

SANCOR NEWSLETTER

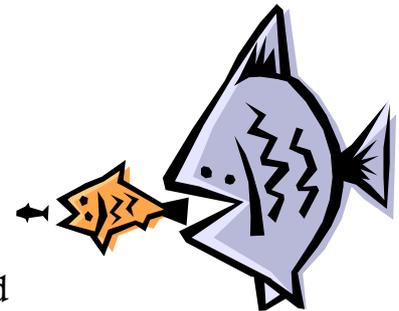
South African Network for Coastal and Oceanic Research



INSIDE THIS ISSUE:

| | |
|--------------------------------|----|
| Estuarine News | 2 |
| SWIOFP Update | 5 |
| TransMAP | 6 |
| A spot light on Biodiversity | 7 |
| Sustainable Seafood Initiative | 10 |
| Turtles and Longlining | 11 |
| BCLME | 12 |
| Student Corner | 13 |
| Marine Education | 15 |
| SANCOR Notice Board | 19 |

DOES SIZE MATTER ?



By John Field

Some South African fisheries records go back to 1896, and I have convinced myself that not only has fishing effort increased enormously over the century, particularly between the 1930s and 1980s, but also the linefish stocks concerned (those fish caught by hook and line, excluding the species targeted by trawlers) have decreased by at least 80% using the most conservative indices of catch-per-unit effort (See Yemane *et al.* 2004, *Afr. J. Mar. Sci.* 26: 161 – 178). Along with this, the size distribution of all but one of the larger species has decreased, and one of the species (Seventy-four) is almost extinct. There are now more small individuals and small species, and very few large individuals of large species. This pattern of over-fishing has been repeated in many parts of

the world, dramatically described by Daniel Pauly as “fishing down the food web”. However, most fisheries management authorities have been slow to absorb the wider implications of these observations, or to act on them.

It may be helpful to think about the evolution of longevity in fishes. Many long-lived fish live in cool-water environments, where Hjort and Cushing developed the “mismatch” hypothesis of fish recruitment. In these environments, conditions for survival of eggs and larvae to recruit into the commercially fished populations are seasonally and inter-annually variable. Almost all these stocks spawn during a brief spawning season, and characteristically, these are timed so that there is suitable planktonic food for the larvae and juveniles in

some years. If favourable conditions arise only once in say, 20 years, then evolution will favour those fish that live for over 20 years, so that they will produce a good crop of eggs and larvae to enjoy the good food. Recent findings (see Palumbi, S.R. 2004, *Nature* 430:621-22 and Berkeley, S. *et al.* 2004, *Ecology* 85:1258-1264 and references therein) show that not only does the number of eggs spawned increase exponentially with parent size in rockfish (*Sebastes*) and some other species, but also the quality (size, oil-content) of fish eggs also increases with the *age* of the mother. In other words, older mothers produce more eggs and these are also more likely to survive through the larval stage to juvenile fish, than young sexually mature females.



Clearly, this needs to be quantified, but it may help explain the collapse of several Atlantic cod stocks and those of other long-lived cool-water species. I believe that similar arguments may apply to some of our long-lived demersal fish, such as kingklip and monk fish and linefish too.

There are strong implications in these findings for fisheries management. We tend to target the larger older fish, partly for commercial reasons, but also safe in the belief that if we allow the average adult to spawn once, we have done our bit to conserve the fishery. Traditionally, many fisheries have been managed with a minimum size limit in mind, and usually this size limit has been calculated to be that at which at least 50% of the fish are sexually mature. Now, we see that much more conservative measures need to be taken for these stocks, and perhaps the notion of minimum size limits needs to be re-examined.

It is well known that fish experience massive natural mortality by predation during their life histories from egg to adult, and that mortality rates decline as the fish get older and bigger. Mortality rates decline because, as they grow, there are fewer and fewer organisms larger than themselves to prey on them. In general, pelagic organisms from zooplankton to fish tend to feed on others 1/10th their own size. Cannibalism is not uncommon. Larger fish tend to thin out the smaller ones, leaving the surviving juveniles with a less competitive environment for food and therefore the potential for faster growth to adulthood. Young fish are evolutionarily geared to suffer heavier mortality rates than adults, especially large, old adults. Perhaps we should be emulating nature and fishing across the size spectrum? Perhaps we should be conserving

the old fish? I am not advocating the introduction of *maximum* size limits. But for some stocks, especially long-lived ones, we should consider allowing catches of smaller individuals (many of which are likely to suffer natural predation anyway), but at a level that will leave enough fish to grow through, not only to adulthood, but to a decent retirement age. We need to move towards restoring the natural age-distribution of fish populations, with sufficient old fish to contribute enough good-quality eggs, to restock the population in the rare years favourable for larval and juvenile survival and growth.

Acknowledgements: I thank Allan and Eve Southward and Mel Austin for drawing my attention to Steve Palumbi's paper in Nature, and Steve Hawkins for his support in getting a grant to spend my sabbatical at the Marine Biological Association of the UK, Plymouth.

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South African and



Australian estuaries – some fishy comparisons

By Alan Whitfield

South Africa and Australia are developing countries with rich natural resources. Many estuaries in both countries are in good condition, with the impacts of industrialization

and other human developments being considerably less than that found in 'developed' northern hemisphere regions. Recent visits 'down under' to attend an *Estuaries and Change Conference* in Ballina (New South Wales) and a *Fisheries Ecosystem Symposium* in Adelaide (South Australia), provided me with an opportunity to compare notes with Australian scientists on what is happening in our respective estuaries.

At the outset let me say that the Australian public is generally highly educated and therefore very supportive of research that enhances an understanding of ecosystem functioning and the implementation of measures that are necessary to conserve these systems. However, this high level of environmental awareness takes second place in the quest for waterside properties, as is evidenced by the large-scale destruction of mangroves in the Brisbane and Gold Coast regions of Queensland. These marina developments have provided thousands of Australian families with waterfront homes but in the process extensive damage has occurred to the functioning of many estuaries.

It is estimated that more than a 100,000 boats use the estuaries and coastal regions of southern Queensland and northern New South Wales, and my observations certainly reinforced the validity of this statistic. Indeed, fishing and the harvesting of aquatic resources seems to be a very popular past-time for many people living along the coast. These pressures are beginning to exert their toll on fish stocks in exactly the same way as is happening here in South Africa. However, obedience of the law appears to be well established amongst the general public and I saw several anglers catch undersized fish, all of which



were released back into the estuary to 'fight another day'.

The development of towns and cities along the Australian coast has also resulted in eutrophication of certain systems, especially some estuarine lakes and lagoons. Conference delegates were taken on a tour of estuarine systems in the vicinity of Ballina and were shown a variety of systems that have been adversely impacted by sewage flows etc. In addition, the construction of barrages to prevent the flow of saline waters into the upper reaches of certain estuaries has resulted in severe water quality deterioration above these barrages. The barrages also block the free movement of fish and invertebrate species up and down these systems. South Africa faces similar problems with farm weirs that block the migrations of riverine and estuarine animals.

According to scientists working in the vicinity of Ballina, mass mortalities of fish in local estuaries occurs on a regular basis. These events are usually attributed to acid runoff from oxidized sulphate soils in the catchments, but recent research during several minor river floods has shown that depletion of dissolved oxygen is now also a major threat. Oxygen depleted waters flowing into the river from flooded cultivated pastures with a high oxygen demand cause extensive fish kills. In early 2001, major fish kills were recorded in the lower reaches of the Richmond and Macleay rivers near Ballina, resulting in a temporary closure of these systems to all fishing to allow the fish stocks to recover. Similar river flood associated fish kills in the Sundays and Great Fish estuaries of the Eastern Cape suggests that oxygen depleted water entering these systems may also be problematic.

Yet another link between the estuaries of Australia and those of South Africa is the whole question of river flow (or lack thereof) to estuaries. Just before I left the Ballina Conference at the end of June 2004, the headline in *The Weekend Australian* newspaper was "Deal to save the Murray". In this article, the Federal Government in Canberra committed Aus \$500 m (+R2 billion) to "claw back over-irrigation, and the allocation of water for environment purposes" to "assist the ecology of the Murray-Darling and other ailing river systems in the country". The National Water Act that the South African Parliament promulgated in 1998, and which caters for environmental flows to rivers and estuaries, indicates that our government has shown considerable foresight in the above matter, and may thus avoid the crisis management that has characterized the Australian Government's recent actions.

In September 2004 I was invited to a symposium organized by the Australian Society of Fish Biology on the role of river flow in the ecology of fishes. A major theme of a workshop held prior to the conference was "Managing fish and fisheries in rivers and estuaries with limited and variable flows", something we are faced with on an almost daily basis here in South Africa. A focus of the workshop was the ecological crisis facing the huge Murray system which flows across the Australian continent and enters the sea just south of Adelaide. After listening to scientists, managers and commercial fishing representatives detail the woes of the Murray River and estuary, I came to the conclusion that there were many parallels with what has happened in our two countries. Here are a few facts pertaining to the Murray system:

➤ River flow system has de-

clined dramatically over the past 50 years and the estuary mouth now has to be dredged to stay open.

- Catchment barrages and excessive freshwater abstraction have caused localized fish extinctions.
- Eight native fish species have been listed as vulnerable or endangered.
- Eleven alien fish are now present in the Murray Basin and are threatening indigenous species.
- Barrages in the estuary have reduced the estuarine habitat to approximately 12% of the original area.
- Salinities in the lagoon below the estuary barrages sometimes exceed three times that of seawater.
- The nursery function of the estuary for fishes has been disrupted and most commercial fisheries in the estuary have collapsed.
- The impact of reduced nutrient and sediment supplies to the adjacent marine environment is unknown.

Clearly there has been gross mismanagement of the water resources and environmental allocations to the Murray, similar to what has happened in some South African systems such as the Kromme, Kariega and St Lucia. Fortunately the Murray-Darling Basin Ministerial Council has established a Native Fish Strategy which has as its overall goal to rehabilitate native fish communities in the basin and estuary back to 60% of their estimated pre-European settlement levels. A recent DWAF workshop on the freshwater requirements of Lake St Lucia also bodes well for possible action in restoring this system to a viable future state, where the salinity pendulum swings



are closer to the natural spectrum.

As I was leaving Adelaide, the newspapers were carrying a headline that Mr. Mark Latham, the Labour Party candidate for the country's premiership, had announced that if he was elected, Aus \$2 billion (+R8 billion) would be allocated to restoring the ecology and functioning of Australia's rivers and estuaries. In the light of Australia's increasing commitment to environmental issues, perhaps the South African government should follow suite and provide enhanced financial backing towards looking after the natural systems on which we all depend.

REPORT BACK ON ECSA 37 / ERF 2004 CONFERENCE,



BALLINA AUSTRALIA, 20-24 JUNE.

By Janine Adams

Consortium for Estuarine Research
and Management

A number of estuarine scientists and members of the Consortium for Estuarine Research and Management (CERM) participated in the Estuarine Coastal Shelf Sciences Association (ECSA) and Estuarine Research Federation (ERF) conference in Ballina, New South Wales, Australia in June 2004. The theme of the conference was "Estuaries and Change" and important contributions were made in the different sessions. Australian estuaries show remarkable similarities to our South African estuaries and important comparisons were drawn. A special workshop organized by Susan Taljaard (CSIR) on freshwater allocations was held. The South African method was presented re-

sulting in considerable discussion and debate with a group of approximately 30 people. We were told on numerous occasions that we were leading the way in this field. Plans are now underway to receive more rigorous critique from the Australians on our method by inviting them to participate in a reserve workshop in 2005 and, also, to apply the South African method to an Australian estuary. The proceedings from the Ballina workshop will be distributed and circulated to the list of attendees. Thereafter it is the intention to form an international estuarine flow discussion group.

The conference highlighted a number of concerns with estuarine research and management in South Africa. There is a dearth of scientists involved in ecophysiological studies on estuarine fauna. There is a shortage or lack of biogeochemists, taxonomists and particularly estuarine managers. Students are being trained in the field of estuarine research in South Africa but do not find a career in this field and tend to end up in general environmental consulting. Many estuarine scientists from various Australian government departments and also elsewhere in the world e.g. USA and UK participated in the conference. Managers were very well represented, as was the large contingent of young scientists.

List of papers presented by South African delegates:

Trevor Harrison and Alan Whitfield. Fish assemblages and the interpretation of environmental conditions in South African estuaries.

Steve Lamberth. The implications

of altered freshwater inflows for the marine line-fishery on the Thukela Bank, KwaZulu-Natal, South Africa.

Digby Cyrus and Fiona Mackay. Estuarine invertebrates and the environmental reserve. A look at how the South African Water Act aims to retain the biodiversity.

Fiona Mackay and Digby Cyrus. Are standard infaunal assessments appropriate for freshwater requirement studies? A case of three South African subtropical estuaries.

Rodney Owen. Floods, droughts and extreme salinities: Changes in the infaunal macrobenthic community over fifty years in the St Lucia Estuary.

Steven Weerts and Digby Cyrus. Environmental factors influencing fishes associated with structurally similar habitats in adjacent subtropical estuaries, South Africa.

Piet Huizinga and Lara van Niekerk. Physical processes of intermittently closed and open estuaries in South Africa.

Lara van Niekerk, Susan Taljaard and Piet Huizinga. An assessment of the impacts of anthropogenic influences on the dynamics of a temporarily open and closed Orange River Estuary.

Phumelele Gama and Janine Adams. Phytoplankton response to physico-chemical changes in a temporarily open / closed estuary.



Tris Wooldridge. The zooplankton of South African estuaries: some ecological implications of altered temperature gradients.

Janine Adams. The response of macrophytes to changes in physico-chemical conditions in temporarily open / closed estuaries.

Gonasageran Naidoo. Coal dust pollution effects on wetland tree species in Richards Bay, South Africa.

Leon Vivier and SHP Mabaso. Prawn farm effluent and its effect on subtropical estuaries: A South African perspective.



By Johan Groeneveld

The South West Indian Ocean Fisheries Programme (SWIOFP) legal issues workshop met for the first time in a La Reunion between 8th and 10th February 2005. Apart from a strong delegation from the host country, France, a good mix of lawyers and scientists from South Africa, Madagascar, Mozambique, Tanzania, Mauritius, Comoros and Seychelles gathered in St Gilles. As venues go, St Gilles with its tropical climate, white beach, coral reefs and French atmosphere must rank close to Paradise. However, the mandate of the workshop was not to explore coral reefs, but rather to explore ways to accommodate the rules and regulations of international legal frameworks and conventions within SWIOFP. To us mere biologists, this task seemed daunting, however, Mr Eli Jarmache of IFREMER, an expert

on international law and coordinator of the workshop managed to make everything sound quite simple. As a first step, Mr Jarmache explained parts of the international legal framework, and how it would be relevant to SWIOFP in terms of marine research taking place across international boundaries, data access and availability, and property rights of data collected in the EEZs of SWIOFP countries. To at least some of us (and I should probably exclude the lawyers) the ramifications of the United Nations Convention on the Law Of the Sea (UNCLOS), 1995 Fish Stocks Agreement, the Convention on Biodiversity, the last United Nations General Assembly resolutions on oceans and fisheries, the FAO Code of Conduct for Responsible Fisheries and the relevant provisions of the Plan of Action adopted in Johannesburg in August 2002, was unfamiliar territory. Fortunately it turned out that there was no need to reinvent the wheel for SWIOFP. The legal framework actually existed in these conventions – SWIOFP simply needed to find the relevant sections and apply them.

Particularly important to the workshop were transboundary operations; i.e. cruises with bona fide research vessels and those with commercial (fishing) ships chartered as research vessels. It was agreed that as a procedural step, a letter of agreement would be signed between countries at the onset of SWIOFP, to facilitate research in marine areas under national jurisdiction. Signing such a “Letter of Agreement” would in no way challenge or reduce the sovereign rights of coastal states involved in SWIOFP, but it would devolve responsibility for day-to-day operations and cruises to a much lower political level of SWIOFP national focal points. Even access to restricted marine areas, possibly as reference points for biological

research, may not be out of the question, albeit under strict conditions and supervision.

Access to data was considered a major issue which needed to be elaborated further in a data policy acknowledging regional sharing, availability and free access. Who would own the data? In essence, SWIOFP is a regional project in which there is little space for individuals or individual countries to claim property rights. But researchers that spend a lot of time developing projects do need some protection against data piracy. It was suggested that this conflict could be resolved by channelling incoming data collected during SWIOFP cruises through the relevant Component group (i.e. a Working Group consisting of scientists participating in the Component) with the proviso that data has to be released and lodged onto the SWIOFP database within a specified period, possibly as little as a few months. This method would ensure rapid data verification and dissemination.

Specific proposals from the workshop were that SWIOFP (basically a regional fisheries data collection and monitoring programme) should be implemented jointly with control and surveillance programmes, even if these MCS programmes were mainly national and funded from elsewhere, and that capacity building on legal matters should be pursued through training courses. Finally, before waving bon voyage to the warm waters, coral reefs and white sands of St Gilles, Yan Giron and Elie Jarmache from the French delegation are thanked for their tireless efforts to make the legal issues workshop a rip-roaring success.



- TRANSMAP -

A new initiative to strengthening collaboration in East African marine conservation

By Rudy van der Elst (ORI)

Following the impetus given by the 5th World Parks Congress in Durban, the value of Marine Protected Areas (MPAs) as a tool for biodiversity protection and fisheries enhancement is more widely recognised than ever. In particular, the sharing of resources between neighbouring countries is a focus of attention. This fact has brought together a consortium of international experts and institutions with the aim of developing a scientific basis that will support the creation and management of transfrontier Marine Protected Areas in the East African region. ORI is playing a key role in this Consortium, named



TRANSMAP.

The Quirimbas group of coral islands, Mozambique

This ambitious project was recently launched at an inaugural meeting in Maputo. Funded by the European Commission, TRANSMAP is a joint initiative between five European and five African institutions. Each partner contributes their particular expertise to the collective goal of generating

scientific knowledge to underpin transfrontier MPAs. This relates to the type, size and location of reserves, so as to maintain ecological functioning, create opportunities for sustainable resource-use and associated socio-economic development. This will be achieved through integrating and modelling a range of strategic issues, such as biophysical, socio-economic and governance factors. All the information will be located in a Global Information System (GIS) which will provide the basis for future decision support and zoning strategies.

TRANSMAP is structured into the following five objectives:

1. *Baseline definition:* to build on existing knowledge and databases in order to incorporate all relevant information into a geographical information system (GIS).
2. *Biophysical assessment:* to collect and collate fundamental biophysical data, in order to determine current conservation status, restoration needs and ecological connectivity, especially in a transboundary context. Included will be human use patterns.
3. *Socio-economic assessment:* to evaluate the sources of human income, especially those derived from natural resources, current socio-economic needs and traditional frameworks, integrating the economic dimension in a multi-criteria analysis.
4. *Governance assessment:* to assess the legal frameworks and developmental plans for management and decision-making, and to perform the necessary



research strengthening possible harmonisation of transfrontier plans.

5. *Options for zoning:* to integrate all the results and, through the

application of innovative new modelling techniques, to enhance ecosystem-based approaches to management, strengthen zoning options and support international cooperation regarding marine protected areas.

Spectacular Mnazi Bay, Tanzania

Although TRANSMAP will generate broad principles that can be applied to various localities, the focus of attention will be the transboundary coastal and marine areas between Tanzania and Mozambique in the north and Mozambique and South Africa in the south. This includes regions such as Mnazi Bay and the Rovuma estuary in Tanzania, the Quirimbas group of coral islands, the Machangulo Peninsula and Inhaca in Mozambique and the St. Lucia region in South Africa.

The project is scheduled to be completed in three years and is designed to generate maximum cooperation between the different institutions, leading to collective capacity and wisdom in MPA development. Close collaboration will be forged with management agencies, especially in the context of providing information and decision support. TRANSMAP represents a potentially significant contribution to the objectives of both the Nairobi Convention and NEPAD. In time this project may well prove to be pivotal in conservation of marine biodiversity in the East African marine ecoregion.

Participating institutions:

African

- ◆ Western Indian Ocean Marine Science Association (WIOMSA,



BIODIVERSITY UNDER THE SPOTLIGHT

SANCOR along with the Department of Science and Technology and the National Research Foundation co-funded six marine and coastal early-stage researchers (out of a contingent of fourteen) to attend an international conference on Biodiversity – Science and Governance in Paris at the beginning of this year. This was followed by a study tour of various French institutes in an effort to initiate collaborations and networking between South African and French researchers. Both the conference and the study tour turned out to be a resounding success and many researchers came back home with renewed vigour and enthusiasm to tackle the issues that plague our marine and coastal environment. This is what some of them have to say

Biodiversity, Science & Governance

A Summary Report

By Gavin W. Maneveldt

The International Conference “*Biodiversity: Science and Governance*” (Paris Conference) met from 24-28 January 2005 at the headquarters of the United Nations Educational, Scientific and Cultural Organization (UNESCO), in Paris, France. Over 1000 participants representing governments, inter-governmental organizations and non-governmental organizations, as well as academia and the private sector attended the Conference, organized by the French Government and sponsored by UNESCO. The Conference was convened to

assess the current knowledge in, and needs for, research and scientific expertise in biodiversity, as well as examine public and private approaches to biodiversity conservation and management, and the interactions between science and governance. The Conference produced two documents: the *Paris Declaration on Biodiversity*, an appeal by scientists on biodiversity; and a *Conference Statement*, which recalls governments’ commitments to the 2010 target and supports the launch of an international multi-stakeholder consultative process to assess scientific information and policy options for decision making.

Jacques Chirac, President of the French Republic, stressed that the fate of humanity is bound to that of other species, and proposed creating an intergovernmental panel to assess trends in biodiversity and developing a worldwide network of experts. President Chirac noted that France has incorporated an Environment Charter into its Constitution, highlighted France’s biodiversity-related policies and proposed hosting in Paris a high-level seminar on intellectual property rights as they relate to biodiversity. President Chirac stressed the need for urgent measures to achieve the 2010 target.

Conference Plenaries

- The challenges of biodiversity, science and governance;
- Status and trends of the world’s biodiversity;
- Social and ecological benefits of biodiversity; and
- Biodiversity and the management of living resources.

Conference Workshops

- Biodiversity governance;
- Agriculture and biodiversity - policies, institutions and practices;
- Environmental education and communication for biodiversity;
- Strategies and infrastructures for documenting biodiversity;
- Challenges to achieving the 2010 target - funding research for biodiversity and conservation;
- Integrative approaches to biodiversity;
- Biodiversity and urban areas;
- Biodiversity and health;
- Microbial diversity and society;
- Challenges for fisheries management;
- Biodiversity - the new frontier of innovation;
- Biodiversity indicators and the 2010 target - scientific challenges;
- Sustaining biological and cultural diversity - local knowledge, practices and world-views;
- Appropriation regimes and management systems for biodiversity; and
- Sustainable management of tropical and subtropical biodiversity - islands and forests.

Outcomes

1. *Paris Declaration on Biodiversity*:

The Declaration is composed of three sections and recommendations.

The first section states that biodiversity, as the natural heritage



of and a vital resource for all humankind:

- is a source of aesthetic, spiritual, cultural and recreational values;
- provides goods that have direct use values, such as food, wood and pharmaceuticals;
- supports and enhances ecosystem services upon which human societies depend indirectly, including the maintenance of water, air and soil quality, and ecosystem resilience to change; and
- provides opportunities for human societies to adapt to changing needs and circumstances, and to discover new products and technologies.

The second section recognizes that biodiversity is being destroyed irreversibly by human activities, noting that:

- humans are altering the environment at an unprecedented rate, affecting sustainable development and the quality of life;
- species are being lost at a rate that is about 100 times faster than the average natural rate;
- large-scale loss is irreversible; and
- the underlying causes of destruction are of a demographic, economic and institutional nature.

The third section states that a major effort is needed to discover, understand, conserve and use biodiversity sustainably, including:

- immediate strong actions to meet the MDGs and ensure food security, human health and quality of life;
- an international coordinated effort to mobilize scientists to expand the knowledge of biodiversity; and
- integration of conservation and sustainable use into social and

economic development.

On this basis, governments, policy makers and citizens are urged to take necessary actions, including:

- ambitious interdisciplinary research programmes;
- integration of biodiversity into the criteria for all economic and policy decisions and environmental management;
- improved education and public awareness; and
- a major effort to build capacity, especially in developing countries.

The Declaration also calls for an international mechanism that includes intergovernmental and non-governmental elements, and builds on existing initiatives and institutions to provide information, identify priorities and inform relevant biodiversity-related conventions.

2. Conference Statement:

The Statement recalls the commitment of governments to achieving the 2010 target as a condition for sustainable development, and recognizes that:

- biodiversity is a vital and poorly appreciated resource that underpins the MDGs;
- biodiversity is being irreversibly destroyed by humans at an unprecedented rate;
- unless the rate of biodiversity loss is significantly reduced, any effort to reduce poverty will be undermined; and
- although enough is known to justify immediate action, major efforts are still needed to fill knowledge gaps.

The Statement urges:

- governments to take all necessary actions needed to reach the 2010 target, including capacity building;
- civil society and the private sec-

tor to take actions in line with the 2010 target; and

- the scientific community to develop greater national and international coordination.

The Statement also calls for:

- public and private resources for understanding and conserving biodiversity;
- communication between all stakeholders, including local and indigenous communities; and
- greater cooperation and synergies between Parties to, and secretariats of, multilateral environmental agreements.

Finally, the Statement recommends, in response to the proposal made by French President Jacques Chirac, launching an international multi-stakeholder consultative process to assess the need for an international mechanism that would provide a scientific assessment of information and policy options required for decision making, building on existing bodies and activities.

(International Institute for Sustainable Development (IISD))

LONG TERM MONITORING AND BIODIVERSITY

By Cloverley Lawrence

Fourteen bright and bushy-tailed scientists from South Africa braved the European winter to attend the World Biodiversity Conference at UNESCO in Paris, France. The weather left much to be desired, but the conference proved to be stimulating and informative. It provided a podium for inspiration from people such as Wangari Maathai, the Kenyan Nobel Peace Prize Laureate, as well as South Africa's own Valli Moosa, now



president of the IUCN. The central focus was the drastic decline in biodiversity and the global apathy that is exacerbating this downward pattern. The need for species inventories and effective long term monitoring of biodiversity to assess natural and forced trends was brought to the fore once again. However, the strategic conservation planning approach (Pressey & Cowling, 2001) demonstrates that conservation of ecosystems and ecological processes is still achievable despite the lack of species inventories and taxonomic data. A strategic action plan that could be implemented with some urgency was therefore lacking. A position paper was drafted at the end of the conference with a set of recommendations from the scientific community and a more applied, management focused conference is scheduled later in the year to address these concerns.

Thereafter, the 14 frozen but eager South Africans embarked on a tour of marine and terrestrial research institutions around France. The main purpose of this was to exchange information on biodiversity research in each country and to explore possible future collaborations within the framework of the European Union's Sixth Funding Programme. Specific focus was paid to biodiversity research and monitoring projects that are in progress. It was proudly stated that South Africa is signatory to many conventions and international agreements on biodiversity and has developed the National Biodiversity Strategy and Action Plan to conserve and manage the countries natural heritage in the absence of comprehensive species inventories. Our diverse natural fauna and flora was flaunted along with our game parks and marine protected areas. We also proudly

expounded on our environmental protection laws and the studies that are carried out within and beyond our ~ 3000 km of coastline. At the end of the tour we were proud of the achievements of our burgeoning country - just 10 years into democracy and well ahead of international standards for biodiversity conservation.

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BIODIVERSITY CRISIS LOOMING

By Dr Nadine A. Strydom

Prof Edward Wilson of Harvard University popularized the term biodiversity in the 1980's. The term has since been passed among scientists and biology students around the world to refer to the variety of life forms that inhabit our planet. Global warming has driven scientists and governments together to take stock of global biodiversity; only now do they realize a few essential problems: Firstly, most of the world does not know what the word biodiversity means and secondly, we are losing biodiversity on a global scale at an alarming rate. A profound statement by Michel Loreau of the Pierre and Marie Curie University in Paris at the recent "Biodiversity: Science and Governance" Conference in Paris, France, underpins these problems: "We cannot conserve what we do not love and we cannot love what we do not know". Dr Loreau also emphasized the fact that current predictions estimate that two thirds of all species will be lost by the end of the 21st century. Current extinction rates are one hundred times greater than those recorded in our fossil records.

The loss of biodiversity is largely driven by five critical factors

summarized in the acronym HIPPO: Habitat destruction, Invasive species, Pollution, People overpopulation and Over-harvesting of natural resources. Our marine resources are heavily exploited worldwide and marine organisms represent the single largest undomesticated food source, i.e. we are still largely harvesting fishes from wild caught stocks and statistics show that we are doing this really badly. What is being done about this?

Most biological diversity is in the form of organisms we cannot see with the naked eye. What is happening to these species? They may have untold importance to the functioning of important systems, like soil, and we have no idea what damage we are doing. Why are the frogs dying out worldwide? Dead zones now occur in our oceans and only bacteria and jellyfish survive in these areas. These zones now represent an evolutionary step backwards to simpler life forms. Inuit tribeswomen have breast milk that is toxic as a result of the polluted salmon they eat. Dying salmon also pollute rivers in these parts as a result of the high levels of toxins carried in their flesh. More ocean floor has been stripped of life as a result of commercial netting for fishes than all the felled forests put together worldwide. Who sees this? Who knows about this? Who cares?

Nature will repair herself, from all this human destruction, but it will take so long that it will exceed our perception of time. Claude Martin, the director general of WWF International, emphasized that modern man is no longer living within the world's sustainable limit and eliminating species is like taking a page from the encyclopedia of life. The present genetic information coded into the world's biological diversity, through the process of millions of years of evolution, is said to be steeped in the past and pregnant with the future.



Look at the destruction that mechanized man has caused in only a century.

Our challenge is to educate the people of our planet before it is too late, before we find ourselves in an irreversible downward spiral to extinction. Human beings are part of the environmental system/s on earth, but as humans we have been given the ability to distinguish and discern these systems. Prof Edward Wilson says "The power that humankind has acquired carries with it unprecedented responsibility and we must develop a new planetary ethic to conserve biodiversity before it is too late. From this, preservation of biodiversity requires radical changes in attitudes and lifestyles worldwide. Society is defined not only by what it creates, but by what it chooses not to destroy". These are truly profound words by a great scientist and bring home to all of us the critical role that we play in understanding and caring for our world heritage.

All the researchers and the SANCOR secretariat would like to thank SANCOR, the NRF and DST for having awarded us this invaluable opportunity.

By Jaco Barendse



Four years ago in Kwazulu-Natal, a questionnaire survey of seafood restaurants and retailers revealed some alarming trends in the linefish trade in that province. The questionnaire tried to fathom the level of awareness that seafood retailers had about marine

conservation issues, the sections of the Marine Living Resource Act (MLRA) of 1998 relevant to them, and whether there were any species of particular concern being sold. The results showed a high level of ignorance concerning the MLRA with 77% of the retailers not being familiar with it and 92% of them contravening at least one aspect of the Act, mostly by buying from recreational fishers and offering "no-sale" species for sale. The news about species was no better with 15 no-sale species making an appearance on the species list, including specially protected species seventy-four and potato bass. Furthermore, the top 12 most popular fish in KZN included four overexploited species, and one prohibited species (Natal stumpnose). Hardly anyone was aware of the crisis that was announced in the South African linefishery in December 2000. This announcement came in the wake of recent revisions of linefish stock assessments that showed the majority of traditional linefish stocks to be far from healthy. For example, out of the top 27 recreationally important species for which sufficient information were available 18 (or 67%) were classified as "collapsed", one species was found to be "over-exploited", four were considered "optimally-exploited", and only two species were "under-exploited" (Griffiths & Lamberth 2002). For commercial species it was no different with six out of the ten most important commercial species falling well below critical levels in the Western Cape region, where the bulk of national linefish catches are made (Griffiths 2000). These species included household favourites such as kabeljou (cob) and red roman.

The generally positive response from the majority of retailers to the questionnaire prompted Ezemvelo KZN Wildlife to develop a

Sustainable Seafood Initiative that would try to address these issues. Soon after this it was realised that there existed a real need at national level for such an initiative. This became reality with the appointment of a National Co-ordinator for the Southern African Sustainable Seafood Initiative (SASSI) by the Marine Programme of WWF South Africa, with funding from The Green Trust, and in close collaboration with the Department Environmental Affairs and Tourism, sub-directorate Marine and Coastal Management (MCM). Other participating partners are Ezemvelo KZN Wildlife, Two Oceans Aquarium, TRAFFIC, and more recently the South African Association for Marine Biological Research (SAAMBR).

SASSI has three major objectives:

1. Promote voluntary compliance with the MLRA 1998 through education and awareness.
2. Shift consumer demand away from over-exploited species to more sustainable options.
3. Create awareness on marine conservation issues.

The first objective will be achieved by offering training courses to the staff of participating restaurants and retailers, to be presented by the various implementing partners. At this stage KZN is the furthest ahead with a course already developed and ready to go, while Two Oceans Aquarium awaits further guidance regarding course content, based on the results from questionnaire surveys that are being carried out at seafood restaurants and dealers in the Cape Town region. The emphasis is on nationally consistent course content based on accurate and credible information, but with local relevance. It is also intended to



expand the surveys to Gauteng and the Eastern Cape provinces, and to find suitable partners there who could implement the training. The courses will mainly focus on the following topics:

- Legal aspects regarding dealing in seafood
- Seafood identification skills
- Conservation or stock status of different species
- Fishing methods and their impacts
- The biology and ecology of seafood species

The second and third objectives go hand-in-hand. By creating awareness on broad marine conservation matters, consumers will also be exposed to more specific issues. Here we can take a leaf from the book of similar international campaigns where the concept of mustering consumers to move the seafood industry towards better practices has been successfully applied in a number of countries, notably the United States, Australia and in Scandinavia. Typically the campaigns are formed through collaborations between NGOs, governments, environmental interest groups and aquaria. What they offer ranges from websites with information regarding fisheries related issues such as over-fishing, bycatch, habitat destruction and fishing methods, to detailed species databases. The most established campaign, Seafood Watch (www.seafoodwatch.org) run by the Monterey Bay Aquarium, offers regional wallet cards to consumers with colour coded species lists that can aid in their choices at restaurants and shops. This project has attracted strong buy-in from consumers, the hospitality industry and even the fishing industry. SASSI is slightly different in that it goes beyond harnessing consumer

pressure, but also seeks to build the capacity of the seafood industry and to encourage it to move towards sustainable practices. This principle of sustainability has become a matter of priority for NGOs worldwide (Kong *et al.* 2002). The take-home message is that these types of projects do not seek to harm the industry but rather aim to ensure a steady and diverse seafood supply for decades to come, and to promote security throughout the seafood chain.

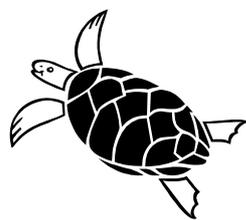
For further information regarding SASSI, or for comments, please visit <http://panda.org.za/sassi> or write to Jaco Barendse at barendse@wwfusa.org.za

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TURTLE NEWS

By Robert Ovetz

More than 700 scientists from 83 nations, (including the renowned Dr. Jane Goodall, Dr. Sylvia Earle and biologist E.O. Wilson) and 230 non-governmental organizations from 54 nations have joined a call to the

United Nations for a moratorium on high seas pelagic industrial longline fishing in the Pacific.

As you may know, longlining has driven the leatherback and loggerhead sea turtles and the black-footed albatross in the Pacific to brink of extinction. The number of adult nesting female leatherback sea turtles, for example, has declined by about 95% since 1980 and scientists warn that it could go extinct in the next 5-30 years unless immediate action to reverse the threat from longline fishing is carried out. It is estimated that about 4.4 sharks, marine mammals, seabirds, sea turtles and billfish are caught and killed in the Pacific each year. While the problem with industrial longlining is not limited to the Pacific, scientific research in this area has shown that there exists an immediate concern that these species will go extinct and calls for drastic actions to be taken.

The first step to reversing this deadly decline of these species is for the UN to implement a moratorium on industrial longlining until these species are out of risk of extinction and measures implemented to protect their habitats.

Please consider adding your name and/or the name of your non-governmental organization to the list of signers. To sign on go to:

<http://www.seaturtles.org/actionAlertDetails.cfm?actionAlertID=81>

Or write me directly.

Thank you for your critical support!

Robert Ovetz, Ph.D.

Save the Leatherback Campaign
Coordinator

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USA

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BCLME UPDATE

Regional workshop puts EAF project on the map

By Claire Attwood

As signatories to the World Summit on Sustainable Development, Angola, Namibia and South Africa have committed themselves to introducing an ecosystem approach to fisheries management (EAF) by 2010. The launch of a BCLME-funded project to test the feasibility of introducing EAF to the Benguela region represents a first step towards meeting this target.

In September 2004, a first regional workshop was held in Windhoek to review the progress that the three countries have made with the EAF project. The workshop was held after the countries had each had an opportunity to convene scientific and management committees to drive the EAF project forward.

International coordinator of the EAF project, Kevern Cochrane of the FAO's Marine Resources Service, explains that separate scientific and management committees are necessary to ensure that stakeholders participate in the project.

"We wanted to make sure that the project isn't driven only by science but that stakeholders are involved," said Dr Cochrane.

The purpose of the regional workshop was to ensure that there is good communication between the participants in the three countries, to share knowledge about transboundary fish stocks and exchange ideas on EAF.

According to Dr Cochrane, workshop participants ascertained

that Namibia and Angola are slightly behind schedule, but in South Africa the project is moving ahead very nicely.

"Namibia and Angola will need to catch up in 2005," said Dr Cochrane.

One of the most constructive outcomes of the workshop was the completion of a simple risk assessment exercise for one of the major fisheries in each of the three countries, as a way of introducing the method to the participants. The exercise allowed the workshop participants to analyse high level policy goals and identify what implications these goals have on an ecosystem and operational level. For instance, one of South Africa's policies is to conduct the demersal trawl fishery at levels that maintain the target populations and associated ecological community relative to its potential productivity. Workshop participants identified a number of important ecological objectives related to this policy in addition to objectives for the target species alone. For example, the importance of maintaining adequate abundance of forage species for hake and the need to consider the impact of fisheries on the benthic biota were identified as important issues.

The process enabled groups of specialists from each country to identify the ecosystem issues that are most important in each fishery.

"The process was very constructive," reports Dr Cochrane. "In the eyes of most participants, the EAF project was transformed into something practical and sensible, rather than just a vague idea."

One goal of the workshop was to teach participants how to conduct the risk analysis exercise so that they could return to their countries and repeat it with a wider spectrum of stakeholders.

By doing so, each of the countries will be able to identify the priority ecosystem issues for each fishery.

"We want to get to the point where we've identified key issues in each fishery and are able to put forward some options for addressing them," explains Dr Cochrane.

The question of by-catch is pertinent to most fisheries in the Benguela region and it is likely to become a high priority issue for the EAF project. In many commercial fisheries, by-catch is unrecorded and so it is very difficult to evaluate the impact that a fishery has on non-target species. One of the goals of the EAF project is to improve scientific information on subjects such as by-catch and identify practical ways to address these problems.

Dr Cochrane emphasises the fact that the EAF project is a feasibility study. The project's goal is to plan for the implementation of EAF, rather than to implement EAF in the commercial fisheries of the Benguela region.

"We don't want to alarm the fishing industry and this project will definitely not be introducing any changes in fisheries management, simply providing information on the feasibility of implementing EAF and the potential costs and benefits of the approach," he said.

In fact, the ecosystem approach that is described by the FAO is neither inconsistent with, nor a replacement for current fisheries management approaches. Instead, it is likely to be adopted as an



incremental extension of current fisheries management approaches.

Dr Cochrane says that the EAF project will use the best available information to highlight areas where improvement in the management of fisheries in the Benguela is needed. The aim of the project is to identify a range of alternative management options and detail the socio-economic and ecological implications of each.

He believes that 2005 will be a critical year for the project. The focus will be on scientific analysis and gathering the best available information on each fishery.

“We’ve got to do the bulk of the work this year,” he says.

BENGUELA FORECAST WORKSHOP

By Vere Shannon

In November 2004 a highly successful “International Workshop on Forecasting and Data Assimilation in The Benguela and Comparable Systems” was held in Cape Town, South Africa. Sponsored by the BCLME Programme in partnership with nine other international, regional and national organisations (SCOR, IAPSO, IUGG, IOC, IRD, BENEFIT, UCT, DEAT (MCM) AND CSIR) the workshop addressed a key policy action of the BCLME, viz. the assessment of environmental variability, ecosystem impacts and predictability. Two cornerstones of this policy action are the development of an early warning system and the improvement of predictability of extreme events and their impact on the Benguela. The workshop was also a first step in

implementing a key component of IAPSO’s new Strategic Plan and enabling technology transfer. An important objective of the workshop was the development of a strong base for an effective and affordable forecasting capability for the South East Atlantic within the global network. The workshop addressed a broad range of topics and disciplines related to improving predictability on time scales from hours and days to months and even years and decades. Over 100 invited experts participated (some 30 of which were from overseas) in the meeting which was run along Dahlem lines, with comprehensive review papers being circulated to delegates prior to the workshop, and included both plenary and specialist sessions. The summary assessment provided by Professor John Woods at the conclusion of the workshop was that we ARE now ready to design an operational system for forecasting in the Benguela – something that would have been somewhat questionable prior to the workshop. The information, wisdom and advice emanating from the workshop are being captured in a peer-reviewed book “The Benguela: Predicting a Large Marine Ecosystem” which will be published in 2005 by Elsevier. Not only will the book be relevant for sustainable management of the Benguela, but will also be a blueprint for application in other comparable ecosystems around the world.



**SANCOR travel grant
has taken me to new
horizons....**

By Samantha Petersen
Filled with excitement I boarded a plane for South America where I was to attend the fifth International Albatross and Petrels Conference (IAPC) in Montevideo, Uruguay and the third International Penguin Conference (IPC) Ushuaia, Terre del Feugo, Argentina. As well as participate in the IUCN workshop re-assessing penguin threat categories.

I would like to express my sincere thanks to the SANCOR travel grant for making this possible! I am incredibly grateful to have been given this opportunity to broaden my thinking by the exposure to these international fora. My knowledge and understanding of seabird biology and conservation has certainly been enriched by attending and participating in these meetings.

At the IAPC I presented one of my honours projects “Demographics of Giant Petrels on Marion Island” as well as afforded the opportunity to show case my work concerning the incidental mortality of seabirds, turtles and sharks in South African fisheries. What struck me the most about this meeting, which was academic in nature, rather than a conservation focus, was that there was virtually no presentation presented in the five days of this meeting that didn’t mention the impact of longlining fishing on the biology of these birds. There is virtually no aspect of their biology that isn’t affected by this threat. It really brought home the fact that this single threat has had a substantial effect on these birds and that without action they will certainly be driven to extinction. This meeting has equipped me with new and exciting developments and as well as fantastic contacts in the field of mitigation which will greatly enhance the success of the current local programme here in South Africa. It



order to share recent knowledge and share and develop best-practice solutions and in this way ensure the survival of our seabirds and the sustainability of our fisheries.

At the IPC I was privileged to present my other honours project "Is food availability limiting African Penguins at Boulders Beach? A comparison of foraging effort at mainland and island colonies using novel GPS technology" as well as presenting a workshop report which addressed the issue of future flipper banding of penguins. Both these presentations were well received, especially the latter. This was extremely exciting because this is a very controversial topic internationally. South Africa was praised for this... "bold and extraordinary piece of work, taking by the horns an issue that was and still remains contentious and controversial, yet is of critical importance given the dismal trends now evident in some penguin populations. All involved with this workshop deserve our congratulations for this effort and its coverage of this important issue--so very refreshing to see this sort of proactive approach to these touchy subjects".

I found both meetings very encouraging and a source of great inspiration. I see huge merit in attending international conferences both in terms of career development, but also personal growth and development. For both I am extremely grateful! Thank you!

Eastern Cape SANCOR student workshop

By Janine Adams

A very successful workshop was held at the University of Port Elizabeth on 7 December 2004. This was the first student workshop to be held in the Eastern Cape.

Twenty-one students attended from UPE, Rhodes, UNITRA and UFH.

Meet & Greet, SANCOR news

The morning started off with a "meet and greet" session and a quiz on coastal and marine issues which the "Estuaria" team won. Janine Adams gave a short report on SANCOR's current activities, which included an update on Dive Council issues, the forthcoming South African Marine Science Symposium, the South African Environmental Observatory Network and SANCOR's role in establishing a marine and coastal node for long-term ecological research.

Everyone was informed of the R15 000 travel bursary awarded annually to students and the R500 made available for SAMSS registration for students. Students were encouraged to become SANCOR members and registration forms were distributed. Different job opportunities were discussed and a file of all the recent jobs advertised via SANCOR was made available.



Effective communication of marine science issues

The importance of publishing scientific articles was discussed, as the goal of scientific research is publication. The choice of Journal was elaborated on in terms of the prestige factor, frequency of publication, scope and circulation.

Groups broke away and after discussion reported back on how to improve communication of marine science issues with the public and managers. Experiences and advice on how to effectively publish a scientific article were also discussed.

The following recommendations were made:

Public

- ◇ Appearances and attitude were important.
- ◇ Opportunities to publish in local newsletters and community papers and magazines.
- ◇ Important to explain the how the public will benefit and also important to communicate results back to the public.
- ◇ Use of visual material is important.
- ◇ Opportunities to interact with schools and clubs e.g. Marine Week
- ◇ Important to have a knowledge on general marine issues, while you might be doing a survey on use of intertidal invertebrates the public may be more interested in other issues e.g. ban on 4 x 4 use.
- ◇ Relate findings and recommendations, simple end results.
- ◇ Participation in local forums.
- ◇ Environmental education, students assisting educators, e.g. Adopt a beach project.
- ◇ Ongoing process, put structures in place to ensure continuity.
- ◇ Internet and posters

Managers

- ◇ Networks scientists and managers, identify so what? component of research.
- ◇ Feedback research results to local enforcement agencies.
- ◇ Progress reports to funders.
- ◇ Interact with Eastern Cape Coastal Managers Committee.
- ◇ Aim at different management



Journal articles

Practice makes perfect, make sure that you know what format the journal you have chosen expects your work in. Don't be discouraged, use scientific not common names, read, read, read, check journal writing style, be patient, allow others to proof read your work.

Research presentations

The afternoon session consisted of short presentations followed by questions by all participants in two parallel sessions.

The way forward



The day was concluded with feedback on the value of student workshops. These were seen as a great opportunity to communicate and network with other students and to share experiences with proposal writing and data analysis. Opportunities for comparison of research results from different areas or systems i.e. estuaries were also identified.

It was suggested that the next workshop be held in the Eastern Cape in early 2006. The beginning of the year was identified as more suitable than the end of the year. Institutional student representatives were selected as follows:

Vincent Nakin University of the Transkei
Ernst Thompson
& Paul Vorwerk Rhodes University
Sean Deysel UPE / Nelson

Mandela Metropole University
Nolubabalo Ntunzi University of Fort Hare

These students were tasked with facilitating communication between the different institutions and organising the next workshop in collaboration with the national student representative.

Congrats to Rebecca Rademeyer on

CONGRATULATIONS !

receiving the award for the best MSc thesis of the year (2004) at the University of Cape Town from the South African Association for the Advancement of Science. Her MSc was entitled: Assessment of and Management Procedures for the Hake Stocks off Southern Africa. This prestigious award was achieved in competition with MSc theses throughout the natural, health and engineering sciences, and the decision takes particular account of the reviews provided by the international examiners of the thesis. Well done!

Young researchers here's your chance to bridge the gap between the

YOUNG SCIENCE WRITER'S COMPETITION

public's perception of researchers and the world of science itself. All researchers between 20 and 35 at South African higher education institutions are invited to write a 700-word article on any scientific or science-related subject to inform and entertain readers of the *Saturday Star*. Three R10 000 cash prizes are up for grabs as well as a trip to the American Association for the Advancement of Science's meeting in St Louis, Missouri in February 2006. For more information and an online entry form visit

www.saasta.ac.za/sciencewriters or e-mail sciencewriters@saasta.ac.za.
The Competition closes on **May 31 2005**.

(Monday Paper – UCT 11/-3/05)



THE SOUTH AFRICAN COAST The Adopt-a-Beach Programme

For millennia there have been people living sustainably on the coast. Unfortunately this example has not flourished into the 21st Century. The Adopt-a-Beach programme, as part of Coastcare, aims to encourage ordinary people to look more closely at and look after their local coastal environments.

'Deciding to help look after a piece of South Africa's coastline as part of a group and finding out more about the area while enjoying it; then using the information gathered to improve and maintain the area' is what it takes to successfully Adopt-a-Beach. With 200 beaches being adopted around South Africa by groups of up to 200 people, there are now many more pairs of eyes out there keeping watch over our precious coastline.

The Adopt-a-Beach Programme is currently funded by the Department of Environmental Affairs and Tourism's Marine and Coastal Man-



Management Branch. It is a Coastcare project and contributes towards the implementation of the "awareness, education and training" component of the White Paper for Sustainable Coastal Development in South Africa. This is being achieved by providing an opportunity for participants to develop an understanding of the coastal environment and coastal management principles. This will help ensure that they become more responsible coastal users, and will ultimately lead to more effective and participative coastal management.

The first phase of the programme has been implemented by the Wildlife and Environment Society of South Africa (WESSA), is aimed at schools, coastal communities, participants in Coastcare projects like Working for the Coast, as well as Blue Flag beaches and local environmental interest groups.

At regional workshops during the first phase, each participating group was given a user-friendly handbook (available in four languages), log sheets, and a trommel containing a wide range of items and resource materials useful for monitoring and learning about various coastal issues. Fun on the beach is a key component of the project. The groups have been supported by WESSA staff around the country.

There has been a very enthusiastic response to the Adopt-a-Beach programme from groups. The issues they cover are varied and exciting. Some excerpts from the monthly Adopt-a-Beach newsletter, Tidal Tales, tell the story:

"A group in the Eastern Province Region recently witnessed a gang of some 15 abalone poachers operating in the Cape Recife Nature Reserve, 10 kilometres outside Port Elizabeth. Quick thinking by

WESSA staff and accurate information made it possible for the police to react quickly."

"They have a beautiful stretch of coastline with great diversity along the Southern Cape. Priorities identified thus far vary from pollution and water abstraction problems in the Noetzie area to conserving caves in Glentana... The environmental club at Blanco Primary School has drawn up a Plan of Action to learn about the caves and to make people aware of their historical importance, thereby ensuring that they are not degraded."

"Traci Viljoen works hard at one of Kalk Bay's many restaurants. What she really wanted to be was a marine biologist and so turn a childhood passion into an adult profession. When she overheard a patron talking about Adopt-a-Beach she had to know more and soon did. Now she convenes a little group of after-schoolers from the same Fishermen's flats that she grew up in twenty years ago and has called them the Sea Urchins. One afternoon a week, when she's not on duty, the group meet at Dalebrook or Danger Beach."

"The Adopt-a-Beach programme is moving along well in WESSA's Border-Kei Region, with the coastline being covered by various groups from the Tyolomnqa River all the way up the coast to Mbotyi (about 100km up the coast from Port St. Johns)."

"Groups along the KwaZulu-Natal coast include the Humpback Dolphin group, Umhlatuza Council and KwaZulu-Natal Wildlife. What with industry, shark nets, turtles, humpback dolphins and development there's lots to keep them busy... There is even one high school on the Bluff whose group members have grown to an astronomical 200."

A second phase of Adopt-a-Beach to last two years will commence during 2005. It is anticipated that the num-

ber of participant groups will be increased to 300 during this period. Thereafter, it is envisaged that the programme will become self-sustainable, and will not need to rely on funding from DEAT.

THE COASTCARE ADOPT-A-BEACH PROGRAMME

By Michelle Preen

'Deciding to help look after a piece of South Africa's coastline as part of a group and finding out more about the area while enjoying it; then using the information gathered to improve and maintain the area' is what it takes to successfully Adopt-a-Beach. With 200 beaches having been adopted around South Africa by groups of up to 200 people, there are now many more pairs of eyes out there keeping watch over our precious coastline.

This exciting programme, launched by the Department of Environmental Affairs and Tourism's Marine and Coastal Management Branch in 2003, is being implemented by the Wildlife and Environment Society of South Africa (WESSA). Participating groups include schools, coastal communities, participants in Coastcare projects like Working for the Coast, Blue Flag Beaches, as well as local environmental interest groups.

Adopt-a-Beach is a Coastcare project and contributes towards the implementation of the "awareness, education and training" component of the *White Paper for Sustainable Coastal Development in South Africa*. This is being achieved by providing the opportunity for participants to better develop an understanding of the coastal environment and coastal management principles, which will help to ensure that they become more responsible coastal users, ultimately leading to more effective and participative coastal management.

Each participating group has been



Holy Cross Primary School learners in the Southern Cape map out their beach

sheets, as well as a *trommel* containing a wide range of items and resource materials, useful for monitoring and learning about various coastal issues and having fun on the beach. WESSA Regional co-ordinators have been providing support for these groups around the country for the past year.

To find out more about the Adopt-a-Beach programme or to download the vibrant monthly *Tidal Tales* newsletter, please visit www.wessa.org.za/natprojectsAaBeach.htm

Public Information on the Coast

Although everyone appreciates the coast for its beauty, its diversity and its sheer magnificence, most people have not before been exposed to information about the subtleties of the local marine and plant life, the local culture and the environment.

Coastcare recently launched the national roll-out of the interpretive and informative signage project. A series of boards has been erected at various locations along the South African coastline. The interpretive boards convey facts and details on various topics and issues of coastal and marine interest. The informative boards provide information on the various coastal and marine projects and initiatives that DEAT is involved in. Produced in English,

and some translated to Afrikaans, Xhosa and Zulu, the signs are designed to be useful coastal environment education boards and to enhance both local and foreign tourists' appreciation of the areas they visit.

Strategically placed signs give visitors more information about specific marine protected areas and sensitive coastal areas as well as, for example, details about the Knysna Oystercatcher in the Western Cape or the turtle breeding grounds in KwaZulu-Natal. The generic boards include information on topics such as kelp forests, sandy beaches, rocky shores, coastal birds and marine fish. These boards are accompanied, at key sites, by informative boards about the hazards and the prohibition of driving off-road vehicles on beaches. Signboards about sustainable coastal development projects have been erected in the communities that have benefited from funding from Coastcare.

Opportunities for local craftsmen to erect and maintain the signs have been generated by the national campaign, as well as opportunities for local tourist guides to provide a service for visitors, all of which, in turn, will assist with providing economic empowerment to the local communities. In addition to enhancing the visitor's experience to the coast by providing environmental and local cultural information at strategic sites, greater awareness and sensitivity is being promoted amongst local communities about their environment.

By Roberta Griffiths



EnviroKids



EnviroKids magazine and I&J support schools and some of the top science and maths students in

the Western Cape

Thanks to financial support from **Irvin & Johnson**, 400 copies of the marine issue of *EnviroKids* magazine, theme **Living Oceans**, and 30 sets of **posters of marine birds** were distributed to 29 schools in the Western Cape for Marine Week 2004.

Distribution of the magazines and posters was facilitated by *EnviroKids* magazine and Nadiema Gamielien, Science Facilitator from the Scientific and Industrial Leadership Initiative (SAILI). This NGO aims to address some of the deficiencies in maths, science, and language education in under-resourced schools. SAILI provides teacher workshops and guidance, pupil support, and extra tuition on Saturdays for the top 60 Grade 6 and 7 maths and science pupils.

Besides providing teachers with very colourful and child-friendly resources for Marine Week, SAILI also used the donated magazines and posters at their September camp at Betty's Bay. This week offers the top science and maths students an opportunity to socialize, explore their environment, and learn about environmental issues.





The photos show some of the students interacting with the poster and magazines. One of the camp learners, Tasneem Mohamed age 12 wrote:

'I am very proud of being a South African because our country is filled with interesting animals, plants and people. But if we don't protect these animals and plants they are likely to become extinct. If this happens there won't be anything left for the next generation. That would be very sad. We are already busy destroying our beautiful environment by being careless. Penguins, for example, suffer because of oil-tankers spilling oil. We have a beautiful country – let's keep it that way.'

Roberta Griffiths, *EnviroKids* editor
rgriffs@iafrica.com

MARINE WEEK 2004 IN RURAL CENTANI!

By Nomtha Myoli and Lukhanyiso Vumazonke

The South African Institute for Aquatic Biodiversity (SAIAB) in Grahamstown participated in Marine and Coastal Management's (MCM) annual Marine Week Celebrations. The events were planned and funded by MCM, a branch of the Department of Environmental Affairs and Tourism (DEAT). Primarily Marine Week seeks to raise public awareness on sustaining the country's marine and coastal resources. The theme for 2004 was: "From mountains, catchments, river streams to the ocean floor. A nation at work at work to sustain our seas!"

SAIAB's contribution to the programme started with the Pre-Marine Week road show (3-13 October 2004). DEAT, Parmalat and National Ports Authority transported WANDA - the 16m long Sperm Whale model from Durban to Cape

Town, visiting a number of towns along the way to promote an awareness of our marine and coastal resources to school-going youth. WANDA was in Grahamstown on 7 October and SAIAB distributed invitations to all grades 5-7 learners in local primary schools. WANDA's interior is surprisingly a fully equipped class room full of educational equipment and material. In total, 1500 learners and 44 educators from 18 schools attended the road show at J.D. Dlepu Stadium where they learned about whales and how pollution from mountains through rivers is harmful to sea creatures like WANDA. Education materials and stationary from MCM were distributed to all learners and educators to continue the learning process in their classrooms and homes.

For Marine Week (18 – 22 October 2004), SAIAB was invited by MCM to participate in a rural schools outreach tour in Centani reaching 1437 learners and 54 educators from 21 schools. MCM in Centani contacted several schools to meet at a school center in



five particular areas near the Wild Coast. The school centers were at: Qolora, Tyali, Nqusi, Lusizi and Ngqwarra further north east. At each school center the presentations given included: 'What Is A Fish', a hands on specimen display on weird and wonderful marine fish where learners could interact and touch the preserved fish from SAIAB's National Fish Collection. This was followed by an interactive lesson on building a food web for the marine environment. The young learners were encouraged in marine careers from Marine Science to Fisheries Management and furthermore they re-

quested advice on which subjects should be pursued at school and tertiary levels.

MCM also educated the learners and teachers on sustainable living, fishing laws like the importance of permits and fishing during the stipulated seasons.



This was of direct impact to the learners since the Wild Coast is in walking distance from their homes and their communities also participate in recreational and subsistence fishing. Their prior knowledge on certain types of specimen was good and some were familiar with a few of our specimens. DEAT provided Marine Week posters which were given to the learners and spot prizes of bags and shirts. Other educational material from DEAT and SAIAB included Coast Care Files, Talefins, careers booklets and marine pollution posters which were given to the educators.

Educators and learners found the programme to compliment their OBE approach and requested that we to visit them again. Ms S Mangcengeza from Mnyaka J.S.S commented, "The teaching has been interesting for us and the learners as it has involved nature and life that they see because they are from along the coast, it also brought environmental awareness to the learners".

We are looking forward to playing



host to a lot more of these environmental education awareness events in the future.

State Of Coast Progress Report

With more than 3000 km of coastline, a number of internationally renowned beaches, and a variety of rocky and sandy shores, it's no wonder that Cape Town's coastline is one of its greatest economic, social and environmental assets.

The inaugural State of the Coast Progress Report presents the current state of the coast through reporting on a range of qualitative and quantitative indicators, results and information which portray an integrated and holistic view of the coastal asset.

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For more information call Environmental Management on +27 21 487 2284 or send an e-mail to enviro@capetown.co.za

CONFERENCES, ETC.,....

29th Annual Larval Fish

Conference, Barcelona, Spain 11-14 July 2005

Further details:

<http://www.larvalfishcon.org>

8th International Phycological Congress

www.ipc8.org

Durban in August

The Southern African tidal information service has a new name,



look and feel. The new address is www.satides.co.za.

PACEM in MARIBUS XXXI

Conference

"The International Ocean Institute organizes Pacem in Maribus conferences bi-annually to provide a forum where the challenges of ocean space can be considered in their interconnectedness."

The theme for the Pacem in Maribus XXXI Conference (or Peace in the Oceans), hosted jointly by the International Ocean Institute and the Institute of Marine Engineering, Science & Technology, is "Building bridges towards integrated oceans governance: Linking ocean science, engineering, technology and policy" and will bring together experts from a range of disciplines involved in ocean issues who will discuss ways to better work together towards integrated Ocean Governance.

The conference will run from the 31st of October until the 3rd of November 2005 in Townsville, Australia. Scientists, engineers, technologists, social scientists, international policy experts and the private sector will converge to discuss issues around six themes, namely regional security; coastal & marine activities; technology, surveillance & enforcement of maritime activities; global marine assessments & models for alternatives; Arafura & Timor Seas; and marine biotechnology. These six themes will be addressed in panel discussions, con-

tributed papers and poster sessions. In view of the recent Tsunami tragedy, IOI will be hosting a special session on Marine Natural Disasters Mitigation and Risk Assessment at this year's conference.

For further information : <http://www.conferenceplanners.com.au>

The **National Spatial Biodiversity Assessment** is now complete, and copies of the component reports can be downloaded via ftp from: <ftp://nbi.ac.za> Folder: incoming/national spatial biodiversity assessment/ the marine report is: Volume 4 Marine Component.

Some of the base data generated by the report (e.g. MPA boundaries) are publicly available from NBI (contact Dr Mathieu Rouget on rouget@nbict.nbi.ac.za)

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Prof. Alec Brown

It was with great sadness that the marine science community bode farewell to Prof. Alec Brown who passed away early March 2005. Prof. Brown was an internationally well-respected beach ecologist and a mentor to many students and fellow researchers. He will be dearly missed.

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