public Authority of Agriculture Affairs and Fish Resources, Kuwait)

The global plight of sharks- a call for action- Sue Lieberman (Pew Environment Group)

Shark Conservation and Management: the role for the Gulf- Liz Mclellan (WWF International)

Shark fisheries and management: the Maldivian experience- Shahaama Abdul Sattar (Ministry of Fisheries and Agriculture, Rep. of Maldives)
Marine reserves and wildlife sanctuaries in the Arab region- Wael Hmaidan (IndyAct)

1.30- 2.30 LUNCH

2:30-5:00 WORKSHOP SESSION

GROUP 1: Habitats & coastal use, Facilitated by Carl Lundin and Charles Sheppard

GROUP 2: Turtles, dugongs & cetaceans, Facilitated by Donna Kwan and Amanda Hodgson

GROUP 3: Sharks and fisheries, Facilitated by Sue Lieberman and Liz Mclellan

Thursday, 16 December 2010

9:00-10.00 Facilitated discussion: outcomes of breakout groups on addressing conservation challenges

10.00 - 10:30 Strategic action programme to conserve the Gulf marine living resource and the role of local initiatives- Abdul Majeid Haddad (UNEP-ROWA)

IUCN global marine programme-from action to policy influence- Odeh Al Jayoussi (IUCN)

10:30 - 10:45 COFFEE BREAK

10:45 - 1:30 THEME 3 SESSION 1: A closer look at emerging threats

The expanding problem of red tides and harmful algal blooms globally and in the arabian gulf region: impacts, trends & management issues- Don Anderson (Woods Hole Oceanographic institute)

Climate change in the oceans- Carl Gustaf Lundin (IUCN)

Effects of climate change on Kuwait's proposed marine protected areas and commercial fishes- Adel Al Saffar (Kuwait Institute for Scientific Research)

Responses of marine ecosystems and fisheries to a changing climate-William Cheung (University of East Anglia)

1:30- 2:30 LUNCH

2:30- 3:30 **THEME 3 SESSION 2:** Industry & NGO perspective

Planning for conservatin & the role of public awareness

The planning and management of coastal development for the preservation of marine biodiversity in Abu dhabi-Victoria Brown (Urban Planning Council Abu Dhabi)

Rhizophore mucronata-an extinct mangrove species back to coastal water of UAE-Najmuddin Vistro (Barari Forest Management)

Artificial reefs: a guide for planning marine rehabilitation in Abu Dhabi- Ashraf Al Cibahy (Environment Agency Abu Dhabi)

3:30 - 3:45 COFFEE BREAK

3:45-4:45 **THEME 3 SESSION 2** continued

Deficient environmental awareness: a main pressure in a marine protected area-Rita Bento (Emirates Diving Association)

Role of NGOs in marine conservation-Khawla Al Muhannadi (Bahrain Environment Friends Society)

The EMEG marine reserve, a haven for environmental education- Ali Saqr Al Suwaidi (Emirates marine environment group)

Raising awareness on marine conservation in the Gulf region-Lisa Perry (EWS-WWF)

4:45 - 5:00 Wrap up/ Closing Remarks/ End of Marine Conservation Forum

PRESENTATION ABSTRACTS

1. THE GULF: A SMALL SEA UNDER INCREASING STRESS

Professor Charles Sheppard, Department of Biological Sciences, Warwick University

This reviews the substantial changes that have taken place in marine habitats and resources of the Gulf over the past decade. The habitats are especially interesting because of the naturally high levels of temperature and salinity stress they experience, which is important in a changing world climate. However, the extent of all natural habitats is changing and their condition deteriorating because of the rapid development of the region and, in some cases from severe, episodic warming episodes.

Major impacts come from numerous industrial, infrastructure-based, and residential and tourism development activities, which together combine, synergistically in some cases, to cause the observed deterioration in most benthic habitats. Substantial sea bottom dredging for material and its deposition in shallow water to extend land or to form a basis for huge developments, directly removes large areas of shallow, productive habitat, though in some cases the most important effect is the accompanying sedimentation or changes to water flows and conditions. The large scale of the activities compared to the relatively shallow and small size of the water body is a particularly important issue. Important from the perspective of controlling damaging effects is the limited cross-border collaboration and even intra-country collaboration among government agencies and large projects. Along with the accumulative nature of impacts that occur, even where each project receives environmental assessment or attention, each is treated more or less alone, rarely in combination. However, their combination in such a small, biologically interacting sea exacerbates the overall deterioration. Very few similar areas exist which face such a high concentration of disturbance and the prognosis for the Gulf continuing to provide abundant natural resources is poor.

2. MARINE CONSERVATION IN QATAR: CHALLENGES VS. EFFORTS

Dr. Mohamed A. Abdel-Moati Environmental Assessment Department, Ministry of Environment, State of Qatar

The marine environment of Qatar is witnessing since 2003 a leap in the development projects including dredging and reclamation of the coastal zone. Examples of such huge projects are the New Doha International Airport, Pearl Qatar, Lusial Development, Urjuan (Barwa Al Khor), Qatar - Bahrain Causeway, New Doha Port, in addition to expansion of existing projects especially in industrial cities & ports of Mesaieed and Ras Laffan. All these projects passed EIA studies to avoid, minimize or mitigate their impact on the marine habitats. Efforts were and still exerted by the Ministry of Environment to protect and conserve marine communities. About 22% of Qatar area is declared as protected areas in addition to islands and mangrove forests. Corals relocation, sea grass replantation took place successfully at several sites while mangrove plantation and replantation trials are going on. Encirclement of beaches to protect turtles nesting sites especially during the nesting season is supported by the government. Regulations and measures are taking place to achieve sustainable fish stock and prevent over fishing.

3. EFFORTS TOWARDS MARINE CONSERVATION FOR THE SUSTAINABLE USE OF KUWAIT'S MARINE ENVIRONMENT

Dr. Faiza Y. Al-Yamani; Senior Research Scientist, Kuwait Institute for Scientific Research

Kuwait has long depended on the sea for its livelihood. Before discovery of oil, the economy of Kuwait was vitally dependent on building of dhows and the pearling industry that flourished in the region. In addition, the sea provided and still provides an important source of food through a variety of fish and crustacean species. With the coming of the oil era, Kuwait has not lost its dependence on the sea, but the uses of the marine environment have diversified enormously. Apart from its food resource, the marine environment is also used for recreation, shipping, aquaculture, defense and as the main source of drinking water. It is therefore vital that this environment is not only protected, but also managed in a way that enables its multiple uses to be accommodated. Several studies were conducted concerning Kuwait's marine environment. Based on the generated data and the available knowledge, an integrated strategic plan for the optimum utilization of Kuwait's marine environment was formulated.

Kuwait's marine ecosystems, and their marine biological diversity, are core national assets. If they are well managed, they can meet a broad range of economic, social and cultural aspirations. They also provide a range of essential environmental services that would be extremely costly or impossible to restore or replace if ecosystem functioning is impaired. Hence, documentation of Kuwait's marine biodiversity is crucial as a first step towards conservation of ecosystem services. Several biodiversity guides and references were published for Kuwait including guides on phytoplankton, phytobenthos, zooplankton, zoobenthos, ichthyoplankton, coral reefs, fish, intertidal flora and fauna, among others. Harmful algal bloom species causing red tide and sometimes marine mortality have been identified from Kuwait waters. The results of the above studies will be discussed during the presentation.

PRESENTATION ABSTRACTS


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4. REEFS OF THE UNITED ARAB EMIRATES: CHALLENGES AND OPPORTUNITIES

Dr. John Burt, Assistant Professor of Practice of Biology, NYU Abu Dhabi

Natural and anthropogenic stressors have resulted in the loss and degradation of a substantial proportion of coral reef habitat in the Gulf and the Gulf of Oman since the late 1990s. Long-term monitoring and data-driven management intervention are essential for understanding and improving the conservation of these important habitats. This presentation will summarize the findings of recent research exploring the status of reefs in the United Arab Emirates, and use it as a case study to discuss issues in the wider region.

5. KUWAIT'S CORAL REEFS

Shaker Al Hazeem, Coral Reef Ecologist, Aquaculture, Fisheries and Marine Environmental Department -Kuwait Institute for Scientific Research

Marine environment condition has prompted various actions by governmental and non-governmental organizations. All initial studies on Kuwait's coral reefs produce some detailed data using video transect for historical visual data on coral cover especially at the three main islands' reefs (Kubbar, Qaro and Umm AlMaradim) in 1996. United Nations Environment Programme UNEP nominated Shaker Alhazeem as consultant from KISR to do a health assessment of coral reefs in the Gulf of Oman and inner ROPME sea area for 10 days in November 1999. Also the Regional Protection of the Marine Environment was represented in the extent and impact of coral bleaching in the Gulf at Riyadh Saudi Arabia Conference in 1999. Coral reef ecology study was also established in 2003 using permanent transect lines with permanent sites (Alhazeem 2003 FM041K).

6. CORAL LARVAL CONNECTIVITY IN THE NORTHERN ARABIAN SEA: CONSEQUENCES FOR CONSERVATION POLICIES

Michel R. G. Claereboudt, Associate Professor, Department of Marine Science and Fisheries-Sultan Qaboos University, Oman

Larval connectivity defines in part the ability of damaged coral reefs to regain structure and function after a major disturbance, their resilience, and relies on the potential of coral larval stages to disperse in the environment following oceanic current. Modeled daily surface currents were used in a Lagrangian stochastic model (LSM) to simulate coral larvae transport routes between known coral reefs communities of the Arabian Sea and the Sea of Oman. Connectivity values, quantified by the proportion of larvae successfully transported from their birth reef to another, varied significantly among reefs and years by several order of magnitudes in response to meso-scale variability. There were practically no exchange of larvae between the coral communities of the Arabian Sea and that of the Sea of Oman and reciprocally. The general flow of larvae was from NW to SE in the Sea of Oman and from SW to NE in the Arabian Sea. Local retention was the most important source of larvae for most reefs (mean = 32.3% for spawning corals and 70.8% for brooding corals). ANOVA analysis indicated significant differences in local retention and overall larval success between different years and between brooding and spawning coral larvae but no significant differences in local retention and overall larval success were observed between the Arabian Gulf and the Sea of Oman. Variability between reefs was also highly significant on both local retention and overall larval success. Some reefs (Dyamaniyat Islands in the Sea of Oman and Mirbat in the Arabian Sea) could be considered as sources of larvae as they produced relatively more successful larvae than other reefs. The observed patterns of dispersal support the biogeographic distinction between the Sea of Oman and the Arabian Sea based on species distributions. From a conservation stand point, reefs with low connectivity are fragile. Reefs that seed larvae to other reefs are important in terms of conservation and should be protected in priority. The low connectivity also suggests that in case of major, regional disturbances, dispersal of larvae from elsewhere are low probability events.

7. MASSIVE MORTALITY OF CORAL REEF ALONG SOME NEAR SHORE ISLANDS OF THE RED SEA COAST OF YEMEN

Aref A. Hamoud, Mohammed A. Al Saafani and Adel Alhababy

The Republic of Yemen is located in the south-western corner of the Arabian Peninsula with coastline extends for more than 2,500 km along the Red Sea and Gulf of Aden/Arabian Sea. The coastline is characterized by rich marine diversity, due to its geographical location, stable

meteorology and variable hydrodynamic factors; all of which favour many different marine fauna and flora such as coral reefs, sea grasses and algae. About 300 different species of hard corals, with 969 species of fishes have been identified on Yemen coastal water and coral communities. Large parts of the coastal areas and marine environments of Yemen are under different pressures and threatened by pollution, climate change, and human activities such as over fishing and "foreign vessels trawling close to shore causing massive damage to coral reefs". However, urbanization and industrial development are among the principal causes of habitat destruction and degradation of coastal and marine environments such as wetlands, mangroves and coral reefs habitats.

This paper presents the current status of the coral reefs along Yemen coastline, with special emphasis on some near shore islands. Previous studies described the coral reefs communities along the Yemen coastline and near shore Islands revealing that most of the coral communities support high diversity of hard coral species in many places despite a lack of extensive reef development. Recently, it has been found that there is a high percentage of coral mortality around some near shore islands. This mortality could be due to several causes, including natural causes such as climate change and COTs outbreak and anthropogenic impacts. COTs outbreak was noticed around Kotama Island during early 2009. The coral reefs community around Uqban Kabeer and Uqban Saghir (Algaboul) Islands were of the best diverse coral species with high live hard coral coverage. The recent observations found high coral mortality around Uqban Saghir (Algaboul) Island, with almost 100% of dead coral cover; the entire area was covered with soft coral (Xeniidae). The mortality around Uqban Kabeer Island was about 80% of the hard coral cover. The reason of this mortality or the wide spread of the Xeniidae remain unclear. These phenomena need more investigation.

8. MARINE SPECIES – GLOBAL AND REGIONAL TRENDS AND THREATS

Simon Stuart, Chair, IUCN Species Survival Commission

For many years, information on the conservation status of, and threats to, marine species has lagged behind that of terrestrial and freshwater systems. Starting in 2005, IUCN and its Species Survival Commission started a major initiative to increase the coverage of marine species in the IUCN Red List of Threatened Species, with the aim of increasing the number covered from 800 (in 2004) to over 20,000. The work is now in full implementation, and by the end of 2010, 5,336 marine species were included in the Red List, of which 12 were Extinct, 92 Critically Endangered, 117 Endangered, and 508 Vulnerable. A very high number (1,377 species) are Data Deficient. IUCN has now assessed all species of marine mammals, seabirds, marine turtles, sea-snakes, groupers, wrasses, sharks and rays, reef-building corals, sea-grasses and mangroves. Several other groups are nearing completion, including tunas and billfish, butterfly-fishes, angelfishes, croakers, cephalopods, and lobsters. Early results of this entire work will be presented to highlight the global picture as it is currently understood, taxonomic patterns, and regional patterns, including in the Arabian Gulf.

9. RESULTS OF SEA TURTLES STUDY IN IRAN AND THE CONSERVATION NEEDS

Asghar Mobaraki, Environmental Department, Tehran

Some parts of the northern coastlines of the Arabian Gulf and Oman Sea in the mainland and Islands are suitable for the nesting of sea turtles. Critically endangered Hawksbill sea turtles (Eretmochelys imbricate) is the most abundant nesting turtle species in the Arabian Gulf area while the popular nesting species in the Oman sea area is the Green Turtle (Chelonia mydas). In addition to the nesting populations there are different feeding populations too. Green turtles consist of the most abundant and popular foraging species in the area. Other species like Hawksbill and Olive Ridley have also been reported as feeding populations. The main nesting season for the Hawksbill turtles is from early April to late May. Some islands namely Sheedvar, Hendourabi, Nakhiloo and Ommolkorm are supposed to be the main nesting sites for the Hawksbills in the country. In the conducted studies, preliminary information on turtle's reproduction was collected. Mean turtle weight, CCL and clutch size calculated 43.07 kg (N=250), 71.39 cm (N=260) and 93.04 eggs (N=136 nests) for all sites together respectively. Mean egg weight and diameter also calculated 37.87 mm and 30.07 grams respectively (n>2300). Multiple emergences, diurnal nesting and multiple nest construction are the main behaviors for the Hawksbills. The existing nesting sites for the Green were also identified. Genetic works on the populations were conducted and the main haplotypes of the populations have been identified by sequencing of about 90 samples from main rookeries. The results reveal that the western part sites have more diverse groups than the eastern sites. The tagging program has tagged about 500 turtles in different sites. Although there was very low poaching of eggs and lesser turtle harvest on nesting sites,


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by catch, boat strike and habitat destruction seems to be the main threatening factors for turtles. Public awareness activities would be an effective approach to minimize the threats.

10. SMALL GRANT SUPPORT FOR SPECIES CONSERVATION – A MARINE CONTEXT

Nicolas Heard, Fund Manager, Mohamed bin Zayed Species Conservation Fund

As global environmental attention has shifted in recent years towards broad conservation actions related to, for example, ecosystem-wide efforts, the role of climate change, and the relationship between the environment and poverty alleviation – all very worthwhile causes – the support for species conservationists around the world has been marginalized. However, individual species are the basis of all biodiversity and life on earth, and are currently facing very high, anthropogenic extinction rates, necessitating a dramatic increase in support. Should the current rate of extinction remain so artificially high the planet would be a poorer place, in terms of spiritual and material wealth.

As environmental priorities have shifted from local fieldwork to scaled-up action plans, those individuals conserving the building-blocks of life in situ have been increasingly overlooked. The Mohamed bin Zayed Species Conservation Fund was established to help fill this gap, by providing small-scale financial support to those passionate and dedicated conservationists worldwide, who are working to halt the current extinction crisis.

Conservation work with marine species can often be far more challenging than for terrestrial species; far larger ecosystems and habitats, lack of jurisdiction and public understanding, and far greater knowledge gaps. These factors could pose significant challenges to the merits of small-scale marine projects. But in fact support for work


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such as data collection, monitoring, and awareness in coastal areas helps contribute to filling those gaps in the marine biodiversity jigsaw puzzle. Thus the Fund has been able to contribute to significant efforts globally involving the conservation of a number of marine species, such as sharks, whales, turtles and sirenia. This is for work drawing on local experience and dedication, with a view to implementing local conservation actions.

11. VESSEL STRIKES WITH CETACEANS: SOLUTIONS FOR A GLOBAL ISSUE

Alexandre de Lichtervelde; Chair, IWC Ship Strikes WG

Collisions between vessels and cetaceans are one of the anthropogenic factors that have been receiving increasing attention in recent years. It is a problem that can have negative effects for both cetaceans and humans. The presentation will highlight the work conducted in the framework of the International Whaling Commission (IWC) since 2005 to identify the causes and extent of the problem and to develop mitigation measures. The IWC global ship strikes database will be presented as well as the recommendations developed at a recent IWC/ACCOBAMS regional workshop to reduce the risk of vessel strikes in the Mediterranean Sea and Canary Islands. The collaboration with the International Maritime Organisation (IMO) will also be addressed. In a second part, the presentation will focus on information gathered in the Gulf region with regard to maritime traffic and cetacean distribution, which could help identify high collision risk areas at cetacean population level.

12. HUMPBACK WHALES OF OMAN: CANARIES OF THE ARABIAN SEA? LOGGERHEAD TURTLES OF MASIRAH ISLAND: ALL OUR EGGS IN TOO FEW BASKETS?

Robert Baldwin, Head Marine Programme, Environment Society of Oman

Recent research in Oman has revealed a geographically, demographically and genetically isolated sub-population of humpback whales in the Arabian Sea. IUCN has red listed this population as Endangered; it is arguably the rarest baleen whale population in the world. Information from genetic studies in Oman indicate the likelihood of continued decline in this population, whilst new analysis of photographs has revealed health issues, and recent field surveys revealed an increase in anthropogenic threats, that add to the significant concerns about this population's viability. In light of the lack of any explicit conservation management measures for humpback whales in the region, and the continuing rapid human population and economic growth in many range countries, anthropogenic threats to coastal cetaceans (such as bycatch, ship strikes and noise) are likely to escalate, intensify and expand. There are simple conservation measures that can help us to better understand and protect the Arabian Sea humpback whales and other marine wildlife; persuading decision-makers to implement such measures is apparently a more complex challenge.

Oman has a 40 year data set of information on nesting loggerhead turtles which has revealed that Masirah Island is host to the largest nesting population in the world. Comparison with nesting sites elsewhere in the world suggest that Masirah's nesters represent 40% or more of the world's females. A similar number nest in Florida,

USA. These two sites are therefore of critical importance to the survival of the species. In Florida, the last decade has seen a reduction in the loggerhead turtle nesting population of 50%, thought to be largely attributable to offshore fisheries activities. Systematic, standardised data collection implemented by the Environment Society of Oman, in collaboration with Omani and international partners, has enabled a better understanding of the current status of Masirah's loggerhead turtles. Analysis of results suggests a drastic decline in numbers over the past few decades, and threats are set to escalate at a rate and scale yet to be experienced. Urgent intervention is required to stop this population, and the loggerhead turtle, slipping to extinction.

13. DUGONG AND COASTAL DOLPHIN DISTRIBUTION AND ABUNDANCE IN THE ARABIAN GULF: CURRENT KNOWLEDGE AND RESEARCH NEEDS

Dr Amanda Hodgson, Murdoch University Cetacean Research Unit, Department of Fish and Fisheries Research, School of Biology and Biotechnology, Murdoch University.

In 1986 a survey of the south-western Arabian Gulf revealed that the region supports the second largest known population of dugongs in the world. It also revealed that at least three species of dolphin frequent the area between Oman and Kuwait. This large scale survey has not been repeated, however, making it difficult to assess the current population status of marine mammals in the region. Small scale surveys have been conducted in the UAE, Qatar and Bahrain. These surveys can provide information about dugong distribution at a local level, however dugongs can conduct large-scale movements and this makes it difficult to assess dugong population status at these local levels. Nothing is known of the current status of dugongs in Saudi Arabia where no local surveys have been conducted since 1986. Throughout the Gulf there is almost no knowledge of the dolphin population size, structure and behaviour. It can be difficult to determine dolphin species during aerial surveys and our ability to estimate population sizes from these data is limited. The coastal environment in the Gulf is being altered on a large scale and the impacts of the resulting dredging and land reclamation activities have not be addressed. In this presentation I will provide an overview of the current knowledge of dugong and dolphin distribution and abundance in the Gulf, particularly from a recent survey in Bahrain, and discuss research needs in the Arabian Gulf in relation to marine mammals.

14. ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT IN STATE OF KUWAIT

Dr. Haider Ali Murad, Deputy Director General, Department of Fisheries, Public Authority of Agriculture Affairs and Fish Resources, Kuwait

Ecosystem Approach to Fisheries Management is realized as an immense need for enhancing fishery potential of the State of Kuwait. Being the maritime State throughout its history, Kuwait has relied on the sea for much of its livelihood through pearling and fishing. However, the economic booming due to oil resources and subsequent growth of urbanization and industrialization exerted hectic changes in the coastal environment and in turn place exorbitant pressure on Kuwait's marine fish stocks. It is evident that Kuwait's fish production has been stagnating in recent years and the average annual landings of fin fish and shrimp are around 4200 tonnes and 1700 tonnes respectively during the period from 1997 to 2007. Although fishing capacity is under stringent control and implementation of regulatory measures is in the right direction, the gap between the supply and demand for sea food is substantially widening. Kuwait depends upon foreign countries for more than 50% of its domestic consumption of seafood and the requirement is expected to increase in the future until a remedial action is considered. Ecosystem Approach to Fisheries management is a concept reflected in various international conventions and agreements specifically in the FAO Code of Conduct for Responsible Fisheries of1995 and the concept has a wide scope to augment the fish production in a sustainable manner and to manage marine fisheries in a responsible manner. The Ecosystem Approach to fisheries management envisages more involvement of stakeholders, efficient implementation of regulatory measures, combating illegal fishing and reducing impacts of man-made activities on fish stocks and the overall ecosystem. With due consideration of the present conservation measures, the present paper analyses the concept of Ecosystem Approach and its relevance to the present status of fisheries and how it could be put into practice for the overall development of fisheries resources in the State of Kuwait .

PRESENTATION ABSTRACTS

15. THE GLOBAL PLIGHT OF SHARKS—A CALL FOR ACTION

Sue Lieberman, Director, International Policy, Pew Environment Group

Globally, sharks are in trouble. Sharks have been swimming the world's oceans for more than 400 million years. They have survived multiple mass extinctions, but they are not equipped to withstand the threats now posed by humans. Their life history characteristics, such as slow growth, late maturation and production of few offspring, make them vulnerable to overfishing and slow to recover from decline. The demand for shark fins, meat, liver oil and other products has driven numerous shark populations to the brink of extinction. The growing demand for the Asian delicacy, shark fin soup, has led to the killing of up to 73 million sharks a year and is impacting shark populations worldwide, including in the Middle East. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species has assessed that 30 percent of shark and ray species around the world are threatened or near threatened with extinction. The loss of sharks could cause irreversible damage to the ocean—and to economic activities, such as dive tourism, that benefit from healthy marine habitats. Healthy and biologically diverse shark populations are important to maintaining balance in marine ecosystems, including healthy habitats and fisheries. As top predators in the food chain, sharks help maintain the balance of marine life in the ocean. They regulate the variety and abundance of the species below them in the food chain, including commercially important fish species. In addition, sharks help to maintain the health of their marine habitats, including sea grass beds and coral reefs. Declines in shark populations can result in negative, broad cascading effects throughout the marine ecosystem. The decline in shark populations could lead to unpredictable consequences, including the collapse of commercially important fisheries. Many governments have taken action at the national and regional level. This presentation will provide an overview of the threats facing sharks globally, the impacts on ecosystems and economies and the role of national efforts as well as international organizations, such as the United Nations, and treaties such as CITES and CBD.

16. SHARK FISHERIES AND MANAGEMENT: THE MALDIVIAN EXPERIENCE

Shahaama Abdul Sattar, Marine Research Centre, Ministry of Fisheries and Agriculture, Male', Maldives

Three types of shark fishery were carried out in the Maldives; the reef shark fishery, oceanic shark fishery and the deep water gulper shark fishery. Due to their slow growth, late maturity and low fecundity, sharks stocks have been depleted under heavy exploitation. This is exemplified by the reef and oceanic shark fishery in the Maldives. Recovery, once diminished is not easy for species with such biology. Due to the close link between the shark fishery and the tourism sector as well as the tuna fishing industry, several conflicts have arisen over the years between the two resource use groups and shark fishermen. Initial measures taken to minimize conflicts include a 10 year moratorium on shark fishing inside and within 12 miles from the atoll rim of 7 atolls in the Maldives (1998), ban of shark fishing from two locations (sea mounts) in the south of Maldives which are considered good fishing areas by tuna fishermen. The Ministry of Fisheries and Agriculture has now procured funding from the government as well as the tourism sector and have started a gear buy-back mechanism to compensate these fishermen. Furthermore a Shark Trust Fund was initiated this year to aid with the compensation work which is ongoing. However, the slow pace of this work has resulted in fishermen still carrying out the fishery. The lack of monitoring and enforcement of the ban as well as the delay in announcing the trade ban has meant that fishermen are still able to and have an incentive to carry out the fishery.

17. MARINE RESERVES AND WILDLIFE SANCTUARIES IN THE ARAB REGION

Wael Hmaidan, Executive Director, IndyACT

The extensive loss of marine resources has reached a critical level. If we continue at the same rate, all commercially viable fisheries will collapse by mid century. The main reason for this loss is due to the unsustainable industrial fishing. Marine reserves and wildlife sanctuaries are increasingly becoming the tool of choice for both fisheries management and marine biodiversity conservation. It provides a win-win solution that can help restore marine resources in both international and national waters. Science is saying that at least 40% of all seas and oceans need complete closer to insure recovery. At the moment less than 1% of these areas are really protected. Nevertheless, there is increased interest in marine reserves and wildlife sanctuaries in international fora, such as in Convention of Biological Diversity, UN General Assembly, UN Convention on Law of the Seas, etc. The Arab region still lack serious action in protecting its marine resources. Almost all Arab countries have no real marine reserves, and marine resources in all Arab countries are on the decline. Recently promising effort has been conducted by some Arab governments and institutions to protect marine biodiversity in the Red Sea, Gulf and Mediterranean Sea. One of the important opportunities available is declaring the Red Sea as a shark sanctuary, as well as mapping key marine biodiversity areas for conservation.

18. STRATEGIC ACTION PROGRAMME TO CONSERVE THE GULF MARINE LIVING RESOURCE AND THE ROLE OF LOCAL INITIATIVES

Abdul-Majeid Haddad, Programme Officer, Climate Change, Coastal & Marine Environment, Regional Office for West Asia (ROWA)

The Gulf or as it is technically known as ROPME Sea Area is a globally and regionally important water body yet its coastal and marine habitats are endangered by a multitude of activities in the oil exploration, production and transportation, massive coastal developments, industrial development, tourism and fisheries. Experience in regional marine environment conservation programmes has shown that regional conventions and protocols are not enough by themselves to ensure change and environmental sustainability on transboundary scale but rather critical in providing the legal framework for long term cooperation action by the Contracting Parties to address environmental threats in the marine body. Effective implementation of these conventions and protocols requires the development of sustainable institutional structures and financing to support the development and implementation of Strategic Action Programme (SAP) with clear long term objectives, preventive and curative actions that lead to clear positive environmental impacts. Effective implementation of the SAP requires the engagement of all local, national and regional stakeholders. In this regard, demonstration activities undertaken at the local level in other international water bodies proved to contribute the most to achieving positive impacts on the environment. I will elaborate in my presentation about the development of the SAP and experiences from elsewhere on creating a system of pilot initiatives at the local level to contribute to the effective implementation of the SAP.

19. IUCN GLOBAL MARINE PROGRAMME- FROM ACTION TO POLICY INFLUENCE

Odeh R. Al- Jayyousi, Regional Director, IUCN Regional Office for West Asia (ROWA)

IUCN – International Union for Conservation of Nature represents a unique global environmental organization that aims to be a learning entity and a knowledge-creating organization. IUCN global marine programme works on systemic issues that pose risks and threats to biodiversity, ecosystem resilience, and climate. IUCN had developed a wide array of approaches, tools and initiatives to address invasive species, coral reef, marine protected areas, capacity building and working with private sector. Making a difference and positive impact on the current state of environment is the core business of IUCN. Linking marine conservation with human well-being and livelihood as mainstreaming conservation in sustainable development is key in IUCN initiatives.

The paper aims to shed some light of IUCN global marine work and its role and contribution to influence policy in an era of climate change challenges and poverty. IUCN is a key partner in the transition to Green Economy and is promoting sustainability practices through engaging with local people and members and partners. The collective and unifying work of IUCN through its members and commissions provides a scientific authority and consensus based on credible science and evidence-based solutions that transcends lessons learned from projects to policy reform.

20. THE EXPANDING PROBLEM OF RED TIDES AND HARMFUL ALGAL BLOOMS GLOBALLY AND IN THE ARABIAN GULF REGION: IMPACTS, TRENDS, AND MANAGEMENT ISSUES

Donald M. Anderson, Senior Scientist, Biology Department, Woods Hole Oceanographic Institution

Harmful algal blooms (HABs), commonly called “red tides”, are common along the coasts of the U.S. and the world. Impacts from HABs are many and diverse, ranging from the death or illness of humans, whales, or other marine animals to discoloration of the water, and fouling of beaches with foam and dead fish. This talk will review the many types of HABs and their impacts as well as recent trends that suggest that there has been an increase in HAB frequency, areal coverage, and diversity over the last several decades. Reasons for this expansion are many, but one prominent reason is the enhancement of some bloom populations due to nutrients supplied by sewage, agricultural runoff, and other pollution sources. A brief summary will also be provided on the Cochlodinium species responsible for a severe and widespread HAB in the Arabian Gulf and Gulf of Oman that lasted for more than eight months in 2008 and 2009, killing thousands of tons of fish and limiting traditional fishery operations, damaging coral reefs, impacting coastal tourism, and forcing the closure of desalination plants in the region. The sudden emergence of C. polykrikoides in these Gulfs coincides with an apparent global expansion of this taxon, as well as a recent increase in HAB impacts observed in this region. The mechanisms underlying this expansion require further investigation, and may include increased nutrient enrichment of coastal waters, natural meteorological and oceanographic forcings, and the recent introduction of this species through ballast water discharge. A pattern of subsequent recurrence of C. polykrikoides blooms following an initial outbreak has been observed in other parts of the world, suggesting that this species may become a persistent HAB problem in this region. There is a clear need for coordinated monitoring and management programs for HAB species and their toxins in the region, as well as development and testing of protocols and/or technology to prevent desalination plant closures during severe HAB blooms.

21. CLIMATE CHANGE IN THE OCEANS

Carl Gustaf Lundin, Global Marine Programme, Head, IUCN Marine Programme

Climate change is exacerbating the threats to the oceans and coasts and is bringing the marine environment closer to peril. The reduction of human induced stressors, including overfishing, pollution and unsustainable coastal development, is imperative if the oceans are to continue to provide marine ecosystem services such as shore protection and important food and income resources on which so many depend.

The world's ocean covers 70% of our planet, yet less than 1% of our ocean habitat is protected. Beneath the surface of the sea lies an extraordinarily diversity of life. It is estimated that more than one million species live on coral reefs alone, and perhaps as many as ten million in the deep seas. But this world is under siege. Now is the time for a 'blue revolution' to recognize the enormous value that the oceans and coasts have for the maintenance of life on our planet, including our economic systems. This presentation will cover recent findings on ocean acidification, coral reef resilience and carbon sequestration in the marine environment. The focus is on finding positive solutions to managing the changes taking place in the oceans.

22. EFFECTS OF CLIMATE CHANGE ON KUWAIT'S PROPOSED MARINE PROTECTED AREAS AND COMMERCIAL FISHES

Adel H. Al Saffar, Associate Research Scientist, Kuwait Institute for Scientific Research

Being one of the world's hottest countries, Kuwait's fauna and flora are extremely vulnerable to increasing temperatures and sea level change. Mubarak Al-Kabeer Reserve located on the northern half of Boubyan Island is the nation's only marine reserve. Research has shown the estuarine waters around Boubyan to be extremely important for commercial fishes, shrimps, and forage species such as anchovies and sardines. The island is also a major breeding area for six species of marine birds (Grey Heron, Western Reef Heron, Gull-billed Tern, Caspian Tern, Swift Tern, Spoonbills, and Crab Plovers). All breeding birds are vulnerable due to the extreme temperature and rising sea levels. Observations during May found numerous dead juveniles and survivors hyperventilating, signs of stressed thermoregulation. With limited nesting habitat, early breeders have a thermal advantage over late breeders.

Boubyan serves as a major nursery area for one of Kuwait's most important fish, the Zobaidy (Pampus argenteus). This species spawns in a narrow range of 29-30 C, which means that it will either be spawning earlier in the year or in deeper waters, well away from Kuwait's coast, Annual landings of Zobaidy have decreased from 1100 t in 1994 to barely 100 t in 2007 (a 90% decrease). Warming water temperatures will undoubtedly affect other important species of commercial fishes such as hamour (Epinephelus coioides), Saboor (Tenualosa ilisha), nagroor (Pomadasys kaakan), etc. The effects on their larval phases remain unknown.

This past summer, water temperatures exceeded 34 C resulting in significant bleaching of all of Kuwait's coral reefs, which are under consideration for marine reserve status. Long-term studies of the effects of global warming and rising sea level on Kuwait marine species are urgently needed.

23. RESPONSES OF MARINE ECOSYSTEMS AND FISHERIES TO A CHANGING CLIMATE

William W.L. Cheung, School of Environmental Sciences, University of East Anglia, U.K.

Human impacts have substantially altered marine ecosystems, resulting in huge losses of potential benefits from the ocean through fisheries and other services. How climate change contributes to these impacts and affects marine organisms and fisheries are important questions for management and restoration of marine ecosystems. Analyzing all major marine fish stocks in the world, we show that climate change will lead to substantial movement of fish stocks towards the poles and into deeper water. Also, globally, there will be large-scale redistribution of potential fisheries catch, with many tropical countries losing substantially from their potential fisheries benefits. Marine ecosystems and fisheries will be further impacted through climate-induced changes in the life history of fishes and shellfishes. Specifically, mean body weight of fish stocks are predicted to be reduced by 2050 relative to now, and the level of such impacts will vary in different regions of the world oceans. Ocean acidification and reduced oxygen level in the ocean may substantially increase the rate of distributional shifts and reduce the potential fisheries yield. This will have profound implications for the dynamics of fish populations and the goods and services that humans enjoy through fisheries. These findings form the basis for the determination of the impact of climate change on fisheries and human welfare, and for developing ways to mitigate and adapt to climate change in fisheries.

24. THE PLANNING AND MANAGEMENT OF COASTAL DEVELOPMENT FOR THE PRESERVATION OF MARINE BIODIVERSITY IN ABU DHABI

Victoria Brown, Associate Planner, Environment, Transport, Infrastructure & Environment, Abu Dhabi Urban Planning Council

The presentation will focus on how the Abu Dhabi coastline has changed with the rapid growth of the city, and the challenges that coastal development has posed on the marine environment. It will also explain the approach that the Urban Planning Council has taken to planning and managing coastal development, and the ongoing evolution of the Environmental Framework Plans which have been developed for each of Abu Dhabi's regions.

Case studies will be used to demonstrate the effectiveness of the UPC's approach to coastal development, along with examples of monitoring and mitigation measures that have been employed to assure the preservation of sensitive coastal habitats.

25. RHIZOPHORA MUCRONATA - AN EXTINCT MANGROVE SPECIES BACK TO COASTAL WATERS OF UNITED ARAB EMIRATES

Najamuddin R. Vistro, Mangrove Project Manager, Barari Forest Management, Abu Dhabi, UAE

Mangroves are unique ecosystems in the United Arab Emirates, representing extremes in both environmental and geographical distribution of mangroves on global scale. Historical records suggest that two species of mangrove, Avicenna marina (Forsk.) and Rhizophora mucronata Lam. once grew along the coastal belt of United Arab Emirates. However, probably due to overexploitation, Rhizophora mucronata extirpated and now, only Avicennia marina is found growing naturally in the United Arab Emirates. To revive this lost natural heritage of the country, and the ecological balance, it is desired to re-introduce Rhizophora mucronata back to coastal waters of United Arab Emirates. The first experimental plantation of R. mucronata is growing successfully at Ras Ghanada Island. Barari Forest Management has initiated a comprehensive research and development project to revive this lost natural heritage mangrove species in the UAE. In the first phase of the development project, a container plants nursery is established at Abu Dhabi.

26. ASSESSMENT OF ARTIFICIAL REEFS INSTALLED IN MARAWAH MARINE BIOSPHERE RESERVE - ABU DHABI, UNITED ARAB EMIRATES

Presented by Ashraf Al Cibahy, Manager, Biodiversity Management & Conservation, Environment Agency - Abu Dhabi

The responsibilities of the Environment Agency – Abu Dhabi include the mandate to administer and regulate the use of artificial reefs within the Emirate of Abu Dhabi in accordance with the stipulations of the concerned federal and local laws. The main objective of the artificial reef initiative is to provide guidelines for use, permitting and monitoring of artificial reefs in Abu Dhabi Emirate, UAE. Two designs of artificial reef modules have been selected and installed in a core area inside Marawah Marine Biosphere Reserve. The artificial habitat of the reef modules can be considered as good in supporting the marine life and important commercially exploited fish species. The structural complexity of these modules is suitable for attracting and retaining species assemblages that can be considered of ecological and aesthetic value. The diversity of the attracted species and their percentage coverage and biomass that have been accumulated on the artificial structures indicate that it is significant to use these artificial reef structures to enhance and support the marine environment of Abu Dhabi Emirate.

This paper presents the results of the monitoring of the Reef Balls and Eco-Reefs. Specific attention is given to the topics of site selection, material considerations, and monitoring. This was done within the context of undertaking sound environmental management regimes that promote sustainable use of Abu Dhabi's marine resources while emphasizing habitat conservation necessary for maintaining abundance and diversity of local marine flora and fauna.

27. DEFICIENT ENVIRONMENTAL AWARENESS: A MAIN PRESSURE IN A MARINE PROTECTED AREA

Rita Bento, Marine Biologist, Emirates Diving Association, UAE

Since 2008 data has been collected in Dibba Al Faqeet Marine Protected Area (MPA) in order to understand the status of this area and the threats it is facing. Ecological and socio-economic surveys were performed during this period and special attention was given to the interest of stakeholders. Dibba, located in the East coast of UAE, was established in 1995 together with Dadna and Al Aqa, as the three first UAE marine protected areas, but until now no management plan has been enforced.

From a total of 168 species recorded in Dibba MPA, 12 were listed on the Red List of endangered species of the International Union for Conservation for Natures (IUCN) and 17 in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The presence of several threatened species in Dibba MPA highlights the importance of the area for the conservation of UAE marine biodiversity and its potential for further studies on the species and habitats. Main anthropogenic matters needing an urgent management were identified as pollution, invasive species, coastal development, commercial and recreational fishing, tourism, and legal and institutional issues.

Although the principal pressures occurring in Dibba MPA were identified, the poor knowledge, by stakeholders and local community, of the ecological and socio-economic benefits of a MPA is also the primary reason for the abandon state of Dibba MPA and the non enforcement of a management plan. Liaison among users of Dibba MPA, relevant government departments, industry groups and other stakeholders should be undertaken to prepare and distribute educational and interpretative material to raise compliance with MPA management objectives and awareness of its conservation values. Involving local community in monitoring Dibba MPA not only will provide basic data over a wider area, but also ensures that the community understands the need for coral reef management, creating also a sense of awareness and position of the natural resources amongst the different stakeholders.

28. MANGROVE RESTORATION IN OMAN

Badar Al Bulushi, Head, Section of Wetland Environments, Ministry of Environment & Climate Affairs, Oman

Mangroves had before covered most of the lagoons (khwars) and coastlines of the Sultanate of Oman, but rapid coastal developments had disturbed these khwars that Mangrove Nurseries and Transplantation were seen as the only option left to restore and save these fragile areas. Since 2001, 474.155 seedlings of Avicennia marina were transplanted.

Mangrove Nurseries were strategically located in Qurum Nature Reserve, Muscat, Khwar Al-Bateh, Sur and in Salalah Khwars, Dhofar and are being maintained up to the present. Monitoring of the reforestation sites are under the care of MECA. The project has generated interest and support from the local communities, the government sectors and NGOs. So far, results have been encouraging and with diligence, we can foresee a successful venture.

This project is an excellent contribution in the restoration, conservation and sustainable utilization of mangroves and their habitat.

Omani women, universities, schools, scouts are involved in the transplanting project. As a result, children when they grow up to be fathers and mothers can teach their children about the importance of environmental conservation and about bio-diversity.

29. ROLE OF NGOS IN MARINE CONSERVATION

Khawla Al-Muhannadi, President- Environment friends Society Bahrain

The fact that the marine environment has degraded rapidly in the last twenty years is not referred to by the media as a claim by environmental activists anymore, rather it is a recognized reality by official government spokespersons. Before environmental NGOs can consider this as a change of heart and further an achievement, it is also considered as a reflection of how desperate the marine environment status is and how noticeable the marine degradation is. The role that environmental NGOs and activists play in raising awareness about marine environment conservation is very important with no doubt, and no one else can play it in their absence. The question is about the impact of public awareness on decision making level and so on the conservation of habitats and the protection of species. The presentation briefly highlights five case studies of NGO work in Bahrain in the field of marine environment conservation and ends with lessons learned.

30. RAISING AWARENESS ON MARINE CONSERVATION IN THE GULF REGION

Lisa Perry and Nessrine Alzahlawi, Conservation Unit, Emirates Wildlife Society-WWF

EWS-WWF aims to protecv t and conserve the unique nature of this region by developing and implementing projects that actively conserve and protect its natural heritage. Employing an integrated approach, EWS-WWF works through strategic partnerships within every project to ensure longevity, assist with capacity building and maximize effectiveness. Special emphasis is placed on awareness in all conservation projects. The Marine Turtle Conservation Project (www.gulfturtles.com) is a program started in 2010 using satellite tracking to promote the conservation of marine turtles in the Gulf region. Since April 2010 20 turtles have been tagged and are being tracked, offering valuable data on foraging areas. The Sustainable Fisheries campaign “Choose Wisely” is the nationwide sustainable seafood campaign in the UAE initiated by EWS-WWF (www.choosewisely.ae). The aim of this awareness campaign is to promote healthy fisheries and provide UAE residents with practical steps to reduce fishing pressure on species that are being depleted. Since 2010 over 15000 consumer guides have been distributed across the UAE and partnership with major retailers and restaurants are underway to bring more sustainable options to fish consumers.

DISCUSSION POINTS AND REMARKS

Shifting baselines in a highly stressed environment

The natural stress on coral reefs in the region is already high due to the characteristics of the Gulf; many species are already living at their threshold. For corals to have a small chance of recovery, much more stress must be removed than originally placed.

The adaptive abilities of the coral ecosystems in the Gulf are remarkable (great variations in temperature). The Gulf can be considered a laboratory or early warning system for the impact of climate change, particularly on coral reefs.

Many local communities remain unaware that overfishing, bottom-dredging and sedimentation can destroy coral reefs.

Some proposed solutions include the designation of more marine national parks and protected areas, as they represent the only mechanism to allow corals to fully recover.

The need for long-term and wide-scale joint monitoring programs

At the moment, very limited long-term data exists on species. More research on population status and migration patterns is needed, as estimating the impact on these species requires information on important habitat areas, the size of the population as well as on behaviour and movement. Research on coral spawning, as well as the development of an IUCN national red list for the region is just as important.

Cetacean ship strikes are a major issue in the region, making cetacean research and the establishment of a stranding network necessary. Shark fishing has a cascading negative effect and there is a clear need for strict gear regulations; some current demersal cage traps are big enough to catch large sharks.

Regional governments need to consider what is occurring in international waters nearby; what happens on the high seas impacts the Gulf.

Collaboration and partnerships amongst regional scientists and authorities are necessary in order to achieve results. Reduction of fishing effort in one country (e.g. Kuwait) did not result in recovery of fish stocks; this highlights the need for regional cooperation and joint fisheries management initiatives in order for management to be successful.

Communicating the science to policy-makers and stakeholders

Efforts are needed to convince stakeholders (oil industry, fisheries) of the value of protecting species and habitats, as well as to make stakeholders aware of their responsibilities towards the environment, with a system and action plan in place to hold responsible parties accountable.

The Arab region in general remains insufficiently engaged in marine conservation; there is a need for regional conservation initiatives that will put the Gulf on the map. No Arab country has so far signed the shark MoU. A ban on the shark fin trade would not affect the region economically. Shark sanctuaries are equally necessary. Dive tourism can be used as source of funds for conservation work and research. International pressure should be used as an instrument, with regional scientists being involved in international scientific committees.

Overfishing is affecting the region, and by-catch rates remain extremely high, particularly in trawling countries. Incentives can be used to encourage involvement and reporting. These include such as financial environmental mortgages, and low interest rates on loans given to community groups in exchange for conservation action. Methods of fisheries used in the region are still artisanal in many cases; this provides an opportunity to work with fishermen to improve gear and reduce by-catch. Lessons must be taken from international initiatives on by-catch.

Planning for conservation

There is a need to ensure that species and habitat conservation is on the agenda of local and regional planning departments.

Focus of conservation efforts should not solely be on biodiversity but on ecosystem functioning. Strategic planning is needed when planning development projects in order to take into account cumulative impacts. Projects in the region also need to incorporate a sea level rise into planning.

The Gulf has been severely affected by ongoing and increasing development activities along the coast. Information derived from research projects should be shared. The EIAs conducted for proposed projects should be shared with all stakeholders at the screening process and not solely at later stages. Research groups need to communicate results to stakeholders, and enhanced information sharing should go towards making a difference in decision making. There is a responsibility to communicate the research and any expected impact a project might have on the environment and on societies. Scientific studies need to translate into policy; pushing policies requires easy access to data, as the work of NGOs and public opinion can influence decision-making.

Artificial reefs can be successful in aggregating fish; however strict regulations on the deployment of artificial reefs need to be put in place as there is recurring practice of fishermen deploying their own. Aquaculture needs to be carried out with caution, with sustainability as a priority.

Coral relocation should be a last resort, and it is important that any relocation area be representative of the natural system and that a monitoring program is put in place to evaluate the success of such projects. It is important to remember that in many cases it costs more to rehabilitate a damaged ecosystem than to conduct a risk assessment.

BREAKOUT GROUPS RECOMMENDATIONS

Group 1: Habitats & coastal use

Facilitated by Carl Lundin and Charles Sheppard

GAPS

Research

Gaps exist, but shouldn't hinder progress

- Distribution and condition of habitats throughout the Gulf (trends, declines)
- Sources of larvae (fish, reefs)
- Interconnections within the Gulf (dispersal)
- Communicating science to management

Legislation

- Need for legislation varies among countries
- Laws exist
- Regulatory gaps
- Implementation and enforcement: coordination between all relevant and overlapping authorities is lacking

CHALLENGES

- Reaching out to decision makers, enforcement and implementation of legislation
- Language barriers
- Communicating to decision makers
- Avenues of communication (media, public, who you know)
- Translating science
- Taking advantage of regional organizations

PRIORITIES

Employ management tools

- Marine spatial planning
- Marine protected areas
- UNESCO World Heritage Site
- UNESCO Biosphere Reserve
- RAMSAR
- Hidden marine protected areas
- Direct management of resources
- Environmental Assessment
- Auditing
- Gauging performance

Learn from past experiences

- Economic valuation of ecosystem services (healthy barriers, stability of coastlines vs. hard structures), use this information to put monetary value on losses that need to be compensated for
- Re-plantation as a carbon sink and natural defense for coastlines

WAY FORWARD

Collaboration, awareness, communication and learning from past experiences

- Continue to conduct scientific research but take action with available science
- Important to understand interconnectivities within the region
- Variety of management tools available
- Laws exist, work on enforcement and implementation
- Increase coordination, collaboration and communication at the regional, national and local levels (governments, NGOs, academic Institutions)
- Educate the public, target children, educate decision-makers, speak their language, advocacy, media
- Involve and engage with NGOs
- Promote investment in coastal ecosystem conservation for sustainable development
- Regional action and collaboration platform

BREAKOUT GROUPS RECOMMENDATIONS

Group 2: Turtles, Dugongs & Cetaceans

Facilitated by Donna Kwan and Amanda Hodgson

GAPS

Research

- Distribution (Yemen, Saudi Arabia)
- Abundance (everywhere, particularly dugongs and cetaceans)
- Information limited in the Red Sea (cetaceans)
- Only one dedicated program for cetaceans in Oman – nowhere else
- Only ongoing program for dugongs in UAE
- More ongoing work on turtles in comparison (wider geographical coverage) – but not much in-water (foraging studies, etc) – gaps covered by IOC
- Information availability balance for cetaceans – patchy and grey literature (EIAs, other surveys)

Other

- Economic value of species
- Social perception of marine environment and values

CHALLENGES

- Lack of cooperation to address information gaps
- How to share information, regional collaboration of the range states regarding cetaceans (nothing equivalent to turtle and dugong MOUs)
- Awareness raising through context-relevant public education – make people care
- By-catch and coastal development considered the most challenging and species specific issues

PRIORITIES

- Consolidate existing knowledge (update previous regional reviews - e.g. revisit 1999 cetacean review) – identify international databases that can house regional specific data
- Target cross-cutting issues such as coastal development, by-catch and marine environment awareness
- Critical for immediate action – don't wait for more information (e.g. humpback whales, loggerheads, cetaceans in Gulf)
- Humpback whales: a regional conservation management plan
- Establish & revive regional stranding networks (look at existing information protocols) – build on ROPME workshop and encourage participation of scientists in necropsy workshops to assess mortality factors (circulate existing information)
- Scientists from the Gulf states to participate in the scientific committee of the IWC, focus on action
- Remaining states to sign existing turtle and dugong MOUs
- Capacity building - use existing training modules (e.g. NOAA: ship strikes)
- Identify and implement management actions now, with timeline and measurable deliverables
- Identify who is accountable
- Identify potential funding bodies nationally and internationally – has been done in Oman

WAY FORWARD

- International attention – further promote leadership role of the region to address species conservation
- Comprehensive socio-economic study on the value of cetaceans, dugongs and turtles – feed information on species to economists, talk the government's (and developers') language
- Learn from experts/ researchers around the world working with endangered species (don't reinvent the wheel)
- Cooperation with fisheries agencies regarding data collection and development of temporal and spatial regulations for fishing
- Work with the communities / local fishermen (NGOs have existing relationships) "inside approach" rather than imposing – work with communities' 'grassroots'
- Target oil industry to obtain information from MMOs that have to be on board – would require a regional database (Who to use/manage? Quality control?)
- CMS standardized survey toolbox? – low cost, low tech way to collect distribution, abundance and impacts information for all three species
- Include marine environment/species awareness in maritime academies
- Translate IWC texts (for Iran)

BREAKOUT GROUPS RECOMMENDATIONS

Group 3: Sharks and Fisheries

Facilitated by Sue Lieberman and Liz Mclellan

GAPS	**Research** • Red list assessment for fish in the Gulf • Standardised common fisheries information system (information on fisheries landings, by-catch, effort) • Resource status and utilization • Comprehensive species list (sharks) • Dedicated workshops to build capacity to enforce management • Socio-economic information on fisheries and other sectors • Trade information needed export/import, transparency • Human dimension: fishermen perception. Unique to the region? Religion, culture • Ecotourism potential from sharks (revenue from diving) **Policy** • Lack of framework for policy – regional cooperation essential • Political body for regional cooperation and management
CHALLENGES	• Lack of baseline data • Lack of communication between top government and researchers • No sharing of information • Standard database for region – protocol, methods, tools for data exchange • Each country has different system: heterogeneous levels of data, incompatible data • Lack of funding a major challenge
PRIORITIES	1. Shark trade control 2. Regional legislation (GCC, RECOFI), best practices, regional and sub-regional cooperation 3. Awareness: public, decision-makers, fishermen 4. No-take areas/closed shark fisheries 5. Fisheries info – standardized and shared 6. Enforcement: customs, hygiene, existing legislation 7. Shark ID and more in-depth research 8. Discards 9. Aquaculture control
WAY FORWARD	• Suggested feasible actions: • Help establish/work on a regional shark campaign • Work to ban shark trade/fishing in the region • Consider sustainability of regional aquaculture initiatives • Launch consumer awareness campaigns discouraging consumption of overfished species and shark fins • Lobby the government on data collection, management • Work on outreach and awareness (public, industry, youth) • Use the media to inform the public • Persuade regional governments to ban shrimp trawling • Work to have developers pay for conservation/ management

SPEAKER INFORMATION

Speaker List for the EWS-WWF Marine Conservation Forum 2010 "Local Actions for Global Challenges"- In Partnership with the Pew Environment Group

December 14th, 15th and 16th 2010, Abu Dhabi

Day 1

- **Charles Sheppard**, Professor, Department of Biological Sciences-Warwick University
- **Thabit Abdelsalam**, Director of Biodiversity, Environment Agency-Abu Dhabi
- **Mohammed Alaa Abdel-Moati**, Environmental Expert, Ministry of Environment, Qatar
- **Ali Hussein AL-Ansi**, Member of Parliament-Water & Environment Committee at the Yemeni Parliament
- **Faiza Al-Yamani**, Senior Research Scientist, Kuwait Institute for scientific Research
- **Badar Al Bulushi**, Head, Wetland Environment Section-Ministry of Environment and Climate Affairs, Oman.
- **Omar Khushaim & Ahmed Al Mansi**, Saudi Wildlife Commission
- **John Burt**, Assistant Professor of Practice of Biology, NYU Abu Dhabi
- **Khalifa Al-Khalifa**, Environmental Specialist, Public Commission for the Protection of Marine Resources, Environment and Wildlife, Bahrain
- **Shaker Hamzah AlHazeem**, Coral Reef Ecologist, Aquaculture, Fisheries and Marine Environmental Department -Kuwait Institute for Scientific Research
- **Michel R. G. Claereboudt**, Associate Professor, Department of Marine Science and Fisheries-Sultan Qaboos University, Oman.
- **Mohammed Ali Al Saafani**, Associate Professor, Department of Earth and Environmental Sciences-Sana'a University, Yemen.
- **Simon N. Stuart**, Chair, IUCN Species Survival Commission
- **Asghar Mobaraki**, Environmental Department, Tehran
- **Nicholas Heard**, Fund Manager, Mohamed bin Zayed Species Conservation Fund

Day 2

- **Robert Baldwin**, Head Marine Programme, Environment Society of Oman
- **Alexandre de Lichtervelde**, Belgian Commissioner to the International Whaling Commission (IWC), Chair of the Ship strikes WG
- **Amanda Hodgson**, Post-doctoral research fellow, Murdoch University Cetacean Research Unit (MUCRU)
- **Himansu Das**, Associate Scientist, Environment Agency Abu Dhabi
- **Donna Kwan**, Programme Officer – Dugongs, UNEP/CMS Office, Abu Dhabi
- **Sue Lieberman**, Director, International Policy, Pew Environment Group
- **Liz McLellan**, Manager, Species Programme, WWF International
- **Shahaama Abdul Sattar**, Fisheries Biologist, Marine Research Centre, Ministry of Fisheries and Agriculture, Rep. of Maldives
- **Wael Hmaidan**, Executive Director, IndyACT
- **Haider Ali Murad**, Deputy Director General, Department of Fisheries, Public Authority of Agriculture Affairs and Fish Resources, Kuwait.

Day 3

- **Don Anderson**, Senior Scientist, Biology, Woods Hole Oceanographic Institution
- **Carl Gustaf Lundin**, Global Marine Programme, Head, IUCN Marine Programme
- **Adel H. Al Saffar**, Associate Research Scientist, Kuwait Institute for Scientific Research
- **William Cheung**, Lecturer in Marine Ecosystem Services in the School of Environmental Sciences , University of East Anglia
- **Odeh R. Al- Jayyousi**, Regional Director, IUCN Regional Office for West Asia (ROWA)
- **Victoria Brown**, Associate Planner, Environment, Transport, Infrastructure & Environment, Abu Dhabi Urban Planning Council
- **Najamuddin Vistro**, Mangrove Project Manager, BARARI Forest Management
- **Ashraf Al Cibahy**, Manager, Biodiversity Management & Conservation, Environment Agency - Abu Dhabi
- **Abdul-Majeid Haddad**, Programme Officer, Climate Change, Coastal & Marine Environment, Regional Office For West Asia (ROWA)
- **Rita Bento**, Marine Biologist, Emirates Diving Association, UAE
- **Khawla Al-Muhannadi**, President- Bahrain Environment friends Society
- **Ali Saqr Al Suwaidi**, Director, Emirates Marine Environment Group
- **Nessrine Alzahlawi and Lisa Perry**, Emirates Wildlife Society-WWF

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The Mohamed Bin Zayed Species Conservation Fund	Nicholas Heard	Fund Manager	UAE
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PARTICIPANT FEEDBACK

All participants of the Marine Conservation Forum 2010 were asked to provide their feedback on the event through an online anonymous feedback survey. This section provides extracts of participants' responses.

*all results and figures are taken from the EWS WWF MCF 2010 anonymous survey at www.surveymonkey.com (Results as of February 2011, with a total of 40 responses collected).

Figure 10.1 **Type of Organization to which Participants Belonged**

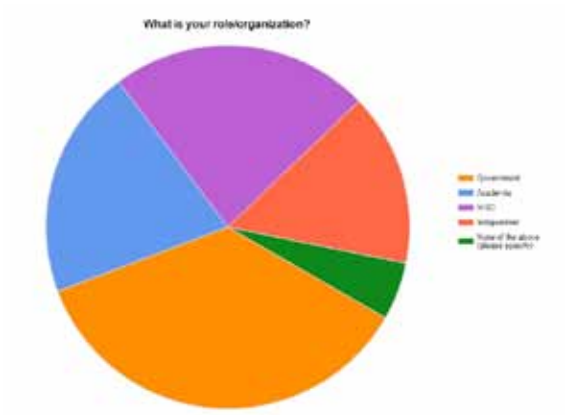
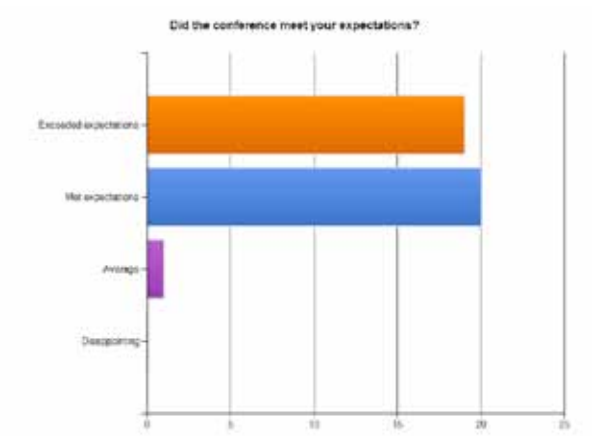


Figure 10.2 **Participants' Overall Perception of the MCF 2010**



ACTION(S) THE MCF 2010 ENCOURAGED PARTICIPANTS TO TAKE IN THEIR RESPECTIVE ROLES, A FEW EXAMPLES

"Improve shark monitoring"
"Strengthen research collaboration"
"Engagement of others working in similar fields - we can accomplish more together than individually"
"Work more with NGOs"
"Raise awareness among our community to conserve the marine environment"
"Take a more proactive role in management and conservation"

SELECTED RESPONSES TO THE QUESTION ASKING PARTICIPANTS: "DID YOU LEARN ANYTHING NEW AT THIS EVENT?"

100% of respondents stated that the forum helped them learn something new, below are some examples

"The magnitude of research being conducted at the regional level, and the
scientists involved in regional work"

"The critical situation of marine environment in the Arab Gulf and the necessity of
real actions to be taken by governments in this respect"

"Realized the actual status of threatened species in the regional level
"The Gulf still needs a lot of research"

SELECTED RESPONSES TO A QUESTION ASKING PARTICIPANTS TO LIST 3 THINGS THEY FOUND USEFUL ABOUT MCF 2010

"Excellent talks
Outstanding open discussion
Very useful networking in the corridors"

"Knowledge sharing, networking and learning"

"Speak with people/organizations that work in the same field of activities, and
start to build relationship to improve shared research."

"Contacts with new/old people in the field
Learning about current projects going on
The regional focus"

"Knowing current scenario of marine environment
Concern about declining marine resources & stress on marine ecosystems
Sharing of knowledge"

Meeting regional and international scientists
The involvement of NGOs
The informal atmosphere but the professional level at the meeting
"Meeting people from relevant fields, creating ground for joint actions in the region, "

"I thought it was an excellent opportunity to get all the people working in the area in
one room. The networking opportunities in that situation are so great - many
further projects stem from such meetings. It also allows you to really understand
where the gaps in knowledge are and provides you a broader understanding of
the region other than just your own field."

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