

# The State of the Marine Environment

## Where to from Here?

*Last February's State of the Marine Environment Report found that there are moderate to serious problems for Australia's marine environment in most areas where there is human activity. A major conference held immediately following the release of the Report found consensus among the many interest groups represented. Craig Johnson reports on the national priorities and strategies recommended by conference delegates.*

When the United Nations Convention on the Law of the Sea was ratified in October 1994, Australia laid claim to an ocean realm greater than 1.5 times its land area. In assuming this jurisdiction the nation also shouldered the responsibility of stewardship, with an obligation to ensure ecological sustainability through wise management of its marine and coastal environments. Among scientists and managers alike it was widely asserted then, and is held now, that the nation has neither the knowledge nor infrastructure at present to implement effective management of its marine environment within the Exclusive Economic Zone.

The release of the non-technical summary of the major findings of the State of the Marine Environment Report (SOMER) on 13 February of this year documented for the first time a national perspective on the state of our coastal and marine resources and identified areas of inadequate knowledge. The technical summary of SOMER, a tome in excess of 500 pages, is scheduled for release this month.

SOMER is an initiative of the federal Ocean Rescue 2000 program and administered by the Department of the Environment, Sport and Territories (but was prepared for government and not by government). Its overall lexicon is that, by international standards, the state of Australia's marine environment is "generally good, BUT ...", and then flow the qualifications. The literal translation is that the regions off our remote and



largely uninhabited stretches of coastline are, in large measure, in good condition, but there are moderate to serious problems in most areas where there is human activity in coastal catchments, on and adjacent the coast itself, and offshore (see Box pg 79).

It was never intended that SOMER recommend actions in response to the problems it identified (explicit in its terms of reference); rather, the report was to provide a passive presentation of factual material. Thus the release of the Report raised a number of critical questions. Where do we go from here? What must we do to rectify current problems and avoid future ones? What is the optimal management strategy for sustainability? What are the issues of priority and what actions are required

to address them?

These questions were the focus of The Marine Environment Conference hosted by the School of Marine Science at the University of Queensland over the 4 days immediately following the release of SOMER. The conference was attended by 280 delegates representing most Australian stakeholders with marine interests: community groups and other non-government organisations; scientists; managers and senior bureaucrats from local, state and federal levels of government; federal policy advisors; industry (e.g. commercial fishing, petroleum exploration, tourism); environmental agencies; conservation groups; and representatives of indigenous Australians and some Asian and Pacific island nations.

Delegates spent some time absorb-

ing background information on the state of the marine environment in plenary meetings and sessions of contributed papers, but six workshops were the core focus of the meeting. The workshop sessions, based on both large and small group discussions, tackled the broad issues raised by SOMER in an attempt to identify specific priorities for action and pragmatic means to realise those priorities. In the plenary session that ended the meeting, the recommendations of all workshops were considered as a whole to decide on national priorities and a suitable strategy to tackle them. The workshops were in the areas of marine environment reporting, marine environment research, indicators of environmental quality, management of large marine ecosystems, long-term monitoring and assessment of environmental quality, and the role of the community in stewardship of the marine environment.

## Recommendations from the Conference

In addressing the key concerns raised in SOMER, the conference agreed on four principal recommendations.

### Action please!

The overriding point emphasised in the final analysis was the need for immediate action. Having forecast potential problems in the immediate future, and identified legion existing problems, critical gaps in knowledge and holes in the management net, it is essential to instigate a range of responses immediately. Senator Cheryl Kernot pointed out that in the 15 years since the release of the Australian Coastal Zone Management Report in 1980 there have been no less than 56 reports or enquiries into marine and coastal environments in Australia. Let it not be argued that there is insufficient information on which to act.

### A system of large marine ecosystems

At a strategic level there were two key recommendations. First, Australia's marine environments should be managed as a series of large marine ecosystems (LME) whose boundaries are determined on biological and not political criteria. Environ-

mental issues within LME should be managed on local, meso and whole LME scales as appropriate, and include development of a community-based process to assist with management. Management under the umbrella of an LME should realise optimal efficiency of administrative and scientific resources and facilitate a multi-scaled and coordinated approach to environmental issues across all tiers of government.

Within each LME, a multiplicity of activities should be managed along lines broadly similar (although not necessarily in a legislative or administrative sense) to the current system for managing the Great Barrier Reef (GBR). However, a fundamental distinction between the recommended LME and the pre-

grams (LTMP) be commenced in marine and coastal environments within LME.

### A national coordinating body

The second strategic initiative recommended was the establishment of a national coordinating body under which the LME would operate. The key responsibilities of this body would be to coordinate a national, integrated and strategic approach to managing coastal and marine regions.

This body would draw on experts to design and implement a national system of LTMP and a national system for marine environment reporting. It would establish a national system of 'tailored' environmental indicators by defining both what it



sent management of the GBR is that LME should necessarily extend inland to include complete coastal catchments. This is crucial given that the greatest single threat to coastal environmental integrity is water quality, largely as a result of poor management of the use of land and river systems.

It was recommended that data collection methods must be standardised within and across LME, and that a nationally coordinated system of long-term monitoring pro-

is that indicators of environmental health need to indicate, and a procedure to identify and evaluate indicators that would include the identification of cause-effect linkages in environmental problems. The body would also aid in the development of a National Marine Environment Policy and a National Marine Science Policy.

### Role of the community

The conference recognised the importance and potential of community

involvement in marine and coastal conservation and stewardship, but noted that scientists and managers in general need to be more aware of the value of this involvement. Accordingly, it was recommended strongly that community groups be better resourced to improve their input and role in decision making and information exchange. The conference supported the Marine and Coastal Community Network (another initiative of the Ocean Rescue 2000 program) as a move in the right direction. It was agreed that an essential ingredient of effective and responsible management was that all levels of government facilitate full and open public involvement in the decision-making process on marine environmental issues.

### Realistic or Wishlist?

The recommendations arising from the conference may define a preferred solution, but is this nostrum a vision of fantasy? Are the goals defined by the conference reasonable in terms of financial and legislative and administrative practicality?

There is no argument that an ecologically healthy marine environment is fundamental to the cultural ethos of both indigenous and non-indigenous Australians and to the sustainability of valuable industry. Yet the message of SOMER is clear: there are vast tracts of seabed and other habitats for which we don't have a basic inventory let alone any understanding of ecological processes; we harvest species with next to no information of stock structure and sustainability; and there are large sectors within our jurisdiction that are not managed at all. There is no doubt that a greater commitment of state and federal resources to marine research and management is required to adequately support a marine industry worth \$18 billion annually and to meet our collective responsibilities of stewardship and sustainable use of the marine environment.

The conference strived to recommend the attainable. It pointed out that much of the necessary scientific and managerial expertise and "units for action" already existed in all levels of government and in non-government organisations and

# The SOMER Message

## Five Principal Concerns

- declining water and sediment quality, largely as a result of inappropriate land use in coastal catchments;
- loss of marine and coastal habitat;
- unsustainable use of marine and coastal resources;
- lack of a marine science policy and therefore lack of long-term research and monitoring;;
- lack of strategic and integrated planning in management and use of coastal and marine environments.

## Key Habitats

**Estuaries:** these high productivity, critical habitats are under serious threat in eastern and southern regions.

**Seagrass beds:** are vital habitats, but losses in temperate areas are occurring at an alarming rate.

**Shores:** usually are not well protected.

**Temperate reefs:** have high diversity and endemism, and high economic and conservation value, but general status and knowledge of these systems is unknown.

**Coral reefs:** increased nutrient levels from coastal run-off is a serious threat on the east coast.

**Mangroves:** there have been significant losses around urban areas, and only 8% of mangrove habitats are protected.

**Sea floor:** most of the 15 million square kilometres of Australia's continental shelf sea floor are not managed and its communities are unknown; the small areas that have been studied have shown high diversity and endemism; significant threats are from trawl damage, overfishing and sedimentation.

## Fisheries

Our oceans have relatively poor productivity, with an annual yield of 200 000 tonnes; 10% of our fisheries are overfished, 20% are fully exploited, and the status of 60% is unknown.

## Major Impacts

**Coastal alteration:** coastal engineering structures and strip development are most problematic.

**Pollution:** eutrophication from poor land use is the single greatest problem, but there is also significant pollution by heavy metals, hydrocarbons, organochlorines and litter.

**Introduced species:** introductions through ballast water are a principal concern.

**Overfishing:** several major resources are overfished and are thus not managed on a sustainable basis.

## Extent of Basic Knowledge

Basic knowledge as fundamental as species inventories is lacking for many habitats, particularly in temperate and offshore regions; knowledge of ecological processes is poor in general; basic knowledge of 60% of commercially fished species is lacking.

universities, but that these nodes needed to be connected into a different framework. Administrative structures need to be redefined to avoid duplication of effort and conflicts of demarcation, and to ensure cooperation in a spirit of trust and common purpose. Legislative measures are necessary to give teeth to a national coordinating body and legs to effective communication and information flow among all stakeholders. There needs to be support, catalysis and coordination of multidisciplinary science to address a range of difficult questions necessary to establish appropriate indicators, monitoring programs and adaptive management strategies. All of these measures will be demanding of resources but, it was emphasised, they are realistic and imminently attainable given the key ingredient of political will.

## Reaching a Consensus

One of the most significant and positive results of the conference was the commonality of purpose among delegates and unanimity in deriving conclusions. The concordance is

noteworthy given the great diversity of interest groups represented, among whom highly polarised polemics have historically been a common characteristic in debating environmental issues. The concordance can be ascribed to a unified vision for Australia's marine environment that underpinned the needs of all interest groups. This unifying conception was that into the indefinite future, Australia's marine environment should:

- be ecologically healthy and maintain biodiversity and ecological processes;
- sustain multiple use that does not compromise its integrity;
- be managed by knowledge-based decision making that is cautious where knowledge is incomplete;
- benefit from an informed and committed community.

On a broader scale there is also strong commonality in many of the recommendations from The Marine Environment Conference, the Ocean Outlook congress in October of 1994 (which was a meeting of senior scientists and marine industry representatives) and from the Resource

Assessment Commission's report on the Coastal Zone. Given the small overlap in the composition of these groups, the combined breadth of their representation and, in particular, the consistency in their separate messages, it would seem folly if the relevant ministers and departments, especially in Canberra but also at the state level, did not heed their recommendations. Paramount is the call for immediate action, the establishment of a national coordinating body for marine management, the development of national policies for marine science and marine conservation, and a management process that explicitly incorporates coastal catchments.

*Craig Johnson is a Senior Lecturer in the Zoology Department and School of Marine Science at the University of Queensland, was co-convenor of The Marine Environment Conference and is President of the Australian Marine Sciences Association. A complete account of the findings and recommendations of The Marine Environment Conference will be available late in April and can be obtained by writing to The School of Marine Science, University of Queensland, QLD 4072.*



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