# Coastal management in Australia:
# Key institutional and governance issues for coastal natural resource management and planning

A collection of essays on the key institutional and governance challenges and issues for integrated coastal planning and management in Australia

# OVERVIEW

## Purpose

This monograph is intended to provide a synthesis of the key challenges and issues for coastal planning and management in Australia. It is a joint publication between the Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management (the Coastal CRC), the Centre for Resource and Environmental Studies at the Australian National University and the National Sea Change Taskforce. The focus is on institutional arrangements for coastal management.

Participating authors were asked to provide an overview of key issues surrounding a particular aspect of institutional arrangements for coastal management rather than a comprehensive review and analysis of coastal planning and management and were asked to frame their essays along the following themes.

- How much do we know about pressure on existing institutions?
- What can we learn from existing institutions?
- What are the outstanding challenges?

This monograph has been developed to be used in a number of ways:

- To inform delegates attending the National Sea Change Taskforce conference in April 2006, specifically in the Governance theme discussions
- To guide discussion on the development of terms of reference for a potential national-scale review of institutional arrangements for coastal management in Australia
- To inform delegates attending Coast to Coast 2006, Australia's national coastal conference, in Melbourne in May 2006
- As a resource guide for coastal management professionals in Australia and internationally.

## Timeline

The draft monograph was distributed to participants attending the Sea Change 2006 Conference held in April in Port Douglas. Following the conference, authors were provided with a copy of the proceedings from the governance workshop and given an opportunity to incorporate this new information in their essays. The final draft was peer reviewed after the Coast to Coast Conference in May 2006.

## Acronyms

The following acronyms are used in this book.

| | |
|---|---|
| ALGA | Australian Local Government Association |
| ALP | Australian Labor Party |
| AVCA | A Vital Coastal Australia (proposed CSIRO research program) |
| C2C | Coast to Coast (Australia's national coastal conference) |
| CERF | Commonwealth environment research facilities |
| COAG | Council of Australian Governments |
| CRC | Cooperative Research Centre (in this context refers to the CRC for Coastal Zone, Estuary and Waterway Management) |
| CSIRO | Commonwealth Scientific and Industrial Research Organisation |
| CZAP | Coastal Zone Asia Pacific |
| CZMA | (US) Coastal Zone Management Act 1972 |
| DEST | Department of Education, Science and Technology |
| EIA | Environmental impact assessment |
| ESD | Ecologically sustainable development |
| GCCC | Gold Coast City Council |
| GCSMP | Gold Coast Shoreline Management Plan |
| HORSCERA | House of Representatives Standing Committee on Environment, Recreation and the Arts |
| HORSEC | House of Representatives Standing Committee on Environment and Conservation |
| ICAG | Intergovernmental Coastal Advisory Group |
| ICASA | Issue, context and stakeholder analysis |
| ICM | Integrated coastal management / Integrated catchment management |
| ICOLL | Intermittently closing and opening lakes and lagoons |
| ICZM | Integrated coastal zone management |
| LGA | Local government authority |
| LGTA | Local Government Training Authority |
| MCCN | Marine coastal community networks |
| MHWM | Mean high water mark |
| NAP | National Action Plan (for Salinity and Water Quality) |
| NGO | Non government organisation |
| NHT | Natural Heritage Trust |
| NHT1 | Natural Heritage Trust, Phase 1 (1996–2002) |
| NHT2 | Natural Heritage Trust, Phase 2 (2002–2008) |
| NOAA | (US) National Oceanic & Atmospheric Administration |
| NRM | Natural resource management |
| NSW | New South Wales |
| OCS | Offshore Constitutional Settlement |
| PMT | Postglacial marine transgression |
| Qld | Queensland |
| RAC | Resource Assessment Commission |
| SCCG | Sydney Coastal Councils Group |
| SEA | Strategic environment assessment |
| SEPP | State Environment Planning Policy |
| SEQ | South-east Queensland |
| UDIA | Urban Development Institute of Australia |
| UNCED | United Nations Conference on Environment and Development |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UTS | University of Technology, Sydney |
| WA | Western Australia |
| WSSD | World Summit for Sustainable Development |

# EXECUTIVE SUMMARY

This monograph comes at an interesting time for integrated coastal zone management (ICZM) in Australia. This year has seen the endorsement of a national implementation plan for ICZM (Framework for a National Cooperative Approach to Integrated Coastal Zone Management, Commonwealth of Australia, 2006), which has intentions for an integrated and strategic approach to coastal planning and environmental management. In 2006 we also witnessed the demise of the Coastal CRC. Uncertainty, climate change and risk continue to grow as key concerns. Pressure on coastal resources continues—population increases in coastal areas are forecast with no apparent slowdown; development pressure remains high in many coastal and associated hinterland areas and the decline of coastal resources in many areas is ongoing. Now, more than ever, the community and key stakeholder groups expect a greater role in coastal planning and management.

> *Everybody wants access to the coast. The … coast is where people want to live, do business, create development and where people want to recreate* (Holliday 1998).

While we recognise that governments at all three levels, and their many partners, have initiated welcome and positive policy and management programs in recent years, there is widespread agreement, including by the authors herein, that much more needs to be done.

One of the major challenges for natural resource management (NRM) more generally and ICZM specifically is being able to keep up with growing pressures, through ongoing reforms of institutional arrangements and coordination across jurisdictions, applying improvements in practice and lessons from experience.

The papers in this monograph cover a range of issues related to institutional arrangements for ICZM. This has been a topical issue for decades. The intention of the monograph is to document a snapshot and range of perspectives on current ICZM arrangements in order to progress discussion about the strengths, weaknesses, opportunities and threats to ICZM in Australia. In compiling this monograph we sought to question whether a comprehensive review of ICZM arrangements in Australia is required, and if so, to provide a starting point for such a review.

While the papers are deliberately brief, they nevertheless provide a detailed synthesis of the key issues and challenges for ICZM in Australia. The overwhelming argument across the essays is that the current institutional arrangements, governance and learning systems simply are not able to deal with the complexities of ICZM. Each of the essays approaches this from a different angle and the authors provide some suggestions for moving forward.

One of the key challenges in pulling together a collection of essays such as these is establishing the institutional context and collective understanding among authors for the task at hand. Part of this challenge has been a discussion about terminology. Institutions, and organisations recognisable and persistent enough to be thought of as institutions, are the 'rules of the game' whereby human interactions are governed and moderated and manageable transactions (economic, social, cultural, etc.) made possible (Goodin 1996; Connor & Dovers 2004). Suggestions for 'institutional reform', such as for regional resource management bodies, are in fact organisational revisions that must be viewed against the institutional system in which they sit, in the regional case including statutory settings, constitutional powers of resources vested in the states, control of key information flows, etc.

There has also been debate about use of the term integrated coastal zone management (ICZM) rather than integrated coastal management (ICM). Cicin-Sain and Knecht (1998) and Burbridge (1999) note that there has been a major change in emphasis away from coastal 'zone' or 'area' management towards 'integrated' coastal management. Cicin-Sain and Knecht in their key text on coastal and marine management adopt the term ICM. In a major review of the coastal management literature Sorensen (1997) distinguishes between ICM as a concept or field of study and ICZM as a program that has the task of defining the boundaries of the coastal 'zone'. On balance it appears that although the use of the term 'zone' was originally intended to be flexible, it can also be interpreted as prescriptive if the identification of boundary conditions mitigate against the need to integrate across them. For this reason, the use of ICM is becoming more acceptable and common in the literature. In Australia, however, the term ICM more commonly refers to integrated catchment management, an older, more widely used and recognised term. For the purposes of these papers, which have an Australian focus, we have chosen to use the term ICZM and ask that you interpret our use of this term as open rather than prescriptive.

In Essay One, Dovers focusses on institutions for ICZM and draws on experiences from other policy domains to provide guidance on progressing ICZM. He suggests that the key challenges for institutional development for ICZM are similar to those in other fields. These are as follows:

- institutional settings that allow the integration of environment, social and economic policy;
- coordination, policy development, information sharing and planning across jurisdictions;
- persistent evolution of institutional and policy approaches over time—the 'supra-electoral' capacity needed for long-term challenges;
- timely, integrated, robust and accessible information to guide the policy community, and the institutions and human capacity to create and distribute it;
- sustained participation by civil society and industry in higher-order policy formulation and evaluation (not only in on-ground management); and

- integration of coastal management with other key policy sectors such as transport and planning.

In Essay Two, Kay investigates the international ICZM scene to see what lessons are available for developing consistent practice in Australia. Kay provides a brief global review of ICZM with a view to identifying best practice and then introduces case studies from the Philippines and the USA. He argues that there are international benchmarks that will aid in development of consistent approaches for the sustainable management of the coastal zone at an Australia-wide scale and encourages a structured analysis of international practice to address these issues.

In Essay Three, Fearon, Wulf and Baird outline the range of international institutional arrangements that affect ICZM in Australia. In Australia, coastal management is fractured by commonwealth, state, regional and local government responsibilities and there is no coordinated coastal legislation or coastal policy but rather a complex mix of legislation, plans and policies. The authors conclude that there is a clear obligation on Australia to protect the habitats of the marine and aquatic-coastal ecosystems from direct threats and from pollution sourced from the land. With notable exceptions, there is little support for a direct obligation to manage the terrestrial resources of the coast unless they may impact on the marine environment. Key recommendations to come from this essay are as follows.

- An integrated or 'ecosystem' approach to management of the complex land–coast–sea continuum is essential and must encompass entire coastal catchments and their inhabitants.
- The elements of integrated coastal management deserve special attention in a federation like Australia where complexity is increased by the size, diversity and small, clumped population of the coastal zone.
- Even though the focus of Australia's obligations for coastal management are on the ecology of the marine environment; there is an urgent need to consider socio-economic aspects of coastal management as these are the key drivers of degradation of coastal and marine systems.

In Essay Four, Wescott discusses the role that the federal government might have in implementing integrated coastal management in Australia. The Australian Constitution and Offshore Constitutional Settlement leave state and territory governments with the responsibility for the coastal zone that includes private and public land and coastal waters. So, Wescott asks, is there a role for the federal government and what should it be? The author argues that because of the critical economic, social and ecological importance of the coast to the nation as a whole, there is a role for the federal government in implementing ICZM in Australia. Wescott proposes a strategy to progress the national discussion on coastal policy, which involves the development of a National Coastal Council whose responsibility would be to recommend the most appropriate level of government to deal with these major issues and solutions and to propose mechanisms for the federal funding of these solutions. The author states that

this proposal has some common elements with the existing national framework but its substantial difference is that it suggests a mechanism for implementing changes that is not bureaucratically based but which rests at the level of government (federal, state or local) that can most effectively and efficiently deal with that specific issue.

In Essay Five, Stuart, Withycombe and McGrath investigate barriers and opportunities for local government in coastal management and planning on the Gold Coast and in Sydney. The authors discuss the management issues and opportunities facing both regions and the need for good science, policy and program design to be complemented by management and institutional arrangements. One of the major concerns for local government is the reduction in federal and state-based funding for integrated coastal zone management and local government's common exclusion from the Natural Heritage Trust/National Action Plan (NHT/NAP) process. The authors conclude that while there have been significant improvements in ICZM, local government appears to have been marginalised from the national ICZM debate.

In Essay Six, Low Choy argues for maximum local government involvement in coastal environmental and natural resource management. Low Choy states that local government can successfully operate at the regional scale in collaborative planning and management arrangements and is well supported by existing and proven planning and administrative frameworks which positions it well to implement their share of the regional NRM agenda. Importantly, local government cannot and should not operate in isolation and vertical and horizontal collaborative ventures should be encouraged with local government, at the same time that capacity enhancement occurs for specific NRM aspects. Collaborative local government arrangements, whereby local government acts to address regional environmental infrastructure requirements, Low Choy argues, can result in a number of regional scale outcomes that safeguard and improve the condition of the coastal region.

Essay Seven by Wimbush discusses the bilateral NHT agreements between the eight states and territories and the Australian Government that were signed between December 2002 and June 2004. The agreements provide for cooperative regional delivery of natural resource management (NRM). For coastal regions this includes the regional delivery of coastal and marine NRM. This paper explores the governance arrangements behind the regional delivery model and considers some of the key issues raised in integrating catchment with coastal and marine management and planning. Wimbush discusses the difference in delivery models between NHT1 (1996–2002) and NHT2 (2002–2008) and provides some insight into how coastal and marine issues have been included in the regional delivery model. A number of recommendations, including a better way to include local government in the process, are made for possible areas of improvement.

Essay Eight by Oliver and Whelan presents finding from a study that investigated the role of 'regional bodies', institutions central to the current regionalisation of

community-based NRM in Australia and community-based, voluntary NRM in the coastal zone. The authors provide a summary of the pressures on relationships between these institutions and voluntary, collaborative grassroots NRM and conservation groups, based on the results of three years of case study research (2003–2005) in coastal catchments of south-east Queensland. This case study research was supplemented by a Queensland-wide desktop study. The concepts of power and culture are seen as fundamental to these pressures and two tools are presented to meet the challenges their resolution presents. The first is a normative model for collaboration. The second is a monitoring and evaluation framework for collaborative arrangements. The authors describe how these tools could also serve as a basis for dialogue between all parties (government and non-government) involved in voluntary, community-based coastal NRM—a dialogue that focusses on the nature and culture of collaboration and the distribution and use of power in collaborative relationships in NRM.

Essay Nine by Lazarow discusses the role of community in ICZM in Australia. Lazarow argues that there is a growing body of evidence to suggest that many of the significant gains in coastal resource management and protection have been achieved outside of the traditional political and institutional management frameworks, rather than through improved formal governance or institutional arrangements for ICZM. While the formation of a National Coastal Council or similar entity might be an ultimate goal, Lazarow recommends some near-term goals that with adequate attention will improve ICZM in Australia over time. These include:
- mechanisms to rationalise legislation and programs to take better advantage of community and institutional capacity, and
- focussing attention on the value of partnerships, including strategies for ongoing post-policy partnerships.

In Essay Ten, Harvey examines the concept of strategic assessment and ICZM and its implications for capacity building in Australia. Harvey discusses gaps in science, policy, planning and capacity (especially at the local government level) and how these issues cumulatively impact on coastal resources and our ability to manage them in a sustainable manner. Harvey states that while all levels of government have made improvements in the past decade, there is still much work to be done. He suggests that strategic environmental assessment may have a role as a mechanism for assessing major developments which are often removed from the normal planning system and that there is an ongoing role for regional communities and groups such as the Sea Change Taskforce to maintain pressure on governments to deliver improved policy and management.

In Essay Eleven, Smith and Smith examine adaptive management as an operating tool for ICZM. The authors contend that while there are exceptions, coastal research and management frameworks continue to be dominated by issue-specific focusses, with little innovation in the mechanisms to build long-term management capacity and create

a social culture of sustainability. They argue that a commitment to social learning must underpin the collaboration, appropriate management frameworks and policy development necessary to advance coastal management in the longer term.

In Essay Twelve, Souter and Fearon draw on the experiences of a national coastal research centre to examine the impacts of current institutional arrangements for ICZM on research to support ICZM. The authors argue that current ICZM arrangements impact on (i) the identification of priority (national) research to underpin ICZM in Australia; (ii) the conduct of research, in particular on integration and collaboration; and (iii) the use of coastal research and its transformation into knowledge for coastal managers. They suggest that meeting the following needs would significantly improve research for ICZM: (i) nationally-focussed, broad-based stakeholder input to developing research priorities in the immediate future; (ii) adequate resourcing of integrated and collaborative approaches, achieving synergy among Australia's coastal management and research expertise; and (iii) synthesis and sharing of information for greater knowledge exchange within and between research and management arenas.

Essay Thirteen by Thom and Lazarow provides an examination of the impact and consequences of human activities on coastal environments over the past 200 years and how these lessons will assist decision-makers today and in the future to address problems of environmental sensitivity and land-use compatibility. The authors write that contemporary policies (i.e. post 1990) reflect the need to provide for ecological sustainable development as enshrined in legislation; however, in view of resource management conflicts within the confines of an evolving federal–state legal system, the resolution of such conflict will involve political decisions. There are many lessons from past 'mistakes' in land and water use in Australia. Into the future, we will need to understand and adapt to changing biophysical systems so that we can more effectively manage and plan for improved environmental, economic and social benefits.

The essays in this monograph identify a range of issues across the coastal NRM landscape that need to be addressed. Another fundamental set of issues, that of non-NRM coastal issues such as infrastructure planning, was discussed by delegates at the inaugural National Sea Change Taskforce conference held in Port Douglas in April 2006. Natural resource and environmental management are poorly connected with other policy sectors of critical importance to the health of the coast, such as urban planning, infrastructure provision, transport, and so on. There is broad agreement among coastal planners, bureaucrats and politicians that any approach needs to be adaptive in form and function and based on a triple bottom line basis, where environmental, social and economic issues are properly integrated in policy and planning.

Delegates at the national sea change conference considered two questions during discussions within the governance sessions of the meeting:

- What are the key issues and needs, and possible institutional reforms to address them? and
- Is there a need for a national-scale review of governance and institutional arrangements for the coast and, if so, what might it look like?

A full copy of the proceedings from the governance workshop at the sea change conference is included as Appendix 1 in this monograph; the main points of discussion are summarised here.

On the first question of institutional issues, needs and reforms, the essays in this monograph, as well as the proceedings from the governance workshop at the sea change conference, articulate four issues that could be resolved by institutional adjustment or reform and stand out as critically important. These are detailed in Appendix 1, but briefly are:

- knowledge and information (refer to the essays by Dovers, Kay and Stuart *et al.*);
- integration and coordination (refer to the essays by Dovers, Fearon *et al.* Harvey, Lazarow and Thom and Lazarow);
- consistency (refer to the essays by Dovers, Fearon *et al.* Harvey and Thom and Lazarow); and
- persistence and continuity (refer to the essays by Dovers, Harvey, Lazarow, Smith and Smith and Wescott).

In response to discussion of these four issues at the sea change conference, three broad actions were identified that would assist significantly in addressing them. These are:

- realising the potential of strategic planning;
- informing consistency across boundaries; and
- integration through regional initiatives.

Strategic planning—whether at local, regional or national scale—is the key process where the integration of environmental management, development planning, social services and infrastructure should occur and where responses to change are best developed. The collation and communication of best practice models and examples would assist local authorities by providing a range of operational options from which the most appropriate could be selected or adapted. The regional scale has significant potential as the most appropriate scale at which to pursue many of the challenges of integration; however, choice of regional boundary and the structure and process used will vary according to the region itself and the policy area being addressed. The essays by Harvey, Smith and Smith, Stuart *et al.* and Thom and Lazarow provide further discussion on these issues.

On the second question of the need for a national-scale review of governance and institutional ICZM arrangements, the group discussion at the sea change conference concluded that "more than a decade since the Resource Assessment Commission's overview, and given the widely perceived and often demonstrable fragmentation, overlaps, complexity and lack of coordination in coastal policy and management, it is timely and important to undertake a broadscale review of governance and institutional settings for the coast." It is commonly accepted that the Australian Government does have an important role in implementing ICZM in Australia because of the critical economic, social and ecological importance of the coast to the nation as a whole. Nevertheless, there is a crucial role for organisations like the National Sea Change Taskforce and the Australian Coastal Society both to act as watchdogs and also to commission new research and share knowledge.

Further, the terms of reference for the review were summarised as: "a review would describe the current situation, identify areas where improvements are needed and possible, and develop options for improvement for consideration by governments and stakeholder groups."

The essays by Lazarow and Dovers in particular summarise lessons from other domains and review the recommendations from previous reports and inquiries, and the Wescott essay takes an old model—that of a National Coastal Council—and breathes new life into this concept as a means to take things forward. The review should engage all levels of government, regional organisations, NRM regional bodies, community stakeholder groups, industry, relevant research organisations and experts and draw on expertise both in coastal management and in institutional and policy coordination in federal systems. Importantly, we need to look to international experience and policy to advance our own body of knowledge and governance arrangements, and the essays by Kay and Fearon *et al.* provide some key lessons from the international domain.

The proposed terms of reference for a review of institutional and governance arrangements for ICZM in Australia are further described in Appendix 1, along with a potential approach for such a review.

The final inclusion in the monograph, at Appendix 2, is a reprint of papers presented by Fearon and Lazarow at 'Coast to Coast 2006', Australia's national coastal conference, held in Melbourne in May 2006.

**Editors' concluding remarks**

The cumulative impacts of our actions have had significant and lasting effects on the world around us. We live at a time when there is strong evidence to suggest our natural systems have been heavily loaded and ecosystem carrying capacity is under significant threat. There is international consensus on climate change, although still a degree of uncertainty about what some of these impacts might be. If we are to continue to grow our coastal populations, as demographic evidence suggests will happen, then serious attention needs to be given to planning, policy development and operationalisation as well as post-policy partnerships.

The contributions to this monograph provide a catalogue of issues surrounding existing and past institutional arrangements for coastal management from an Australian perspective. This comes at a time when arrangements for coastal planning and management nationally require much more attention than they are currently receiving. There seems little doubt that ICZM is a beneficial approach to managing the coast and is achievable. Furthermore we have an obligation to strive for it, and there is evidence that we are not adequately achieving it. There are both strong and weak elements in the current arrangements; this review identifies many of these and recommends strategies to overcome the gaps and weaknesses.

ICZM needs to pay particular attention to managing people and their impact on the environment. To date, not enough emphasis has been placed on some of the political, economic and social drivers of change that are putting pressure on the coastal zone or the positive impacts that a well-informed community and bureaucracy can have on ICZM outcomes. The collective knowledge and experience of many of Australia's leading ICZM experts, drawn from industry, government and the community sector have contributed to the discussions in this monograph and the overwhelming opinion is that our greatest opportunities lie in progressing:
- strategic planning,
- investing in human capital (e.g. education and professional capacity), and
- a clear articulation of responsibilities

There is much progress to be made before ICZM is adequately achieved in Australia, and much effort required in getting there. This document provides a starting point for a comprehensive overhaul of institutional arrangements for coastal management in Australia. We hope the proposed review of institutional and governance arrangements for ICZM in Australia will proceed with some urgency, as it offers the greatest hope for an improvement in ICZM outcomes.

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# CONTENTS

# INSTITUTIONS FOR ICZM: INSIGHTS FROM ELSEWHERE

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## Abstract

This essay scans the field of policy processes and institutional settings for resource and environmental management and sustainable development, as background to considering integrated coastal zone management (ICZM). Key challenges for institutional development are similar in ICZM and other fields:

- Institutional settings that allow the integration of environment, social and economic policy
- Coordination, policy development, information sharing and planning across jurisdictions
- Persistent evolution of institutional and policy approaches over time—the 'supra-electoral' capacity needed for long-term challenges
- Timely, integrated, robust and accessible information to guide the policy community, and the institutions and human capacity to create and distribute it
- Sustained participation by civil society and industry in higher-order policy formulation and evaluation (not only in on-ground management).

## Introduction

Other essays here are specific to ICZM; this essay scans a broader realm of experiences with institutions and other policy sectors because:

- Institutions are fundamental to joint human endeavours. Societies have always created, benefited from, destroyed, protected and abused institutions. We should consider that history.
- Institutional development for coastal zone management has been topical for decades, but there is a perceived lack of achievement. Why?
- While the coastal zone has particular features, the institutional challenge is not so different from elsewhere. Integrated catchment management, public health, emergency management, community development and regional planning, etc. may offer insights.
- Above all, ICZM is where a range of important other sectors come together to produce environmental, social and economic outcomes, and thus coastal management needs to be knowledgable about and coordinated with these other sectors. Key among these are planning, infrastructure, housing and urban development, transport, water and energy.

This essay identifies such insights via *three questions*: what are the key attributes of the problem of creating institutional settings for the coast; what is the nature of institutions and institutional change; and what might we learn from other policy sectors?

## What's the problem?

ICZM is a subset of sustainable development (or ESD), deeply connected to other subsets—policy sectors such as catchment management, environmental planning, urban and regional development, biodiversity and transport and infrastructure planning. Those connections suggest that ICZM can be considered in terms of what we know about challenges in sustainable development, and what can be learned from related sectors. The policy agenda of sustainable development has been defined in numerous international and national policies and in hundreds of Australian statutes, as follows:

- a pattern of economic and human development that does not damage the opportunities for future generations to use natural resources and enjoy a healthy environment, while allowing for human development goals to be met in the near term;
- emphasis on major social goals, including:
  - š˙ the importance of biodiversity and ecological life support systems;
  - š˙ considering environment and development in an integrated manner;
- guiding principles for policy-making:
  - š˙ factoring in both short-term and long-term considerations;
  - š˙ integrating environmental, social and economic concerns in policy-making;
  - š˙ precautionary measures in the face of possible serious environmental degradation;
  - š˙ considering global implications of domestic policy directions;
  - š˙ utilising innovative policy approaches (participation, institutional change, markets)
  - š˙ involving communities in decisions and actions that affect them.

These principles define the challenge of ICZM well—integrating policy and management across jurisdictions and sectors; combining environmental, social and economic policy processes with special attention to critical environmental assets; managing for the long-term; using innovative policy approaches; and undertaking policy and management in a participatory fashion. No small task! Such objectives and principles have not been plucked out of the air, but reflect engagement and experience with the nature of the challenges over a considerable length of time. The *underlying attributes of policy problems in sustainability*, including in ICZM, have informed definition of the principles of sustainable development (Table 1).

*Table 1: Attributes of policy problems in sustainability* (Dovers 2005)

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|---|---|
| 1. | Broadened, deepened and variable spatial and temporal scales, requiring research, policy and management responses coordinated across disciplines, jurisdictions and policy sectors, and over time scales much longer than typical economic and political cycles |
| 2. | Possible absolute ecological limits to human activities, and threshold effects where incremental pressures on the environment may produce sudden shifts |
| 3. | Often cumulative rather than discrete environmental impacts of human activities |
| 4. | Irreversible impacts, and related policy urgency and high stakes |
| 5. | Complexity within and connectivity between problems, both within and across the three arenas of environment, society and economy |
| 6. | Pervasive risk and uncertainty, and a lack of or poor quality information |
| 7. | Moral dimensions (non-human species, future human generations), and multiple interests and values |
| 8. | Systemic problem causes, embedded in patterns of production, consumption, settlement and governance |
| 9. | Lack of available, uncontested research methods, policy instruments and management approaches |
| 10. | Key resources not traded in formal markets and thus not assigned economic value |
| 11. | Poorly defined policy, management and property rights, roles and responsibilities |
| 12. | Typically, a mixture of public and private costs and benefits |
| 13. | Strong demands for community participation in both policy formulation and on-ground management |
| 14. | Novelty as a suite of policy problems, only formally defined in policy agendas in the past two decades |

Recognising these attributes prompts two claims. First, problems in many other policy sectors (e.g. service delivery) do not display these attributes as commonly, especially not in combination—sustainable development (and ICZM) represents a problem set *different in kind* to the problems around which our institutional, policy and professional capacities have been defined. ICZM is difficult and complex, and requires innovative strategies within different institutional settings.

The second is that ICZM shares challenges with other policy domains such as those already mentioned. Challenges that have bedevilled ICZM for many years have been confronted in other policy sectors—policy integration within and across jurisdictions, experiments with participatory processes, constructing composite environmental indicators, etc. Recognising 'cognate sectors' expands the volume of relevant information, and emphasises the scale and importance of the problems and the need for purposeful responses.

In coastal planning at regional scale, what can we learn from 30 years of integrated catchment management in terms of preconditions for regional capacities? Or from the patchy history of strategic planning across local government areas? With participatory processes, what can be learned from the (largely non-coastal) Landcare movement, or from the shift in emergency management to community risk management? When considering the application of property rights approaches to resources, can we learn from long-standing market-based policy regimes in fisheries, or more recent ones in water? The lessons available may be positive or cautionary, specific or general, easily or not easily transferable, but when confronted by a challenge beyond our capacity thus far, the more sources of relevant information the better.

## What are institutions?

'Institutions' are considered crucial to sustainable development and ICZM. Yet much discussion leaves the term vaguely defined. The following definitions clarify what is being discussed, needs to be examined, and may need to change (Dovers 2005):

- *Institutions* are persistent, predictable arrangements, laws, processes or customs structuring the political, social or economic transactions and relationships in society, and may be informal or formal. They allow organised, collective efforts. Although persistent, institutions constantly evolve.
- *Institutional system* conveys that it is limiting to concentrate on single institutions, which are embedded in complex systems of many institutions, organisations and actors.
- *Organisations* are manifestations of institutions (e.g. departments, associations, agencies). Some organisations may be persistent and influential enough to be regarded an institution.
- *Policies* are positions taken and communicated by governments—'avowals of intent' recognising a problem and saying what will be done—produced through multi-component and variable *policy processes* and implemented through *policy programs*.
- Policies are influenced by multiple *policy actors*. Around any issue there is a *policy community* (all involved in policy discussion) within which a smaller *policy network* controls policy formulation. Within that network, 'policy-makers' or 'decision-makers' have *responsible authority*—the legal competence to make formal decisions.
- *Policy instruments* are 'tools' used by governments in partnership with other players to implement policies and achieve goals (e.g. regulation, education campaign, tax).
- *Management* is actions taken 'on-the-ground', implementing policy instruments and tangible actions.

ICZM is a management regime defined and directed by broader policy and organisational settings, in turn influenced by the prevailing institutional system.

What makes an institution 'successful', in terms of longevity, power and effectiveness in pursuing its purpose and aims? From work in institutional theory and design, five 'design principles' can be proposed (from Goodin 1996):

- revisability, or being capable of change;
- robustness, but not being liable to change too swiftly or unthinkingly;
- sensitivity to complex motivations of individuals and groups;
- being publicly defensible in a political sense;
- variability, or experimentation with different structures in different places.

These characteristics may appear obvious, but many suggestions for and actual institutional reforms are not consistent with them. A further characteristic is 'goodness of fit' within its political context—obvious, but this raises a paradox. The causes of sustainability problems lie deep in patterns of production and consumption, settlement

and governance and the institutional system that evolved with and supports those patterns. Organisational strategies or policy experiments that do not 'fit' will not persist or will have little effect, unless supported by very strong interests (ICZM has not such support). But if they 'fit' too well, they will not change the status quo that shapes our interactions with our environment and is a product of thinking when sustainability was not topical. The answer for ICZM is institutional mechanisms (i) *pragmatic* enough to be implemented, and (ii) *radical* enough to drive change.

## What can we learn from elsewhere?

There has been much discussion and institutional change for sustainable development, in many countries, at different political scales, dealing both with the 'total' sustainability problem and subsets of it. This section presents principles from three research projects which combined theoretical and empirical work aimed at informing Australian discussions, respectively:[1]

- a review of international policy and institutional reforms (Connor & Dovers 2004);
- a 30-year review of Australian resource management (Dovers & Wild River 2003); and
- an analysis of Australian regional resource management experiences (Dore *et al.* 2003).

The first stressed the difficulty of the challenge—sustainable development as a higher-order social goal, and the time and persistence required for institutional change. It identified international cases that while not yet able to be judged as 'successful', are believable and allow distillation of principles of institutional change, organised under two headings:

**Problem reframing**, relevant to formulating a widely understood and coherent social construction of the sustainability problem:

- *Institutional accommodation of the sustainability discourse.* Sustainable development is a complex and contested idea, not fully understood or endorsed in policy and general communities. Such understanding takes time, so ongoing discourse is required and needs to be encouraged and maintained especially by governments through creation and maintenance of conducive institutional arrangements and policy-oriented networks.
- *The role of normative change.* Policy and institutional change for sustainable development begs acceptance by a sufficiently large part of the populace, implying widespread normative change. If proposals for institutional change are inconsistent with community norms, successful reform is unlikely.
- *The role of legal change.* Constitutional documents, statutes and common law are crucial to lasting institutional change. Such change must include supportive legal

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[1] The research was supported by Land & Water Australia's Social and Institutional Research Program.

change (e.g. statutory expression of sustainable development principles, requirements for implementation strategies).

- *International (and national) law and policy and drivers.* The international level has driven the sustainability agenda, but implementation has been addressed largely at national and subnational levels. Close examination of such implementation can inform maintenance of the agenda, communication of experiences in institutional change, and comparison between leaders and laggards to enliven debate and reform.[2]

**(Re)organising government**, to inform the organisational logic of sustainability in the landscape of public policy and organisations:

- *Integration of policy and practice.* Integration (ecological, social, economic) is crucial to sustainability, and requires sustained development of policy processes and standards (e.g. structural reform of government, law reform, strategic assessment, regional planning).
- *Subsidiarity*. Policy responsibility should reside at the most effective and appropriate level, for political (democratic), administrative (efficiency) and substantive (the nature of sustainability problems) reasons. In the case of sustainable development, where most issues must be handled at multiple scales, this requires flexible implementation.
- *Reiteration.* Sustainability is a long-term project undertaken in the face of uncertainty about environmental and social conditions and effective policy strategies. Responses will involve reiteration of problems and responses, and unless such capacity is designed into institutional and policy systems, *ad hocery* is likely.

These principles are general, perhaps obvious, even commonsensical, but institutional strategies for sustainable development (and ICZM) that adhere to them are not common. Why?

In the Australian project coherence was sought through five attributes of adaptive policy, institutions and management, identified from previous analyses, institutional theory and adaptive management (Dovers & Wild River 2003):[3]

- *Persistence*, or time for policy and institutional 'experiments' to be run and lessons gained;
- *Purposefulness*, through a widely recognised set of core policy principles (e.g. continually evolving principles of sustainable development or ESD);
- *Information-richness and -sensitivity*, referring not only to information gathering but to its wide ownership and application;

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2  One advantage of federal systems is that different policy experiments can be run concurrently. In Australia, such experiments are commonplace across many policy sectors, but careful lesson-drawing based on comparative policy analysis is less common.

3  Emerging from ecosystem management, *adaptive management* instructs that, faced with uncertainty, complexity and long time frames, policy and management interventions should be designed as testable hypotheses, implemented but monitored and learned from to drive continual improvement.

- *Inclusiveness*, through public participation in both higher level policy and on-ground management; and
- *Flexibility* to encourage adaptation and improvement, and so persistence and purposefulness do not develop into rigidity.

The conclusions of the study were mixed. Encouraging experiments at regional and local scales and advances in information capacity were balanced by *ad hocery*, weakening of key institutional advances, and countervailing trends such as populist politics, short-term policy cycles, and the impact of a dominant agenda of economic and public sector reform. The principles are useful rules of thumb, but more detailed analytical categories and design rules are needed.

One focus was regional organisations, which have a long past in Australia. Much current resource management is focussed at regional scale, as is much coastal policy. Remember that regional institutional arrangements—with or without the statutory reality some catchment management authorities enjoy—seek to achieve outcomes at a new, poorly-resourced administrative scale, against problems that have proved difficult for formal tiers of government. These problems cut across the divides between disciplines, professions, civil society groups, and agencies, and across divides of capacity and competence. Do not underestimate the difficulty of ICZM, or to communicate it clearly and compare the scale of the challenge with available resources.

From numerous case studies, the attributes of adaptive institutions and organisations summarised in Table 2 were identified. The principles are not prescriptive, but provide reference points for considering (i) the adequacy of existing institutional settings, and (ii) reformed institutional settings for ICZM.

*Table 2: Attributes of adaptive institutions and organisations (with special reference to regional, catchment and coastal scales)* (Dore *et al.* 2003)

| Attribute | Explanation |
|---|---|
| Purposeful mandate | Having an accepted vision and set of goals, and a matching mandate to pursue them (sustainability principles should form the basis of this) |
| Longevity | Sufficient longevity to persist, experiment, learn and adapt |
| Properly resourced | Sufficient human, financial and informational resources |
| Legal basis | A basis in statute law (or, less usually, customary or common law) ensuring transparency and accountability, and a higher probability of persistence |
| Independence | A degree of independence from short-term political pressures, thus not reliant on easily changeable mandate or resources |
| Informed and informing | Priority on information generation, use and ownership and long-term monitoring and evaluation, including ecological and socioeconomic information; policy monitoring; and multiple sources (scientific, community, traditional) |
| Multi-functional | Integration of research, planning, management and/or policy roles, so that these are not kept separate or poorly connected |
| Applied | An applied/grounded focus (e.g. region, issue or sector), to ensure that policy and management prescriptions are operational and evaluated |
| Integrative | Integrating environmental, social and economics aspects, and pursuing cross-sectoral, cross-problem and/or cross-cultural views |
| Coordinated and coordinating | Maintenance of linkages with other parts of the institutional system (policy processes, organisations, knowledge communities, etc.), in recognition of the interconnected nature of sustainability problems |
| Interjurisdictional (where necessary) | Cognisant of and capable of handling issues and human or natural processes cutting across spatial–administrative boundaries (local, regional, national) |
| Participatory | Participatory processes that are transparent, genuine, and maintained, appropriate to the context, choosing from a range of participatory options |
| Comparative | Ability and mandate to engage in comparative analysis across sectors, issues and methods (whether concurrent or sequential) |
| Experimental | Mandate and ability to experiment with approaches and methods, and to move across disciplinary and professional boundaries |
| Politically supported | Having political support at government, community and industry levels to enable establishment and favour persistence |

## Conclusion: what are the prospects?

The prospects for successful institutional reform for ICZM are similar to those in other parts of the sustainable development domain, and the key obstacles similar. The following are obstacles that recur across policy sectors, and for which institutional responses have been identified:

- Lack of institutional settings that allow integration of environment, social and economic policy. Suggested responses include: organisational strengthening at regional scales; strategic environmental assessment or sustainability assessment of policy proposals; statutory expression of sustainable development principles in other policy sectors; coordination within a jurisdiction (e.g. commissioners or offices of sustainability); and integrative decision support techniques.
- Lack of coordinated policy, information sharing and planning *across jurisdictions*. Coasts and settlement policy have not had much national coordination

(e.g. compared to water or forests). Ministerial councils, national summits producing policy agendas and the Council of Australian Governments (COAG) offer options within the present institutional system.

- Lack of purposeful evolution of institutions and policy—the 'supra-electoral' capacity to address long-term challenges. Fixations with 'sea change' aside, the underlying factors recommending an ICZM approach have been with us for decades—population growth, technology, urban development—yet *policy ad hocery and amnesia* continue: problems recognised, forgotten and reinvented, responses uncoordinated, lessons not learned, institutional change in fits and starts. Aspects of ICZM might be removed from day-to-day politics—information flows, reference to and appeal on the basis of sustainability principles, long-term targets, ongoing discourse, etc. Sunset clauses, statutory guarantees of rights and responsibility, long-term strategic planning, independence of organisations from government—there *are* ways to defeat short-termism.

- Lack of timely, integrated, robust and accessible information to guide the policy community, and the capacities to create and distribute such information.

- While public participation in decision-making is widely endorsed, participation by civil society in higher-order policy formulation and evaluation—as opposed to on-ground management—is patchy. Mechanisms for sustained engagement are needed, with sufficient longevity to develop partnerships and collaborative learning.

- Above all, ICZM demands connection with other policy sectors such as water, energy, transport, infrastructure provision, housing, planning and transport. If these do not take account of their impact on coasts, or if coastal management does not take notice of these sectors, the goals of ICZM will not be achieved. Whether this integration is pursued through the more traditional (but very rarely well done) vehicle of strategic (i.e. long-term) regional planning, or through newer approaches to sustainable development policy, the intent is the same. Other essays in this monograph deal with specific components of this overall challenge, such as those by Lazarow (public participation), Harvey (strategic policy assessment), Stuart *et al.* (coordination between local and state governments) and Wescott (the role of the Commonwealth)—the biggest issue is to find policy and management processes that not only attend these components but stitch them together in a coherent way.

There are other obstacles, and the responses cited are selected and not guaranteed of success. Much depends on the needs of the particular jurisdiction, the strength and purpose of implementation and the total impact of all policy and institutional measures. But we can say that we know some of the bigger challenges, and some institutional options.

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# INTEGRATED COASTAL ZONE MANAGEMENT: SOME LESSONS FROM INTERNATIONAL PRACTICE FOR DEVELOPING CONSISTENT PRACTICE IN AUSTRALIA

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## Abstract

Integrated coastal zone management (ICZM) principles and practices have become very well established on an international scale. The wealth of experience gained through their application in countries throughout the world provides a valuable resource for those involved in management of the coast. In the course of this essay I have presented a brief global review of ICZM implementation with a view to identifying best practice. Specifically, case studies from the Philippines and the USA are considered, focussing on mechanisms used to encourage consistency in coastal management. The conclusions presented here suggest that lessons learned from international comparisons and analysis, if undertaken judiciously, will provide significant value to the important work of groups such as the National Sea Change Taskforce. This will aid in the development of consistent approaches to sustainable management of the coastal zone at an Australia-wide scale.

## Introduction

The resolution of issues concerning the coast is often undertaken with a disciplinary bias. For example, urban planners see coastal urban centres as urban centres that just happen to be on the coast. The principles of their urban and regional planning discipline, they would argue, are universal despite the fact that the urban form is fundamentally shaped by the land/ocean interface. While managing coastal zones requires the attention of a plethora of specialists (including urban planners), the concept that a particular discipline can be applied to all geographic contexts must be balanced against the uniqueness of the coast and our relationship to it. This is where the globally accepted concept of ICZM is extremely useful.

ICZM is now widely recognised internationally and in Australia and has led to the development of an invaluable set of tools and approaches for managing coastal zones. ICZM essentially takes the opposite approach to the 'disciplinary universality' concept. ICZM practitioners view coastal lands and waters as unique and integrated places. These geographically-defined coastal areas, or coastal zones as they are often called, require uniquely tailored management and planning approaches (Kay & Alder 2005).

'Land' managers and 'ocean' managers are concerned with the area landward or seaward of the shoreline respectively. Conversely, according to the principles of ICZM,

coastal managers view the boundary between land and water as effectively the middle of the management area on which they are focussed. In this respect, the coastal manager transcends the traditional boundaries between the land and sea and adopts a more integrated approach to their management. In this integrated context, beaches, estuaries and wetland environments occurring in the land–ocean transition are seen to be encompassed within the coastal zone as opposed to being viewed as 'at the edge of the map'. Despite this more inclusive view of the coastal zone it is still crucial that management challenges associated with discrete land and ocean environments are recognised uniquely.

Development of the international practice of ICZM over the past 30 years has stemmed from concerns that the coast was not being served effectively by single-sector disciplines or by traditional management and planning systems. Such shortcomings have been recognised particularly in Australia where coastal managers have often been at the forefront of ICZM efforts as they evolved in the last quarter of the last century. Australia has also taken a keen interest in ICZM developments at an international scale. This interest is advantageous and to be encouraged given the wealth of information to be learned from constantly evolving ICZM practices throughout the world.

This essay is essentially a personal summary of the now extensive literature of case studies, program descriptions and academic texts. It provides a brief global overview of the extent of ICZM before drawing on examples from the Philippines and the USA with a view to outlining some lessons of relevance for members of the National Sea Change Taskforce.

## ICZM as a global practice

ICZM, as a set of principles, tools and approaches, is becoming an accepted standard in most developed countries of the world. In developing countries ICZM practice has expanded rapidly, both as a result of locally driven initiatives and substantial injection of funds from aid donors.

The most recent estimate of global ICZM activity made by Sorensen (2002) (shown in Figure 1) suggests that around 700 coastal management initiatives exist worldwide. ICZM is said to be practised in an estimated 145 coastal nations or semi-sovereign states (Figure 1).
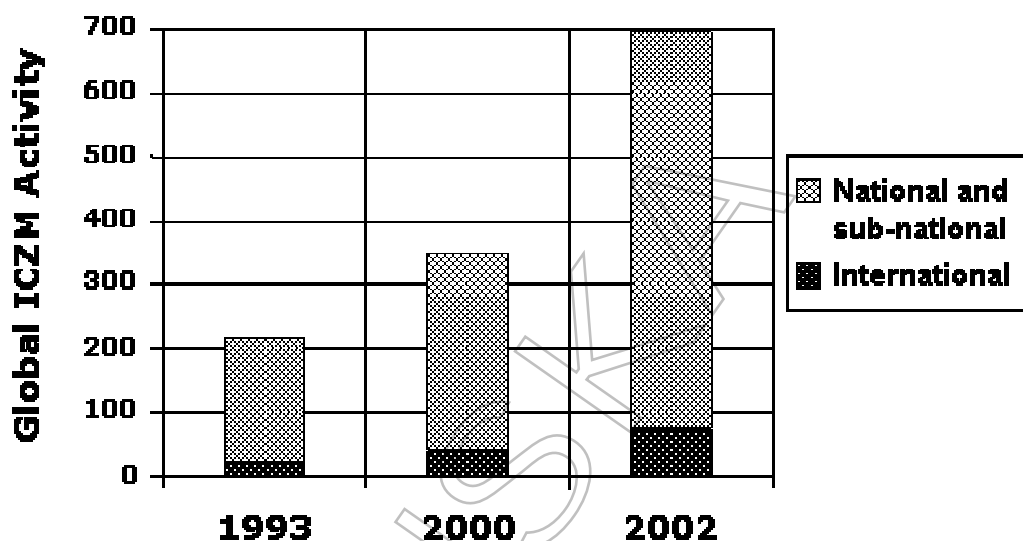
*Figure 1: Estimated worldwide growth in ICZM activity (defined as an ICZM program or specific project)* (Kay & Alder 2005, adapted from Sorensen 2002)

As noted recently by Smith (in press), Sorensen estimated that only around 45% of these ICZM programs were active. In our region, 300 active projects have been identified as a result of the initiative of the Coastal Zone Asia Pacific (CZAP) conference to assess coastal activity between 1992–2002 (Chuenpagdee & Pauly 2004). Further analysis of CZAP data is underway (Smith, in press).

An extensive international literature in ICZM, including textbooks, has also been built, especially over the last ten years (Viles & Spencer 1995; Clark 1996; Cicin-Sain *et al.* 1998; Hinrichsen 1998; Beatley *et al.* 2002; Kay & Alder 2005). Conferences addressing international issues in ICZM and those specific to particular regions are ongoing. Details of these conferences can be found at www.coastalmanagement.com including links back to the proceedings of past conferences.

## Two examples: The Philippines and the USA

In the second edition of our book *Coastal planning and management* released last year, Jackie Alder and I analysed the status of ICZM globally (Kay & Alder 2005). Two of our case studies were from the USA and the Philippines, aided by experts from each country (USA: Tom Bigford, NOAA and Marc Hershman, University of Washington; the Philippines: Alan White, Tetra Tech Incorporated). Although there are a multitude of examples that we could have drawn on from countries all over the world, I felt that these two have a particularly interesting story to tell with some specific attributes worthy of highlight in the context of the National Sea Change Taskforce.

**The Philippines**

The Philippines has a wealth of ICZM experience (Milne *et al.* 2003). Much of this collective experience can now be downloaded from www.oneocean.org. An important part of the Philippines ICZM approach is voluntary coastal management plan development at a local level. This is critical in the Philippines given the very large number of local governments (more than 8700) and the recent delegation of many central government powers to the local level (Courtney *et al.* 2001). Given both the large number of local governments and the range of capacities available within them to undertake management planning, much time and energy has been put into development of a consistent planning framework. This framework takes a benchmarking approach (based on ISO 14000 Environmental Management Systems) that accredits coastal management plans according to three levels: beginning, intermediate and advanced (see Kay & Alder 2005: pp. 254–255).

The key lesson from this approach is that structured, benchmarked and nationally consistent approaches to addressing coastal issues through coastal management is possible and is successful. There are clear analogies here regarding the ability to work both at a national and local government level on ICZM planning using the kind of Philippines standards-based framework approach. This would appear to be directly relevant in Australia where members of the National Sea Change Taskforce are grappling with similar issues from one side of the country to the other, in that there is a clear and regularly reviewed national framework of 'best practice' for local government ICZM.

**USA**

The USA was one of the first countries to develop a national approach to ICZM back in 1972. The USA approach to ICZM uses the *Federal Coastal Zone Management Act 1972* (CZMA) (along with other subsequent Acts) to define requirements for state coastal zone management plans. The details of the USA ICZM program are very well described. Two excellent resources are the textbook by (Beatley *et al.* 2002) and the web site run by the NOAA Office of Ocean and Coastal Resource Management (www.coastalmanagement.noaa.gov/).

There is also a history of comparing Australian coastal management with the USA. This occurred both in the Resource Assessment Commission review in the early 1990s (Resource Assessment Commission Coastal Zone Inquiry, 1993) and the earlier 1980 House of Representatives review (Commonwealth House of Representatives Standing Committee on Environment and Conservation 1980). It should be noted of course that the US federal government has deeper and broader control over state and local issues in the USA than occurs in Australia for a range of reasons including the control of interstate commerce (Beatley *et al.* 2002). This is an important lens through which comparisons with Australia should be viewed.

A key issue in the USA is the management of the rapid growth in coastal populations (Kay & Alder 2005). The 673 coastal counties of the USA (excluding Alaska and Hawaii) make up only 17% of its total land area, yet as of 1994 accounted for 53 per cent of its population and housing supply. This coastal population is estimated to be increasing by 3600 people per day. The result is a projected increase of 27 million people in coastal counties between 1998 and 2015 (Culliton 1998).

Importantly, the USA system has been extensively evaluated (Hershman *et al.* 1999; Shea 2003; U.S. Commission on Ocean Policy 2004). These evaluations are interesting both in their own right and also for the evaluation approaches and criteria used. Both are directly relevant to any initiative of the National Sea Change Taskforce to evaluate the effectiveness of its members' coastal management efforts in particular, and Australia's efforts more generally.

An aspect of the USA approach to ICZM integral to the Australian experience is the central role that 'federal government' plays. The CZMA allows for state coastal zone management plans, once approved by the federal government, to require federal government activities to be consistent with the plan. This was an important motivator in the initial adoption of the CZMA and remains important today. Interestingly, the potential to use a similar approach in the development of Australia's National Coastal Action Plan in the mid 1990s was mooted, but was not seen at the time (chiefly by the states) to be worthy of consideration. The National Sea Change Taskforce may hold a different view in this respect.

## Discussion

There is much to learn from international ICZM practice—not the least in the overall approach and directions taken. It is always useful to see where other countries have come from, are now and where they are going. Of course there is also a need to be selective in international comparison. It is important to exercise care and pay attention to contextual detail when evaluating the experiences of other countries to ensure that false conclusions are not drawn. In this short essay I've chosen to focus on what the overall international practice of ICZM brings to the important work of the National Sea Change Taskforce. This discussion has focussed on assistance international practice can provide in supporting consistent national approaches for ICZM in Australia. While this essay is brief, it is presented in the spirit of promoting further discussion and debate.

## Recommendations

It is recommended that the National Sea Change Taskforce:

- Undertake a structured analysis of international practice to provide both international benchmarks to which the taskforce can aspire and to provide tangible examples of best practice and promote a consistent national approach to coastal management planning.

## Conclusion

The international analysis of ICZM practice has much potential to assist the National Sea Change Taskforce in its work. However, given the wealth of international practice available this needs careful analysis on the strengths and weaknesses of each nation's approach within the context of their overall political and administrative systems to effectively contribute to the important work of the Australian taskforce.

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# INTERNATIONAL INSTITUTIONAL ARRANGEMENTS INFLUENCING AUSTRALIAN INTEGRATED COASTAL MANAGEMENT

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## Abstract

The ecological, economic and social importance of the coastal zone is significant, for Australia as elsewhere. There are numerous international institutional arrangements to which Australia is a party that influence Australian integrated coastal management. While there is no single, coordinated instrument pertaining to the coastal environment at international law, there is, however, a raft of international arrangements that create duties and obligations for party states with reference to the coastal zone. This paper outlines the various instruments that may impact on coastal management regimes in Australia.

## Introduction

The coast is the crucial interface between terrestrial catchments and the adjacent marine environment. Management of the coastal zone is complex. Not only are there ecological, social and economic dimensions to consider, jurisdictional issues arise in terms of the divide between the land, which is clearly under the jurisdiction of a nation state, and the marine environment with its jurisdictional boundaries defined under Section II of the *United Nations Convention on the Law of the Sea* (UNCLOS 1982). Under international law some maritime zones fall solely under the sovereignty of the coastal state, others are shared spaces. Furthermore, there is no single, international instrument dealing with the coastal environment but there are numerous international agreements that create varying duties and obligations for member states.

## International obligations

The development of international law and policy relating to the coastal and marine environments has been extensive over the last 30 years (Williams 1996). Australia has accepted international obligations pursuant to selected conventions and agreements to ensure that domestic activities do not damage the coastal environment (Fisher 1995; Williams 1996). There are also extensive international 'framework' agreements that are less widely accepted, though some elements of these agreements are arguably recognised judicially as 'international customary law.'

International arrangements have dealt particularly with coastal pollution as a key threat to the global marine environment. For example, the dumping of waste from ships in the

coastal and marine environment has been recognised as an international problem since at least 1926 (M'Gonigle & Zacher 1979), resulting in the first convention to protect the coastal marine environment: the 1954 *International Convention on the Prevention of Pollution of the Sea by Oil*. This convention was subsequently replaced by a convention controlling the release of contaminants from ships (*Convention for the Prevention of Pollution from Ships* (MARPOL 1973/78, Mosley 1998) and a second dealing with dumping by ships of land-based wastes in the marine environment (the *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972* (London Convention, 1972, Baird 1998). Both agreements have been signed by Australia and entered into force in the 1980s (DFAT 2006).

Article 1 of the London Convention seeks to "prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea." This aim is achieved through nation states enacting domestic legislation to regulate the deliberate ocean dumping of wastes. The London Convention is given domestic effect in Australia through the *Environment Protection (Sea Dumping) Act 1981* (Cth) but is limited in its application in that it does not apply to the release of wastes directly from the land (Brunton 2002).

## The United Nations Convention on the Law of the Sea (UNCLOS 1982)

The UNCLOS (1982) is an overarching agreement touching upon many aspects of marine management. Part XII of the UNCLOS relates specifically to land-based pollution and the coastal zone. The Convention has been ratified by 149 countries including Australia in 1994 (DFAT 2006). The UNCLOS (1982) obligates parties to protect and preserve the marine environment by cooperating regionally and globally, to adopt laws and regulations to deal with sources of marine pollution and to adopt laws that take measures to prevent, reduce and control pollution from land-based sources (for example see Article 213). Pollution is defined broadly under Article 1(4) as "the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities". Part XII of the UNCLOS relates specifically to land-based pollution and the coastal zone, and Australia has obligations to "adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures" (Article 207) and to "enforce their laws and regulations" (Article 213).

The UNCLOS (1982) does not provide a definitive framework for the control of marine pollution and emphasises flexibility rather than uniformity, allowing states extensive discretions (Boyle 1992). This contrasts with the prescriptive nature of the London

Convention (1972) and MARPOL (1973/78) and was largely due to the need for flexibility required among states with respect to their economic status and in order to reach agreement on the need for protection rather than prescribing how states were to fulfil obligations (Juda 1996; Brunton 2002; Nandan 2002). However, there is an expectation that developed countries will bear a high level of responsibility for global issues to which their economies contribute (e.g. Rio Declaration, Principle 7, United Nations 1992). Australia has a clear obligation to protect marine and coastal aquatic systems including habitats, flora and fauna.

## Agenda 21, Chapter 17: Rio Declaration on Environment and Development

The 1985 *Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-based Sources* sought to translate the UNCLOS treatment of land-based pollution into an action program but was poorly subscribed and criticised by some commentators as being unenforceable (Hunter *et al.* 2002). As a result, the United Nations Conference on Environment and Development in 1992 ('Rio') and subsequent programs placed the protection the marine environment from land-based activities squarely in the context of sustainable development (United Nations 1992; UNEP Working Group on Marine Environment Assessment 2002). The Commonwealth on behalf of Australia became a signatory to the programs.

Agenda 21, Chapter 17 set an ambitious work program for the international community to pursue an objective of sustainable development with respect to the ocean. It promoted new approaches to managing human uses of ocean resources, including the application of environmental impact assessment procedures and natural resource accounting techniques; economic incentives to encourage industrial and agricultural practices that avoid degradation of the marine environment; and protection of the ecosystems and habitats of marine species. Particular emphasis was given to coastal areas, the land–sea interface that IS critical to the life cycles of most marine species and in which human population is increasingly concentrated, because of their sensitivity to land-based pollution.

## Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA 1995)

Both to promote Agenda 21, Chapter 17 which called upon Rio to sponsor an intergovernmental meeting on land-based pollution and to remedy the failures of the *Montreal Guidelines*, a meeting was held in November 1995 in Washington, D.C. This meeting resulted in the adoption of the Global Programme of Action (1995). The non-binding documents were signed by 109 governments, including Australia. The Programme seeks to prevent the degradation of the marine environment from land-based activities by helping party states to acknowledge the duty to preserve and protect the marine environment (Hunter *et al.* 2002). It was designed to assist states to take action individually or jointly according to their respective policies, priorities, and

resources through integrated coastal management encompassing land-use planning (Brunton 2002). The sources of marine pollution the Global Programme of Action (1995) targets include sewage, persistent organic pollutants, radioactivity, metals, oils, nutrients, sediment mobilisation, litter and habitat destruction, thus providing a solid framework within which to reverse the trend of continuing marine degradation from land-based activities. This shift towards integrated coastal zone management was reconfirmed under the subsequent Regional Seas Program (Development and Cooperation Directorate 1995) under which the declaration areas were enlarged to include internal waters, up to the freshwater limit, as well as specific selected coastal areas. At the 1995 meeting, the Australian delegate[4] welcomed the activities of the Global Programme of Action (1995) and went on to state that Australia is committed to an ecosystem-based and integrated approach to managing human activities in the oceans.

## Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP 1986)

The SPREP (1986) seeks to control the sources of pollution including ship-based, land-based, seabed exploration, dumping, mining and coastal erosion and is a comprehensive umbrella agreement for the protection, management and development of the marine and coastal environment of the South Pacific region. Australia is a party to the Convention; however it applies to a specific geographical area limited to the eastern Australian states. Under Article 5(5), the parties to the SPREP are obliged to establish laws and regulations to discharge their responsibilities, this being a general obligation similar to UNCLOS, to prevent, reduce and control pollution from any source. This obligation has important ramifications for Australia, as this provision would support a Commonwealth law based on the external affairs head of power regulating activities causing land-based pollution.

Article 7 relates to pollution from land-based sources and obliges parties to take all appropriate measures to prevent, reduce and control pollution in the Convention area caused by coastal disposal or by discharges emanating from rivers, estuaries, coastal establishments, outfall structures or any other sources in their territory. Unfortunately, however, the SPREP (1986) makes no mention of activities that cause diffuse land-based pollution (e.g. contaminants from agricultural industries and/or urban stormwater). Arguably, because of the obligation on states to reduce pollution from rivers/estuaries or from any other source, the provision would support any legislation relating to the management and use of land in the coastal zone or even inland where the activities on the land are causing land-based pollution (Brunton 2002).

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[4] Opening Statement by Mr Peter Cochrane, Head of the Australian delegation to the Fourth Meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, United Nations General Assembly, 2 June 2003.

## The Torres Strait Treaty between Australia and Papua New Guinea (Torres Strait Treaty 1978)

The Torres Strait Treaty (1978) primarily concerns matters of sovereignty and maritime boundaries in the Torres Strait but also creates an obligation to "take legislative and other measures necessary to protect and preserve the marine environment" [Article 13(1)] including "the release of toxic, harmful or noxious substances from land-based sources, from rivers, from or through the atmosphere, or by dumping at sea" [Article 13(2)].

## Conclusions

Pursuant to the conventions and agreements outlined in brief above, there is a clear obligation on Australia to protect the habitats of the marine and aquatic-coastal ecosystems from direct threats and from pollution sourced from the land. General obligations are sourced in customary law through Principle 21 of the Stockholm Declaration 1972 which obliges states not to allow activities that may cause damage beyond their jurisdiction. This principle was confirmed in General Principle 4 of the World Charter for Nature 1982, and Principle 2 of the Rio Declaration. In contrast, there is little support for a direct obligation to manage the terrestrial resources of the coast unless they may impact on the marine environment. Notable exceptions are the protection of specific areas such as coastal wetlands protected under international instruments such as RAMSAR (1971), JAMBA (1974), CAMBA (1986); the protection of coastal World Heritage Areas; and other areas protected under the Convention on Biological Diversity (1992) and subsequent Jakarta Mandate (1995). These conventions provide for the protection of clearly-defined geographic areas which may include terrestrial coastal resources deemed to be of international significance.

The harmful impacts of land-based pollution are clearly understood and have provided humanity with ample reason to regulate the activities that cause damage to the coastal zone. However, the challenge is a daunting one. Logistically one needs not only to effectively regulate point source land-based pollution but also to regulate non-point (diffuse) land-based pollution. And it must be tackled urgently. The Group of Experts on the Scientific Aspects of Marine Environmental Protection concluded the most serious problems for the marine environment (aside from those expected to arise from climate change) were "sewage; the physical alteration and destruction of habitat; excessive nutrient inputs; and sediment mobilisation" (GESAMP 2001, p. 21; Millennium Ecosystem Assessment 2005). These priority problems are similar at the national scale in Australia (see generally Australian State of the Environment Committee 2001; Scheltinga *et al.* 2004).

In Australia, coastal jurisdictions are fractured by federal, state, regional and local government responsibilities. There is no coordinated coastal legislation or coastal policy but rather a complex mix of legislation, plans and policies (e.g. Australian State of the Environment Committee 2001; Glanznig 2002; Wescott 2002). The

Commonwealth Government has sovereignty over the ocean from the low-water mark seawards, while the state and territory governments have jurisdiction over catchments, coastal developments, offshore islands and many of the commercial, recreational and Indigenous fisheries. Management and planning of the terrestrial jurisdiction is divided among state and local government, regional bodies and statutory authorities (e.g. port areas).

Administration and management of coastal waters is also complicated. Subsequent to the *Seas and Submerged Lands Case* [New South Wales v The Commonwealth; Victoria v The Commonwealth; Queensland v The Commonwealth; South Australia v The Commonwealth; Western Australia v The Commonwealth; Tasmania v The Commonwealth (1975) 135 CLR 337], the Commonwealth and states came to a series of arrangements in 1979 known as the Offshore Constitutional Settlement. Coastal waters within three nautical miles of land were placed under the control of the States under *the Coastal Waters (State Powers) Act 1980 and Coastal Waters (State Title) Act* 1980.

Although Australia has implemented a number of legislative regimes to deal predominantly with sea dumping and marine pollution from vessels, and has also ratified UNCLOS, the Commonwealth has not created laws or regulations dealing with the coastal environment pursuant to its international obligations. Granted, an integrated approach to coastal management is difficult given Australia's federal system of government, but ultimately, implementation of Australia's obligations under international agreements is the responsibility of the Commonwealth as signatory to the agreements. The Constitution provides no direct environmental legislative power to the Commonwealth, which consequently seeks to influence environmental management through other heads of power or through cooperation with state governments (Battle 1985; Fisher 1995). For example, the Commonwealth's authority in relying on the external affairs power to fulfil international, environmental obligations is clear (see e.g. *R v Burgess; Ex parte Henry* (1936) 55 CLR 608; *Tasmania v Commonwealth* (1983) (the *Tasmanian Dams Case*) 158 CLR 1*; Richardson v Forestry Commission* (1988) 164 CLR 261; *Queensland v Commonwealth* (1989) (the *Wet Tropics Case*) 167 CLR 232). This authority has not been relied on to enact Commonwealth coastal legislation.

Cooperation with the states, sometimes referred to as 'cooperative federalism' (Battle 1985), has been a common approach to managing the coast in Australia and is prescribed in the Intergovernmental Agreement on the Environment (Australian Government 1992) and the COAG Heads of Agreement on Commonwealth and State Roles and Responsibilities for the Environment (Australian Government 1997). With respect to implementation of international law, this approach is described (unusually) as part of Australia's ratification of the Convention on Conservation of Nature in the South Pacific (Apia 1976; DFAT 2006, note to ratification) which states "Australia has a federal constitutional system in which legislative, executive and judicial powers are shared or distributed between the Commonwealth and the constituent states. The

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implementation of the treaty throughout Australia will be effected by the Commonwealth, state and territory authorities having regard to their respective constitutional powers and arrangements concerning their exercise*"*. Further research is required to determine whether this approach and coastal management activities of the Commonwealth fulfill Australia's obligations under international institutional arrangements and whether such activities are effective.

## Recommendations

An integrated or 'ecosystem' approach to management of the complex land–coast–sea continuum is essential and must encompass entire coastal catchments and their inhabitants.

The elements of integrated coastal zone management deserve special attention in a federation like Australia where complexity is increased by the size, diversity and small, clumped population of the coastal zone.

Even though the focus of Australia's obligations for coastal management are on the ecology of the marine environment, there is an urgent need to consider socioeconomic aspects of coastal management as these are the key drivers of degradation of coastal and marine systems.

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# IS THERE A ROLE FOR THE FEDERAL GOVERNMENT IN IMPLEMENTING INTEGRATED COASTAL MANAGEMENT IN AUSTRALIA?

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## Introduction

> *Australia's coastal zone contains most of the nation's population, much of its economic and social activity and many of its prized assets. As a consequence, sound management of the zone is of profound importance to the socioeconomic development of the nation as a whole and to the maintenance of many of Australia's unique species and ecological systems.* (RAC 1993, p. 87)

The Australian Constitution left the planning and management of crown land with the Australian state and territory governments. Hence coastal planning and management is predominantly a state (and later territory) government responsibility (local government has a role through state legislation). When combined with the Offshore Constitutional Settlement (OCS) this leaves state and territory governments with the responsibility for the coastal zone that includes private and public land and coastal waters (in most of the nation out to three nautical miles offshore).

Harvey and Caton (2003) and Wescott (2001, 2006) have attempted to summarise the ever changing institutional arrangements across the states and territories (see also Norman 2005). These have evolved from the Resources Assessment Commission inquiry (RAC 1993, see Kay & Lester 1997; Wescott 2006) and aided by a series of wider 'triggers' for coastal reform (as described by Thom & Harvey 2000). These institutional arrangements are our legacy and the starting point for this paper.

## Discussion

This state of affairs begs the question: *Is there a role for the federal government in implementing integrated coastal zone management (ICZM) in Australia?*

Then the question arises: *If there is a role for the federal government, what should that role be?*

In the numerous inquiries on coastal management in Australia over the last quarter of century a series of reasons for federal government involvement have been put forward.

These can be summarised as in RAC (1993):
- the fact that no single sphere of government can plan and manage the Australian coast alone;

- the need for the effective and efficient channelling of the limited financial resources that are available to where they are most needed;
- the lack of any profile, or public accountability, of current national coastal arrangements;
- the need for the effective collection and storage of scientific information from across the nation;
- the need to meet Australia's international obligations in the coastal zone that necessitate coordination between spheres of government.

Prior to the RAC process both the 1980 HORSEC (Commonwealth of Australia 1981) and 1991 HORSCERA (Commonwealth of Australia 1991) federal government reports into coastal planning and management arrangements called for far greater levels of federal involvement in coastal planning and management for much the same reasons as the RAC (also see Table 1 in the essay by Lazarow in this book for an international perspective on this issue).

Finally there would appear to be a strong need for the Australian community to have direct input into national coastal policy, planning and management because:
- the vast majority of Australians live in coastal localities,
- Australians attach great economic, social and cultural importance to the coast, and
- Australia's coastal ecosystems possess extraordinary natural beauty and diversity.

In summary the federal government does have a role in implementing ICZM in Australia because of the critical economic, social and ecological importance of the coast to the nation as a whole.

The question then becomes: *To what extent, and in what areas, is the federal government to be involved?*

And hence: *What form should this involvement take?*

Certainly, given many citizens argue that Australia possesses at least one too many tiers of government, the involvement of an extra layer of government (in this case the federal government in coastal affairs) in any area requires substantial debate and justification.

Such involvement or new intervention must 'add value' to the existing outcomes. It also needs to be seen to add value.

In the case of Australian coastal planning and management, if the federal government is to become more involved in an area in which it has not been substantially involved in the past, then its presence will need to enhance the objectives (largely based around ecologically sustainable development and hence linked to the *Environment Protection and Biodiversity Act 1998)* of the mutually agreed approach of ICZM.

The discussion of the type of involvement, the extent of that involvement and the method of the involvement has not, despite the numerous coastal inquiries and recommendations, been particularly sophisticated and certainly not fruitful in the past. To be sure we have recommendations about structures and authorities and reasons for federal involvement etc. (see Commonwealth of Australia 1980, 1991 and RAC 1993) but the focus has been on institutional arrangements rather than on how the federal government can add value to coastal planning and management outcomes in practice.

Clearly the principles of ICZM (Cicin-Sain & Knecht 1998; Sorenson 2002) should be the basis for coastal planning and management in Australia, in theory at least. How then can the federal government 'value-add' to the roles of state, territory and local governments in implementing ICZM?

**How to progress the national discussion?**

One of the stumbling blocks for implementing previous recommendations of coastal inquires has been: what is the first step? One of the problems in the past has been that these discussions have been Canberra-based and the discussion has been organised (certainly not led) by first federal politicians (Cabinet) and then handed to federal public servants to implement. The result from this process is delay and costly implementation processes that ensure the control of the process never leaves Canberra.

One possible way around this impasse, among many alternatives, is to hand the process over to a National Coastal Council (NCC). In the author's view the Council is the best way to proceed (and the most likely to succeed). Hence it is described in some detail below. The concept of a National Coastal Council with a clear and deliberate mandate was first recommended in the 1980 House of Representatives report into coastal zone management and is not a new concept. The Council would have a clear budget and report directly to the Prime Minister. The Council would establish and maintain direct links to state and local areas through a reformed (Marine and) Coastal Community Network (the current Network has over 10 000 participants across Australia and its electronic and hard copy information dissemination processes are well established and efficient).

The Council would place a high priority on getting 'out and about' (partially through judicious choice of members); for example, rather than meeting always in Canberra it could meet once a year in Canberra and could meet across the country on other occasions. At these other venues a public meeting could form part of its regular schedule. Various aspects of such a Council and its structure have been presented to the Coastal CRC's National Stakeholder Advisory Committee for action (Wescott 2005).

The Council could be given a limited initial term of office (renewable if successful) and a clear set of objectives: for example, its major aim would be to identify the major issues *and their potential solutions* across the entire country. In their recently released

discussion paper, *Meeting the challenge of coastal growth*, the Labor Party considers the establishment of "a National Coastal Management Agency to lead and implement national coastal policy" (ALP 2006). While this is a first step for the ALP in the lead-up to the next federal election, their positive legacy on coastal reports and inquiries and knowledge of coastal management issues suggests they could have been far more assertive and definitive in their policy statement.

The Council would recommend the appropriate (most effective and efficient) level of government to deal with these major issues and solutions and to propose mechanisms for the federal funding of these solutions. Hence a diverse, community-focussed, well respected group of individuals with well recognised long-term experience in coastal affairs would lead a discussion on the future of Australia's coast. The strong emphasis in these discussions would be on *identifying solutions* and how to implement and fund these solutions.

## Australia's coastal issues and solutions matrix: implementing change in coastal practices

Before proceeding further the author wishes to acknowledge the significant input of Di Tarte in helping to build this list of issues (Table 1) and the concept of not just identifying issues but identifying potential solutions simultaneously.

Any person with even a fleeting association with the Australian coast can quickly identify the problems. But if we are to improve coastal practices there must be an obligation that if one identifies a coastal 'issue' or 'problem', one should not move on to the next issue without at least identifying a potential solution and the level of government best placed to implement that solution.

The first draft of the Australian coastal issues and solutions matrix (Table 1) attempts to do this. This proposal differs from the current federal (Intergovernmental Coastal Advisory Group, ICAG) approach (Commonwealth of Australia 2003) in that:

- The discussion in this proposal will be led by a broad and diverse group (a National Coastal Council), not solely by a 'closed shop' of well intentioned and hard working federal and state bureaucrats (ICAG). We need holistic 'grassroots up' combined with 'top down' solutions; hence we need to broaden the input and the base for debate. It must get out of 'the corridors' of various parliaments and government offices across the country. We need community ownership of the issues—and the solutions.
- The implementation of the proposal above would cost more than the current system. (The 'National Framework' is severely limited in its potential impact by being compelled to be 'cost neutral', even in a time of very substantial surpluses in most states and federally). We are dealing with a nationally significant issue and Australia's most loved area (the coast); the coast already has national attention, is home to most Australians. We are a coastal people and the coast deserves national funds to significantly improve coastal planning and management.

- The focus in the concept enunciated here is on solutions, not just (re-)identifying issues—it is an action-based concept.

*Table 1: The Australian coastal issues and solutions matrix*

| Issue | Management response | Level of government primarily responsible |
|---|---|---|
| Impact of climate change | Hazard mapping/planning | Commonwealth, states and territory |
| Overdevelopment / ribbon development | Better strategic and local planning | States and territory, local |
| Land-based sources of pollution impacting on coastal waters | Catchment and agriculture controls | All levels |
| Impact of introduced marine pests | Ballast water control; recreational vessel control | Commonwealth, states and territory |
| Water quality and quantity in estuaries | Better storm run-off control; environmental flows | Local, states and territory, Commonwealth |
| Impact of increased human use of coast | Better local and regional planning; better data | Local, states and territory, Commonwealth |
| Nuisance algal blooms | Better water quality control | Commonwealth (standards), states and territory, local |
| Inadequate long-term funding of coastal management | National funding introduced, state and local funding increased | All |
| Need for long-term sustained coastal capacity building | National funding with state and territory coordination and local implementation | All |
| Inadequate knowledge base | Commonwealth research funding | Commonwealth, states and territory |

## Conclusion

There must be federal government involvement in implementing ICZM in Australia because the Australian coast is critical to the continuing wellbeing and prosperity of Australians in economic, social and environmental terms.

Where the proposal for coastal governance reform proposed for discussion in this paper differs from the recommendations of the previous and numerous coastal inquiries is that it suggests a mechanism for *implementing changes* that is not bureaucratically based (new authorities and legislation) and involves the solution of coastal issues (inside the framework of integrated coastal management) at the level of government (federal, state, local) that can most effectively and efficiently deal with that specific issue. The emphasis on a National Coastal Council in this paper reflects the importance of getting the Commonwealth involved in a realistic manner in an area where there is no automatic constitutional role. Other papers in this publication reflect in more detail on the role of other levels of government.

The federal government's role is to establish the mechanism (a National Coastal Council is proposed here) to identify the problems and solutions and to significantly

assist in funding the identified appropriate level/s of governments' implementation of the identified solutions.

Talk is cheap; improving coastal planning and management will require energy, vision and money.

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# BARRIERS AND OPPORTUNITIES FOR LOCAL GOVERNMENT IN COASTAL MANAGEMENT AND PLANNING

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## Abstract

Local government plays a role in both coastal planning and management within Australia. They are involved in detailed land-use decisions, designing and delivering infrastructure, environment protection and community engagement. There is a great potential for local government to have significant positive and negative impacts on the way our coastal resources are managed. Recent surveys across coastal local governments in Australia and reports from the Coastal CRC have highlighted specific barriers to successful coastal policy-making. This paper interprets these findings from the perspective of coastal officers working for and representing local government. Examples of coastal management issues faced by Gold Coast City Council and the Sydney Coastal Councils Group are presented. Opportunities for improving the performance of local government in coastal management and planning, and for cooperation across governments, are discussed.

## Introduction

Coastal management and planning is undertaken by all levels of government in conjunction with many community groups, research and non-government organisations. This paper will focus on the role of local government in this complex and multi-institutional process.

What is the role of local governments in coastal management and planning?

- Land-use planning and development control for infrastructure developed by others
- Planning, construction and management of specific coastal management infrastructure
- Planning, construction and management of other civil infrastructure in the coastal zone
- Planning, construction and management of water quality management infrastructure
- Management of public access to and use of the foreshore
- Community awareness, development and engagement
- Environment protection, enhancement and management

This paper is not a comprehensive review and analysis of the current state of play but rather an overview of some of the most important issues, barriers and opportunities

facing coastal decision-makers at a local government level. A summary of these issues and opportunities is included in Table 1. While this paper will rely heavily on the authors' experience on the Gold Coast and in Sydney, there have been some significant projects recently undertaken by the Australian Local Government Association (ALGA 2005a, 2005b) and the Local Government Association of South Australia (CEP 2003) that provide reliable data from across Australia to support the opportunities identified by this paper.

Lawrence and Bennett (2002) describe the adaptive management framework as it applies to coastal environments, while Middle (2004) and Gurran *et al.* (2005) describe issues and barriers to effective integrated coastal management in the Australian setting. These reports have provided the background for considering examples of coastal management and making recommendations to improve integrated coastal zone management (ICZM) in Australia.

## Discussion

Middle (2004) states: "policy making is more likely to be successful if ongoing learning takes place". There is a long history of using adaptive management techniques for undertaking coastal management on the Gold Coast and in the Sydney region.

In the past 50 years the coastal zones of Sydney and the Gold Coast have experienced significant increases in population, tourism and intensive residential, industrial and commercial development. The development and use of the sometimes fragile coastal ecosystems has led to the degradation of these resources. The high population density of Sydney and rapidly growing population of south-east Queensland continuously threatens the remaining extremely sensitive natural coastal areas and creates special challenges to manage the highly urbanised coastal environments.

The coastal zone of both regions supports many activities such as recreational fishing, boating, swimming and surfing; scuba diving, commercial fishing and mariculture; industry; waste treatment and disposal; extensive residential and commercial development; transport; and the conservation of terrestrial and marine resources and natural and cultural heritage.

There are a number of management issues facing both coastal regions such as: (i) water management; (ii) waste management; (iii) coastal processes; (iv) nature conservation; (v) public access; (vi) climate change; (vii) loss of cultural heritage; (viii) recreation and tourism infrastructure and (ix) development and population pressures. There is a strong need to bring good science and good design together in planning, implementation and management. This is made more difficult not only by the complexity of management arrangements but also by a complexity of institutional arrangements. Any management issue may be subject to management interventions by various local governments, state government departments and a range of other

formal and quasi-formal management groups. Currently, many issues are managed in isolation, both between and within management institutions (Smith *et al.* 2005).

**Combining local and regional planning**

Two examples are outlined below highlighting some of the ways that local groups are trying to integrate both local and regional coastal management and planning. It is clear that if these are done independently of each other the outcomes will be less effective than if the activities are combined.

*Gold Coast experience*

In the 1960s following substantial erosion events, the Queensland Government engaged Dutch experts to undertake an investigation of the erosion problem on the Gold Coast. This resulted in the Delft Report (DHL 1970) that identified a range of beach nourishment and structural coastal control programs. The Delft report also recommended programs for dune protection and access control. A program of major coastal protection works identified in the Delft report has been implemented over the last 35 years by Gold Coast City Council with assistance from the Queensland and NSW governments.

The Queensland *Coastal Protection and Management Act 1995* required the development of state and regional coastal plans. The legislation and state plan seem well founded in coastal best practice; however, the SEQ Regional Coastal Management Plan (currently in draft form) has missed opportunities to assist with coastal protection and management works and to assist the coastal activities of the local governments it affects. The initial regional plan has been prepared but there still seems significant scope to improve the effectiveness of the document to integrate planning and management activities.

Some areas for improvement include the strategies and techniques used to develop the regional coastal management plans. For the production and implementation of a successful plan it is essential that a broad cross-section of knowledge and experience is called upon. A well-resourced program of engagement with stakeholder groups using a broad range of techniques is needed to fully utilise their experience and knowledge.

Using the adaptive management framework, coastal managers have noticed a clear disconnect between the areas of coastal management and planning at a local government level. Local governments need to integrate the state and regional planning policies into their local planning schemes. The Gold Coast community is trying to address this issue through the development of the Gold Coast Shoreline Management Plan (GCSMP). The GCSMP integrates the policies of the state and regional coastal management plans while focussing on the sandy beach environment. This plan provides a formal vehicle to incorporate state planning policies and information regarding the local biophysical, economic and social values of the beach into day-to-

day management. Indicators to measure the health of the sandy beach environment from each of these key themes will be developed and reported on, creating an adaptive learning feedback loop to update coastal management practices.

This project will be achieved in partnership, with the active involvement of Gold Coast City Council, the local community, SEQ regional NRM board and the Queensland Government.

*Sydney experience*

The NSW *Coastal Protection Act 1979* (amended 2002), requires councils to prepare locally based coastline management plans incorporating emergency management plans under the NSW Coastal Management Program. There is no requirement to develop any associated regional coastal management plans. The Sydney Coastal Council's Group (SCCG) however developed the Sydney Regional Coastal Management Strategy in 1998 to coordinate stakeholder effort and strategic planning in that region (SCCG 1998). The current roll-out of the regional strategies directed by the NSW Department of Planning have so far missed opportunities to adequately address regional or local coastal management issues in any real context.

The SCCG, established in 1989, represents 15 local governments adjacent to Sydney marine and estuarine environments and associated waterways. The principal aim of the Group is to promote cooperation between and coordination of actions of member councils in consultation with the broader community, on issues of regional significance concerning the sustainable management of the urban coastal environment.

The SCCG is a voluntary 'regional organisation of councils' established under the provisions of sections 355, 357 and 358 of the NSW *Local Government Act 1993*. The functions and powers of the Group are provided in the Constitution. The Group was incorporated in February 1998 under the *Associations Incorporation Act 1984*.

The SCCG provides support services to its member councils assisting to advocate, develop, coordinate and implement consistent coastal management policy and programs. The Group operates under five core outcome statements:
- The exchange of information on urban coastal management to member councils is coordinated and facilitated.
- Community awareness on matters related to urban coastal management is enhanced.
- The role and capacity of member councils to manage the coastal environment is improved.
- Member councils' interests are represented on issues in relation to regional and national coastal management.
- Sustainable and integrated coastal zone planning and management is facilitated.

**Barriers to success**

Local government is very concerned with the reduction in Australian and state-based funding for integrated coastal zone management. The regional investment delivery model established by the Australian Government for NHT2 has not only excluded local government from the process but has resulted in a significant net decline in funding available for coastal management activities (estimated to be as much as 75% since NHT1). The demise of the Coast and Clean Seas initiative and the focus on improving rural landscapes has significantly affected the ability of state(s) and particularly local government to address the enormous management pressures being faced in coastal areas. Without the establishment of national coastal zone legislation backed by a sustained and secure national funding scheme, it seems unlikely that there will be any significant improvements to coastal areas and the likelihood of the continual degradation, over-development and loss of 'values' of our precious coastal zone.

The major focus of local government coastal protection strategies is on the final outcomes. Often insufficient and inappropriate resources are put into effectively engaging the community. The focus is often on gaining state government approval and allocating as many resources as possible to implementation. Long time delays between developing strategies and gaining approval for the detailed works can mean that many people lose contact or interest in the process. Combined public engagement periods for specific coastal projects including state and local government officers may be a useful way of ensuring coordination between agencies and ensuring the public that the government has adequately addressed their issues.

Even with state coastal management plans and policies, a regional infrastructure plan in place in south-east Queensland and regional strategies in NSW, there still remains the possibility of state departments providing local governments with conflicting advice about coastal management issues. Given the interdependence of the environmental, physical, social, cultural and political dynamics, regional coastal management plans must be representative of all stakeholders. These plans should provide for transdisciplinary management of all coastal resources, not just those managed by the authority that prepares the plan.

The removal of the Queensland Beach Protection Authority and the NSW Coastal Council has left a significant void in coastal management in both states. There is no longer an agency that sees one of its specific roles being to provide advice to local governments. In the absence of any direct involvement from the state government local councils have joined together to discuss common coastal issues but lack the critical mass or dedicated resources to fully address them.

In both states there have been significant reductions in Treasury allocations to state based coastal management programs and reduced numbers of technical staff available to assist local government. This has led to closer links at an officer level between councils. This banding together highlights a need among local government for support

and guidance to undertake coastal management and planning which extends beyond a single local government boundary. As the pressures on coastal processes escalate, the need for cross-boundary and regional approaches is also increased.

## Conclusion

While the Gold Coast and Sydney have major urban coastal environments, both also still have areas of natural coastal environments, such as national parks, marine parks and Ramsar-listed wetlands. It is important to remember that coastal management needs to address not only NRM, but natural process, infrastructure, economic, population and social considerations.

Given the diversity of development densities and coastal environments, examples of nearly all the possible coastal management issues, barriers and opportunities can be found in both regions. The authors invite readers to consider the issues and approaches employed on the Gold Coast and in Sydney in responding to local examples in their own areas and developing innovative opportunities to overcoming the barriers to success.

There have been major improvements in ICZM but there is still a long way to go. A serious problem at present is that local governments have not been effectively engaged in the ICZM debate; in fact they appear to have been marginalised.

## Summary

The table below outlines some of the major topics councils face and the issues that cause difficulties in managing their coasts.

40

*Table 1: Outline of local government coastal management and planning issues and opportunities*

| Issues | Opportunities |
|---|---|
| **Coastal management infrastructure and asset management** | |
| šˑ Lack of funding for both planning and implementation<br>šˑ Need for 'lifecycle' asset management plans (that also need to include natural assets)<br>šˑ Concerns with competitive grant allocation processes<br>šˑ Inadequate or inappropriate public participation and involvement<br>šˑ Lack of trust in the key decision-making agencies<br>šˑ Inconsistent implementation and priorities across jurisdictions<br>šˑ Lack of political will to drive innovation and to seek alternatives to traditional practices | šˑ Federal and state governments to provide dedicated funding streams to support local government provision of coastal management infrastructure<br>šˑ Clear local policies specifying the percentage of total project costs to be allocated to effective planning and stakeholder engagement<br>šˑ Stakeholders to be engaged as early as possible in the process to develop coastal strategies<br>šˑ Provide formal opportunities for different levels of decision-making authority or scrutiny of coastal works applications based on the capacity of the local government to plan and undertake such works.<br>šˑ Establishment of effective partnerships between federal, state and local governments. |
| **Local and regional planning** | |
| šˑ Lack of integration across government departments and other authorities<br>šˑ Lack of resources for and/or commitment to policy implementation<br>šˑ Issues and constraints in relation to government cost shifting to councils<br>šˑ Institutional and leadership inertia<br>šˑ Inadequate or inappropriate public participation and involvement<br>šˑ Inadequate NRM staff and expertise in local government<br>šˑ Inadequate connections between the local and regional scales<br>šˑ Lack of specific information for local conditions in a regional context<br>šˑ Competing interests at both local and regional scales<br>šˑ Inconsistency among local and regional plans creating uncertainty and frustration<br>šˑ Lack of evaluation of old plans before creating new approaches | šˑ Regional coastal management plans are representative of all stakeholders. These plans should be for the management of all coastal resources, not just those managed by the authority that prepares the plan<br>šˑ The membership of regional natural resource management boards/authorities needs to be broadened to include coastal management. Coastal NRM boards/authorities should all have a specific coastal management committee<br>šˑ Consideration be given to a centralised planning assistance body specifically established for those councils who have expertise limitations<br>šˑ Planning and design should respond to science. Continuation of funding for coastal research through the Coastal CRC or some other mechanism should continue |

| Issues | Opportunities |
|---|---|
| š˙ Lack of state government consideration of local plans before developing regional strategies for council to support, follow and implement | |
| **'Champion' for coastal issues** | |
| š˙ Lack of focal point/critical mass/single point of truth<br>š˙ Lack of integration across government departments and other authorities<br>š˙ Institutional and leadership inertia<br>š˙ A shift in emphasis by key agencies from local to regional scale | š˙ All local government associations should have a coastal management committee to act as an advocate for local authority management of and planning for coastal resources<br>š˙ Ensure adequate local government representation on state-based coastal councils<br>š˙ NHT regional NRM bodies should develop coastal subcommittees. |
| **Climate change impacts and adaptation** | |
| š˙ Climate change has the potential to exacerbate current problems | š˙ The Australian Government is encouraged to focus on modelling, data collection and improved understanding of climate change phenomena at both the regional and local scales<br>š˙ Development of climate adaptation strategies provides opportunities to engage federal and state governments in coastal zone management issues |
| **Dedicated coastal management funding stream** | |
| š˙ Lack of resources for policy making and implementation<br>š˙ The focus of NHT2 on community groups and regional boards has effectively alienated local governments from federal funding support for coastal management activities | š˙ National review of present regional NRM arrangements to better deal with nationally significant ICZM issues at the local level<br>š˙ Reinstate state government coastal management extension programs<br>š˙ Reinstate national funding schemes such as Coasts and Clean Seas<br>š˙ Reinstate processes for direct funding from federal government to local government<br>š˙ It is suggested that some form of long-term funding stream or National Trust arrangement be developed to assist with coastal asset retreat and necessary renewals, emergency management processes and private property buy-back and/or one off insurance schemes |

| Issues | Opportunities |
|---|---|
| **Legal liability issues** | |
| š˙ Local governments often left with the responsibility of defending decisions made on the basis of state legislation and regulations in the courts<br>š˙ Foreshore jurisdictional issues, with poorly defined roles and responsibilities<br>š˙ Need for a no fault compensation scheme to safeguard local authorities from no fault damages claims | š˙ Partnership agreements between federal/state governments to better assist local government to implement and enforce federal and state government legislation and regulation |
| **Whole-of-government implementation** | |
| š˙ Local government has been left out of or marginalised in the ICZM debate so far | š˙ Provide a framework to undertake coastal ecosystem services audits<br>š˙ Local governments need the flexibility to adopt local political processes to manage issues in their own areas<br>š˙ ICAG provides a national coastal policy supported by a National Coastal Management Act that is appropriately funded |
| **Community engagement** | |
| š˙ Varying levels of understanding and awareness of coastal issues in the community and among decision-makers<br>š˙ Community alienation from coastal decision-making due to complexity and time frames of government processes | š˙ Secure/reinstate ongoing funding for Coastcare facilitators that provides increased job security to retain institutional knowledge to ensure consistency and ongoing community engagement and participation<br>š˙ Increase the number of Coastcare facilitators and reduce the area they are responsible for to allow greater interaction with community groups<br>š˙ Consider combined public engagement programs including representatives of local, state and federal governments |
| **Risk management** | |
| š˙ Uncertainty and liability issues<br>š˙ Lack of required information, systems and processes<br>š˙ Lack of communication within councils and between various management authorities | š˙ Develop guidelines and best practice models for coastal councils to follow<br>š˙ Provide relevant information to property buyers that allows them to consider the real risks and not simply blame local authorities |

| Issues | Opportunities |
|---|---|
| **Partnership approaches** | |
| šˑ Need for greater information sharing | šˑ The Australian Government is encouraged to support the development of an Australia Coastal Society and/or Council<br>šˑ Fund local government involvement in ICAG<br>šˑ Partnerships with universities (e.g. SCCG/Macquarie, GCCC/Griffith University)<br>šˑ Reinstate funding for the Coastal CRC or similar body to retain a role as advocate for coastal issues and undertake research to support informed decision-making |

## Notes

More information on the SCCG is available on line at *www.sydneycoastalcouncils.com.au*.

More information regarding the GCSMP is available in Stuart (2004) and online at *www.griffith.edu.au/centre/gccm.gcsmp*.

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# COASTAL NRM CHALLENGES: MEETING REGIONAL CHALLENGES THROUGH LOCAL GOVERNMENT PLANNING PROCESSES

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## Abstract

This paper argues for maximum local government involvement in coastal environmental and natural resource management. It is contended that local government can successfully operate at the regional scale in collaborative planning and management arrangements. As one of the three legitimate levels of government, local government is well supported by existing and proven planning and administrative frameworks which positions it well to implement its share of the regional NRM agenda. That said, there is also a need to acknowledge that local Government cannot and should not operate in isolation. Hence, vertical and horizontal collaborative ventures should be encouraged with local government, at the same time that capacity enhancement occurs for specific coastal NRM aspects. Collaborative local government arrangements, whereby local government acts to address regional environmental infrastructure requirements, can result in a number of regional scale outcomes that safeguard and improve the condition of the coastal region.

## Introduction

There is an increasing understanding that many contemporary environmental and natural resource management challenges, including those of the coastal zone, are of regional extent and consequently need to be addressed on a regional basis in an integrated manner. This realisation directly challenges the status quo which is characterised by the fragmented approaches from a multiplicity of separate and independent planning agents including local authorities with a predominant over-focus on local scale planning. Additionally, it has been noted that traditional planning has largely been single purpose and was not underpinned by environmental principles.

In essence, for natural resource management (NRM) issues, it has meant that environmental decision-making has been largely informed by fragmented and incremental planning that has resulted in 'the death of our precious coasts by a thousand small and isolated decisions'. The principal issues challenging the improved integration of NRM issues into existing planning processes can be summarised as:

- *Spatial scale:* NRM issues are best exemplified at regional and local scales and their planning and management need to be operationalised through regional and local planning processes. However, regional planning processes are least well developed and do not have the same level of support that exist at other planning scales which coincide with legitimate levels of government.

- *Temporal scale:* Short-term thinking still dominates planning, especially as a result of politically driven time frames. Statutory planning is too focussed on development assessment and there is often a limited overarching strategic planning process.
- *Management boundaries:* Planning and management is typically undertaken along artificial boundaries of administrative convenience. Planning regions based on natural boundaries (e.g. catchments) are rare.
- *Multi-discipline:* Limitations to improved collaborative approaches are imposed through constraining legislation and a lack of cross-discipline and cross-boundary approaches, caused by traditional line management organisations and the silo-type internal organisation of many management agencies.
- *Environmental focus:* Principles of ESD and sustainability are not well operationalised in planning processes especially statutory planning.
- *Infrastructure planning:* This is not well developed and connected to mainstream land-use and environmental planning processes.
- *Community engagement:* Limited engagement and involvement in decision-making.
- *Integration:* Separate and uncoordinated planning systems have resulted in an undeveloped interface between local government planning and other areas of planning activity.

## Roles and functions of local government

Although it is not recognised in the Australian Constitution, local government is one of three distinct levels of government in this country. Unfortunately, it is not uncommon for there to be a degree of confusion over the division of roles, functions and responsibilities between the three levels. As local government is the creation of state parliaments, it is state legislation that provides the legislative and state constitutional foundations for local government and limits the functions they can perform (Tucker 1995). Nevertheless there continues to be a longstanding and continuing debate over the principal role and functions of local government in this country (Jones 1981, 1993; Stewart 1983; ACIR 1984; ALGA and ICL Australia Pty Ltd 1989; Tucker 1995; Dollery & Marshall 1997; Wild River 2003).

While there is general agreement that local government functions have tended to focus heavily on services normally associated with property (e.g. roads, drainage, waste management, sewerage and water supply), there is also acknowledgement that there is now a broadening of these functions. Reynolds (1989) has observed that the community now wants local government to look at services and environmental issues that contribute to the quality of life and influence the livability of our cities and regions.

Although there is a wide diversity of local governments in terms of their physical and population size, rate base and available resources, there is general agreement that they are involved in:
- public works and services such as roads and bridge construction;

- community services such as street lighting, public toilets, car parks and campsites; community development;
- public order and safety such as fire prevention, animal protection and beach patrol;
- health services such as immunisation and infectious disease control;
- welfare services including meals-on-wheels, child care and emergency care centres;
- housing and community amenities for people and special needs;
- recreation and cultural facilities including swimming pools, parks, reserves, cultural heritage sites and pathways; and
- trading systems and other involvement in fuel, energy, transport and communications (McNeill 1997 quoted in Wild River 2003: 340–341).

## The changing face of local government

During the last decade however, Australian local government has undergone an accelerating and unprecedented pace of change which has completely transformed it and which shows no signs of abating (Tucker 1995; Marshall 1997; Wild River 2003). Marshall (1997) notes that various reform programs have significantly altered the structure and form of councils and have provided them with broader competency powers with greater degrees of autonomy to manage their own affairs.

Major reform to the environmental management agenda came with the 1992 Intergovernmental Agreement on the Environment (IGAE). It assigned responsibility to local government for the development and implementation of locally relevant and applicable environmental policy within its jurisdiction in cooperation with other levels of government and the local community. It also acknowledged that local government has an interest in the development and implementation of regional, state-wide and national policies, programs and mechanisms which affect more than one local government (Commonwealth of Australia 1992).

This period also saw state local government legislation substantially amended to widen the range of roles, functions and responsibilities including their statutory planning functions conferred by specific planning legislation. Today, the planning processes and practices that are common to local government regardless of their state include mandatory corporate planning, statutory town planning and operational planning.

By contrast, local government's environmental management responsibilities are not prescribed under a single article of legislation and it is a very complicated exercise to piece together the very fragmented sources for local government responsibilities in this area. However a number of authors acknowledge that environmental management will increasingly become its core business, citing recent and continuing widening of its environmental and natural resource management roles (either as a regulator or an operator). This range of roles includes: biodiversity and native ecosystem conservation including vegetation management on private lands; parks and open space; weed and

feral animal control; fire, flood and other disaster risks; transport and service corridors; energy and water supply; environmental and visual amenity; selected aspects of coastal management avenues and environmental legislation and policy (Hooper *et al.* 1999; Wild River 2003).

Dovers (2001: 24) however cautions that while "local government has untapped potential, especially when municipalities work together through various mechanisms ... (and while) institutional arrangements that cross government jurisdictions are at present popular, necessary and problematic ... (and while) local areas, regions and catchments are in some ways more ecologically logical scales than imposed political boundaries ... (he warns that) arrangements at these scales usually lack political, legal and administrative 'reality' and can be weak and easily forgotten."

## Barriers to local government involvement

Addressing these changing local government priorities brings a whole new set of challenges, many similar to those that confront other institutions. They can include: chronic resource shortages (particularly relevant to smaller local authorities); limited opportunities to improve their income stream (rate capping, unpopularity of rate increases with their constituents); inadequate statutory powers; lack of technical expertise or knowledge about problems; and lack of time to adequately address problems (Wild River 2003).

Interestingly, in most Australian states, their respective legislation does not contain specific references to NRM responsibilities for local government nor any association with their statutory planning responsibilities. Instead, these responsibilities must be inferred from the descriptions of the roles and functions of local government in a number of Acts. In some cases this may merely be a case of updating the legislation but before this happens there is an urgent requirement to define the boundaries of NRM responsibilities between the various levels of government and non-government organisations. Additionally, the existing overlaps and duplication between current environmental management and emergent NRM need to be resolved at the local government level.

Low Choy and Maccheroni (2005a) have identified a number of key barriers to greater local government involvement in regional NRM and strategic environmental planning, including:

- Lack of long-term support and continuity from state and federal government especially in funding arrangements for local government to undertake NRM;
- Local government's internal structure;
- Limited dedicated NRM staff and available technical NRM expertise;
- Local government's constrained financial resources and finite rate base (particularly acute for smaller local authorities);

- Lack of clear definition between the NRM roles and responsibilities of local government and the emergent regional NRM bodies;
- Poor communication channels between local government and the regional NRM bodies;
- Lack of regional coordination among local authorities on cross-boundary NRM matters and continuity in resource management;
- Lack of community understanding of NRM matters and especially of local government's NRM role; and
- Local government's limited capacity in expertise, time and resources for effective community engagement on NRM matters.

Most contemporary observers of Australian local government would agree that the continual increase in their roles and responsibilities is placing them under considerable strain. Hence new approaches need to be considered.

## A regional approach

There is widespread support for a regional approach to environmental planning and management (McHarg 1992; Glasson 1992a, 1992b; Claval 1993; Castells & Hall 1996; Purdy 1996; Scott 1996; Hall 1998; Leccese & McCormick 2000; Ravetz 2000; Beer *et al.* 2003; Randolph 2004). This paradigm shift to a regional scale accords with what Selman (1999) has identified as 'the critical scale of effectiveness' and what McDonald (1996) had earlier questioned was 'the most effective boundary of a sustainable system.' This regional view also extends to coastal management and includes, in particular, strategic planning endeavours (Middle 2002; Shepherd 2005).

Calthorpe (2000: 15) sums up this resurgence focus on the region, commenting, "It's becoming clear that the economic building blocks of the global economy are regions—not nations, states or cities. It's equally clear that many of our environmental challenges are regional in scope … our basic infrastructure investments also are regional in scale and scope. Issues of economic equity, social integration and race all now play themselves out in a regional geography … our sense of place is increasingly grounded in the region."

Australia has experienced an increasing number of these trends towards more regional approaches to environmental and landscape management, with the regional delivery of NRM being a case in point. A number of state governments have recently introduced more formal regional planning initiatives and in the Queensland case this has included a statutory regional plan for south-east Queensland, the country's fastest growing metropolitan region. These recent regional initiatives have the potential to provide opportunities to incorporate a broader range of environmental and NRM considerations than hitherto.

Planning at the regional scale however cuts across the existing levels of government (state and local) and it may not have the immediate support of an existing planning

framework. However, many recent regional initiatives have strongly favoured the collaborative approach.

## A collaborative approach

Grubb *et al.* (1993) have argued that local authorities are important in shaping environmental infrastructure, planning and policies and because their governance is closest to the people, they have a vital role to play in achieving the objectives of Agenda 21. This they argue requires that consultation, cooperation and coordination among local authorities should be established or enhanced. While collaborative planning and management initiatives may seek to achieve consistency across administrative and discipline boundaries, there are also strong expectations that policy integration can be achieved through these regional scale collaborative initiatives. Overall these collaborative initiatives seek to achieve 'joined-up planning'.

Under current collaborative planning and management theory, Low Choy (2002) writes that collaboration has been defined as corporate behaviour that involves a completely voluntary agreement between two or more partners to work together or to combine their efforts on the basis of equal authority. Under these arrangements, participants pursue an agreed common aim but retain their autonomy and freedom to pursue their own individual goals. They do so in a usually conflict-free working environment and within a select time frame.

The acknowledged environmental and NRM challenges increasingly require local government to plan and operate in collaborative groups which can include vertical, horizontal or multiple linkage collaborations. On the basis of the previous definition, it should be possible for these collaborative ventures to involve the sharing of resources, experiences, risks, planning endeavours and the implementation aspects of management.

Based on earlier work of Gray (1989) and Margerum (1999), Low Choy (2002 and 2003) has derived a collaborative planning model to analyse the voluntary cooperative activities among a regional grouping of local authorities. This model focusses on the collaborative regional planning process and acknowledges the importance of the implementation phase. Its six phases comprise:
1. *Demonstration of need phase:* demonstrating the need for cooperative action to potential partners;
2. *Formative phase:* bringing together and obtaining the commitment of potential collaborative stakeholders and the development of collaborative infrastructure;
3. *Gestation phase:* further detailed levels of collaboration and development of infrastructure to essentially establish the process and the procedures;
4. *Consolidation phase:* developing the collaborative agreement involving problem identification, information exchange, conflict resolution, common goals agreement, reaching consensus, and identifying planning actions;

5. *Planning 'business' phase:* collaborative planning involving the confirmation of agreed planning goals and objectives, evaluation of derived options and agreement on implementation actions; and

6. *Implementation and review phase:* involving the formalisation of relationships leading to the activities of monitoring, evaluation, reporting and review. It also entails re-evaluation or (if required) renegotiation.

Implementation should be undertaken within an adaptive management framework that incorporates the important individual and corporate learning step for the participants. This should result from the monitoring, evaluation and review of the measurement of outcomes to review the original collaborative agreement and where necessary to renegotiate implementation.

These collaborative planning and management approaches have been strongly favoured by local government in the recent past. Their voluntary existence has been facilitated with or without overarching state legislation (e.g. the Queensland *Local Government Act 1993*). Gilbert *et al.* (1996) acknowledge the constraints of a lack of legitimacy and capacity at the local government level but believe that local government can expand its capacity through collaboration and has the greatest potential to achieve approaches to contemporary environmental and social challenges.

## Recommendations for improving the situation

It was previously noted that eight principal issues challenged the improved integration of NRM aspects into existing planning processes. They included: spatial scale, temporal scale, management boundaries, multi-discipline, environmental focus, infrastructure planning, community engagement and integration.

Clearly there is a priority need to improve horizontal coordination between local authorities and the vertical collaboration between local government, various regional initiatives and state government. This should aim to produce 'joined-up planning'. The principal initiatives that should be considered in order to improve the involvement of local government in regional NRM initiatives within the coastal zone include the following.

1. *An integrated planning framework:* Management activities must be directed by a strategic planning focus with regional coverage. It requires a combination of statutory and non-statutory planning approaches. Figure 1 shows the linkage between the main planning initiatives set in the proposed strategic framework for a typical coastal region.

It incorporates the three areas of local government planning endeavours, namely: corporate, statutory and operational planning. The whole combination of local government planning, set out within the highlighted box of Figure 1, can be repeated for as many individual local authorities as are participating in the regional collaborative arrangements this integrated planning framework facilitates.

Figure 1: An integrated planning framework for a typical coastal region

2. *A renegotiated roadmap:* Figure 1 provides a much needed roadmap of the necessary pathways through the maze of planning and management legislation, processes, and practices in an attempt to achieve 'joined-up planning'. It shows the necessary pathways along which the outcomes from one level of planning activity (e.g. NRM science) should flow to other levels, particularly, into the planning that local government is responsible for.

Continued regional level collaborations involving local government will be subjected to a series of renegotiations throughout the implementation phase (Low Choy & Maccheroni 2005b). Once a plan has been released it cannot be assumed that the assigned implementation agents will automatically implement the plan as originally

intended. Hence, successful collaborative planning must recognise these points of renegotiation and utilise these opportunities to seek continual improvements to implementation being undertaken within this planning framework. Figure 1 suggests where these points of renegotiations between regional planning initiatives and local government should occur. It has also been shown that successful implementation requires that implementation agents such as local government should also be involved in the policy/plan development phase (Low Choy & Maccheroni 2005b).

3. *Integrated infrastructure planning:* in this model, infrastructure planning is completed alongside conventional land-use and environmental planning. It is linked to both strategic intents and specific policy commitments and requirements. The model shows how it is necessary to establish a link between the principal infrastructure providers at the state, regional and local levels.

4. *Environmental infrastructure:* if coastal environments are to be sustained then local government's traditional role in the provision of physical and social infrastructure (shared with other levels of government) should be extended to formally include environmental infrastructure.

While 'green infrastructure' has been used to refer to the whole regional landscape inclusive of open space, 'environmental infrastructure' refers to those nature-based elements that should and could be planned for in the same manner that traditional hard (physical) and soft (social and community) infrastructure are planned and provided in order to support a community. Once secured, these elements of environmental infrastructure would contribute to the green infrastructure of the region. In this manner the achievement of the regional community's vision of sustainability and livability becomes closer to reality as all of the essential elements of infrastructural support have now been proactively addressed. In essence, it can represent a true triple bottom line approach to infrastructure provision for a growing regional coastal community (Low Choy 2005).

## Benefits of local government involvement in regional coastal management

In summary, the benefits of local government involvement in regional coastal management include:
- a level of government closest to the community;
- a proven organisational structure and networks;
- an established infrastructure and capability;
- established accountability processes;
- existing capacity and ability to improve capacity;
- an agent for higher levels of government;
- opportunities to achieve joint outcomes through statutory (and proven non-statutory) planning and management processes; and
- a capability of operating at the regional level (as collective groupings).

These benefits and the previous recommendations should be utilised to maximise the facilitation of improved NRM uptake into local government planning activities of the coastal zone. It has been noted that local government is well supported by proven corporate, statutory town planning and operational planning and administrative frameworks to facilitate the implement of their share of the regional NRM agenda. Notwithstanding the need to address the enhancement of local government NRM capacity, in their emergent structures resulting from a number of recent institutional transformations, they now possess broader competency powers which can provide opportunities for councils to address the important environmental and NRM challenges of concern to their constituents.

Across Australia there is now two decades of collaborative working experience involving local government to draw from. Their strategic and operational activities are now more closely aligned to overarching principles of sustainable development. There is also a greater degree of awareness among local and regional communities and among elected members and other policy-makers of the environmental and NRM imperatives. Currently a window of opportunity has opened through which these NRM challenges can be addressed. Securing a sustainable future for our fragile coastal landscapes demands that these opportunities be grasped in a long-term collaborative partnership in which local government should play a major role.

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# INTEGRATED COASTAL ZONE MANAGEMENT AND THE REGIONAL DELIVERY OF NATURAL RESOURCE MANAGEMENT

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## Overview

The bilateral Natural Heritage Trust (NHT) agreements between the eight states and territories and the Australian Government were signed between December 2002 and June 2004. The agreements provide for the cooperative regional delivery of natural resource management (NRM). For coastal regions this includes the regional delivery of coastal and marine NRM. This paper will explore the governance arrangements behind the regional delivery model and consider some of the key issues raised in integrating catchment with coastal and marine management and planning.

## Introduction

The move to a regional delivery model for NRM under NHT Phase 2 is in many ways a revolutionary approach. Some states have been using a regionally based system for many years and regional land-use planning as a tool has come and gone over the decades. However, the development and partial implementation of a nationally coordinated, regionally delivered natural resource management system in only about four years has been remarkable.

The inclusion of coastal and marine environments as an integral component of this regional delivery model has not been without criticism. This has been largely based around the difference in the systems themselves (terrestrial catchments compared to coastal and marine environments) and the difficulty of allocating resources to them equitably and on a sound technical basis within the same framework.

This paper explores the basis of the regional delivery model for NRM and the treatment of coastal and marine issues. Recommendations are made for possible areas of improvement.

## NHT Phase 1 programs

The NHT (the trust) was announced in 1996 and during Phase 1 from 1996–1997 to 2001–2002, $1.449 billion was invested against the 21 programs of the trust, including the requirement to retain some funding in the trust for future expenditure. Of these programs, two related directly to investment in the coastal and marine environment, namely the 'Coasts and Clean Seas' program and 'Australia's Oceans Policy'. During the Phase 1 period, these two programs received $113.5 million dollars (Hassall *et al.* 2005).

Phase 1 of the NHT was reviewed mid-term in 1999, and a final evaluation prepared in 2005. Both the mid-term review and the final evaluation identified the lack of a strategic regional framework for delivering NHT investment as a shortcoming to be addressed. The mid-term review commented: "The progressive development and implementation of a regional approach to delivery is also regarded as an essential component of its (NHT) success" (Howard Partners 1999).

## NHT Phase 2—overview

Further budget allocations were made by the Australian Government in 2001 and 2004 to extend the NHT to 2007–2008 and bring the total commitment to $3 billion across Phase 1 and Phase 2 (Commonwealth of Australia 2005). At the Natural Resource Management Ministerial Council meeting of October 2002, the 'Framework for the Implementation of the Natural Heritage Trust Extension' (the framework) was endorsed. The framework has three strategic objectives: (i) biodiversity conservation, (ii) sustainable use of natural resources and (iii) community capacity building and institutional change (Commonwealth of Australia 2002a). The framework simplified the 21 programs of NHT Phase 1 into four programs, namely:

- Landcare
- Bushcare
- Rivercare
- Coastcare.

The framework lists 10 areas within the scope of activity of the NHT extension, all of which in part can be applied to the coastal and marine environment and one in particular which relates to 'protecting and restoring significant freshwater, marine and estuarine ecosystems' (Commonwealth of Australia 2002a).

Investment in projects and activities against these programs has been at three levels, national, regional and local. The framework identifies national investments in terms of those covering direct commonwealth interests or issues at a broader, more strategic, scale, possibly crossing state, territory and commonwealth boundaries.

Regional delivery and investment is considered in detail in the following section of the paper. The local component of NHT Phase 2 is delivered through the Envirofund which caters for local projects (generally on-ground works) that may otherwise not be funded through the national and regional investment streams. Projects of up to $50 000 may be funded through Envirofund and applications are made direct to the Australian Government.

The *Natural Heritage Trust Annual Report 2004-2005* provides data for that financial year on the breakdown of funds across the three levels as shown in Table 1.

*Table 1: NHT Funding 2004–2005*

| Funding level | Amount ($ million) |
|---|---|
| National | $117.80 |
| Regional | $149.39 |
| Local | $19.47 |
| Administration | $25.12 |

Source: (Commonwealth of Australia 2005)

## NRM regions in focus

The regional delivery model pursued in NHT Phase 2 has at its core the identification of 56 NRM regions across Australia. Of these, 36 are on the coast. These regions are a combination of existing NRM units and new units developed by agreement between the relevant state and territory government and the federal government. For example, the NRM regions used in Victoria are those identified originally under the *Catchment and Land Protection Act 1994.* Each region has an associated regional NRM body, often a catchment management authority or modification of existing natural resource groups. These bodies contain a mix of community, state and local government representatives and are usually appointed rather than elected.

The regions themselves, while based generally on a combination of water catchments and bioregions, differ considerably in their size, human populations and range of issues. Large NRM regions include the whole of the Northern Territory as one region and, at a similar landscape scale, the Rangelands NRM in Western Australia. This region covers approximately 75% of the WA coast (perhaps 20–25% of the whole Australian coast) and 90% of the state's landmass (Commonwealth of Australia 2004). The coastal and marine ecosystems in this region range from the wet tropics to the Southern Ocean and have a corresponding huge range of values and threats. The Rangelands NRM region also has a small and highly dispersed population, making the logistics of coastal management (and NRM generally) extremely difficult. The region also contains four of the national biodiversity hotspots, being the Geraldton to Shark Bay Sand Plains, the Carnarvon Basin, the Hamersley/Pilbara and the North Kimberley (Commonwealth of Australia 2003).

At the other end of the scale, five relatively small NRM regions cover the Victorian coast, with each having a coastline length of perhaps a few hundred kilometres. Thus the very process of defining a 'region' has led to some startlingly different outcomes. This is not necessarily a major constraint within the system as it may reflect a healthy level of flexibility and the ability of the system to adapt to both political and natural resource pressures. However, in practical terms, some of the regions appear unwieldy as natural resource management units and it may be difficult to make progress at such a scale.

**Regional natural resource management plans**

Each NRM region is required to develop a regional natural resource management plan that is then accredited by the relevant state or territory government and the federal government against agreed criteria in the bilateral agreement. The regional NRM plan and consequent regional investment strategy then form the basis for expenditure of NHT funds and other funds and resources within the region. In Table 1 above for 2004–2005, $95.14 million of the $149.39 for regional investment was delivered through the regional investment stream.

The regional NRM plans are now nearly all complete. For many new NRM regions this is the first attempt at such a strategic, regionally focussed plan and the process has been difficult as new issues and methodologies have been identified and addressed. In areas with existing NRM regions (for example Victoria first prepared regional catchment strategies similar to NRM plans in 1997) the process has perhaps been simpler, but still difficult, as coastal NRM regions have started to address coastal and marine issues and work within the new regional NRM plan frameworks. It is clear that preparing this first set of regional plans within a national framework has included a steep learning curve in integrating coastal and marine issues. This should provide a sound basis and much experience for improving the plans when they are reviewed.

The plans generally follow a process of identifying natural assets and values and then assessing threats to them and the risk of those threats occurring or increasing. The monitoring and management framework for the plans is based around three sets of targets: 'aspirational targets', 'management action targets' and 'resource condition targets'. The Natural Resources Management Ministerial Council released the 'National Natural Resource Management Monitoring and Evaluation Framework' in October 2002 (Commonwealth of Australia 2002b). This framework provides the basis for monitoring, evaluation and reporting on regional NRM plan implementation.

The various targets across the regional NRM plans differ considerably in scope and coverage of issues. This results partly from biogeographical differences in the NRM regions but is also due to the plans being developed in relative isolation from each other although within the agreed Ministerial Framework. The big question is, does this matter?

In one sense it doesn't as the region is working as a self-contained unit. However it becomes more problematic when:
- you wish to report on a state or national basis on a parameter (for example marine water quality) and the individual regional data sets are not compatible or not available;
- regions immediately adjacent to each other with similar coastal and marine environments are working towards different targets, either in scope or actual values being monitored.

As the first set of regional NRM plans are progressively implemented, the resources required for monitoring, evaluation and reporting will be significant and establishing the system correctly now is critical.

**National, state and local governance arrangements**

To implement the regional delivery model, bilateral agreements were developed and signed between each of the states and territories and the Australian Government between December 2002 and June 2004. These outline the requirements for how the system operates including the financial arrangements, administrative process for accrediting regional NRM plans and the NRM issues to be addressed in regional planning.

The relationship between new NRM bodies (usually with independent boards) and state agencies already undertaking natural resource management has been problematic at times as the boundaries between areas of responsibility are negotiated. In many areas this has resulted in resources transferring from state agencies to regional NRM bodies, and under the current model this appears likely to continue. It raises the broader long-term issue of the role of spheres of government in a 'regionally delivered world'.

Local government is not a formal party to the bilateral agreements and their lack of formal recognition and engagement in coastal issues and NRM more broadly is a key criticism of NHT Phase 2. In NHT Phase 1, local government were an integral part of the system and a tripartite Memorandum of Understanding between the federal government, state governments and state-based local government associations was signed to help frame and deliver the Coasts and Cleans Seas program (Commonwealth of Australia 1998).

The 1999–2000 annual report of the NHT stated: "Local government across Australia has demonstrated a strong commitment to the Trust, managing over 640 Natural Heritage Trust projects to the end of 1999–2000, to the value of $53.7 million. Local government is recognised as a key player in the Natural Heritage Trust and as a partner in the tripartite Coasts and Cleans Seas memoranda of understanding. Increased involvement of local government in the Bushcare program demonstrates growing recognition of the role local government can play in natural resource management." (Commonwealth of Australia 2000).

While local government has not 'withdrawn' its involvement in the regional delivery of NHT under Phase 2, the lack of perceived and real engagement by the state and federal governments through formal recognition (perhaps by inclusion in a new tripartite agreement) is a real impediment to effectively implementing the model.

## Catchment, coast and marine

Through the Coasts and Clean Seas program under NHT Phase 1, the coastal and marine environments were considered as separate biogeographical units from terrestrial natural resource management units. In taking a more strategic approach in Phase 2, the coastal and marine environment has been included in the adjacent regional NRM plan with investment funding delivered through the broad regional NRM delivery.

This has been approached differently in different regional NRM plans, with some tightly integrating the coast and marine environment within the plan while others take a more 'modular' approach and treat coastal and marine areas as a stand-alone set of issues. In the first suite of regional NRM plans, there has also been highly variable treatment of coastal and marine issues ranging from almost complete neglect to a comprehensive and thorough consideration of the issues.

In all regional NRM plans the allocation of funding is through the regional NRM plans and associated investment strategies. This leads to a situation where it is difficult to determine whether an 'appropriate' amount of the total funding pool is being provided to coastal and marine issues. Anecdotally, the amount of funding directed to coastal and marine projects appears to have declined; however, this is difficult to determine with any certainty because of the change of program boundaries between NHT Phase 1 and Phase 2.

It is however perhaps an argument for establishing a system where a proportion of regional investment funding through the regional NRM plan and investment strategy is allocated explicitly to coastal and marine issues. This could be achieved within the NRM regional delivery model to keep its benefits while ensuring coastal and marine issues are not excluded. Determining exactly what this allocation might be is difficult but it could be negotiated through the bilateral agreements. This could be on a technical basis (for example the allocation could be determined through a formula considering length of coastline and the number and conservation status of marine and coastal bioregions) or from experience gained during implementation of the Coasts and Clean Seas and subsequent programs.

Developing projects in the coastal and marine environment (particularly the latter) can also be challenging as:
- baseline data is often lacking and therefore management needs are difficult to determine;
- it is difficult to observe, understand and take action on NRM issues in the marine environment as it is 'out of sight' and thus physically removed from stakeholders (professionals, politicians and the broader community);
- much of the coastal and marine environment is publicly owned and it is difficult to attract funding for projects on crown land, particularly from private sector partners who believe this is the realm of governments; and

- the community action networks may not be as well developed (again, particularly for the marine environment).

In addition to these constraints, the capacity of regional NRM bodies in integrated coastal management at both board level and on staff is also very low in many areas. This appears to result from several factors including:

- a general skills shortage in coastal and marine management;
- relatively recent formation of many of the NRM bodies and an initial focus on catchment issues, leading to a lack of skills in coastal and marine management and planning; and
- the transition from existing NRM bodies into the new regional delivery model (for example Victorian catchment management bodies have been around in some form for over ten years but have only picked up coastal and marine issues under NHT Phase 2).

None of these issues is insurmountable but they do indicate a need to focus on the area of coastal and marine capacity within regional NRM bodies if the model is to be improved.

## Beyond regional NRM delivery

This paper has focussed on ICZM within the regional delivery model for natural resource management. Many of the issues facing the coastal environment perhaps sit more comfortably within other frameworks such as land-use planning and recreation. In particular, the massive increase in coastal populations is driving critical issues such as infrastructure provision, with local government struggling to cope. While these issues may impact on the natural environment, they are much broader in scope than strictly natural resource management.

Given that many programs are now being delivered regionally (particularly commonwealth services) it may now be opportune to begin the broader dialogue about how far the regional delivery model could and should go. For example, the Great Ocean Road region of western Victoria covers the shires of Surf Coast, Colac–Otway, Corangamite and Warrnambool. Many of the development and natural resource issues in this area are driven and linked by the road itself. These issues cover the complete range of community interests from natural resource management to transport to housing and employment and everything in between. While a regional strategy has been developed for this area, its scope does not perhaps realise the full potential of a truly integrated regional model.

The NRM regions discussed in this paper may not be the basis for organising the delivery of other regional services, but the issue of 'too local for state' and 'too state for local' is not going to go away.

## Recommendations

1. Review or extend the NHT Phase 2 regional delivery model to formally include local government as an equal partner in regional delivery mechanisms.

2. Develop guidelines to incorporate coastal and marine issues into regional natural resource management plans for the next round of plan development including advice on structural integration and agreed consistent targets for coastal and marine issues.

3. Increase coastal and marine capacity within coastal regional natural resource management bodies at both board and staff level to ensure coastal and marine issues are effectively understood and incorporated in regional NRM planning.

4. Develop a separate coastal and marine program (complementing Coastcare and its strength in supporting on-ground community capacity and works) with tied funding within the regional delivery model to ensure adequate support to develop strategic coastal and marine NRM policy, plans and projects.

## Conclusion

The regional delivery model used in NHT Phase 2 is an attempt to provide a more strategic framework for natural resource management based on catchment and bioregional units. While in principle the model is supported it does pose some particular challenges for the coastal and marine environment.

In particular it is important that the coast and marine environment be adequately recognised and resourced in what is essentially a model derived from a land and catchment–based perspective. Future development of the model, including the next round of regional NRM plan development and investment, needs to bring local government squarely back into the picture to draw on their expertise in natural resource management and people management on the coast.

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# THE PLACE, LIMITS AND PRACTICE OF COLLABORATION: LESSONS FROM REGIONALISATION AND COMMUNITY PARTICIPATION IN COASTAL NATURAL RESOURCE MANAGEMENT

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## Abstract

Based on three years of in-depth, case study research in south-east Queensland and a Queensland-wide desktop audit of web sites and relevant documents, this essay presents a summary of pressures facing natural resource management (NRM) regional bodies and grassroots NRM and conservation groups involved in community-based, collaborative NRM. These regional bodies have been formed under the Australian Government's Natural Heritage Trust (NHT) 2 and National Action Plan for Salinity and Water Quality (NAPSWQ) programs[5]. Their effective operation is critical to voluntary, community-based NRM throughout Australia, particularly in the coastal zone. Study results highlight that the pressures these institutions face, and the resolution of these pressures, centre around four themes: the regionalisation process; resourcing the process; working collaboratively; and recognising and dealing with conflict. The concepts of power and culture are seen as fundamental to these pressures and two tools are presented to meet the challenges their resolution presents. The first is a normative model for collaboration. The second is a monitoring and evaluation framework for collaborative arrangements. These tools may also serve as a basis for dialogue between all parties (government and non-government) involved in voluntary, community-based coastal NRM—a dialogue that focusses on the nature and culture of collaboration and the distribution and use of power in collaborative relationships in NRM.

## Introduction

This essay presents highlights of research that investigated the role of 'regional bodies', institutions central to the current regionalisation of community-based natural resource management (NRM) in Australia and community-based, voluntary NRM in the coastal zone. Specifically, it describes pressures on relationships between these institutions and voluntary, collaborative grassroots NRM and conservation groups, based on the results of three years of case study research (2003–2005) in coastal catchments of south-east Queensland. This case study research was supplemented by a Queensland-wide desktop study.

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5 The NHT2 and NAPSWQ programs will allocate $3 billion and $1.4 billion respectively for NRM work throughout Australia from 2001–2008 (Australian Government 2004, 2005).

Two tools are presented to address outstanding challenges to these institutions and the NRM 'carer' and conservation groups that were the focus of this study. The first is a normative model for collaboration, which contains an issue, context and stakeholder identification (ICASA) system, which helps participants decide on issues that should be dealt with collaboratively and how to go about this process. The second is a monitoring and evaluation framework that highlights the interrelated nature of its four dimensions: efficacy; organisation; governance and institutions; and evidence of social learning and adaptation. Understanding when collaboration is an inappropriate NRM tool and understanding the use of social learning and adaptive management are essential to the implementation of these two tools.

This three-year study was informed by lessons learnt from collaborative NRM in other settings throughout Queensland, Australia and elsewhere, and coincided with the coordinated development of collaborative institutional arrangements for regional land and water management throughout Australia. These arrangements are evolving rapidly and major changes are anticipated over the next few years.

## Historical background

The Australian Government established the Natural Heritage Trust (NHT) in 1997 in response to an overall, continuing decline in the condition of Australia's natural resources. A 1999 national discussion paper highlighted the need for all facets of the Australian community including industry and conservation groups, Indigenous people, landholders, existing Landcare, Coastcare, catchment management and other 'carer' groups, and all spheres of government to work collaboratively, and for authority to be devolved to people in regions and catchments by establishing suitable institutional structures to address these issues (National Natural Resource Management Taskforce 1999). The need for these actions was further reinforced through a mid-term review of NHT arrangements in 2000. In 2004, the signing of bilateral agreements between the Australian and state and territory governments committed these two spheres of government to work jointly to support these new NRM regional arrangements including the development of the then 56 designated, cross-sectoral 'regional bodies' throughout Australia. Through several government funding programs, including the National Action Plan for Salinity and Water Quality, the Natural Heritage Trust 2 (NHT2) and the National Water Initiative (NWI), around $5 billion of government funding has been allocated over five years to on-ground NRM work (Campbell 2006), much of this funding being directed through these regional bodies.

## Methods and techniques

Two main social science research traditions were used to investigate a south-east Queensland case study focussing on the nature of the collaborative relationship between the Natural Resource Management South East Queensland Inc. (NRMSEQ)

regional body and grassroots NRM 'carer' and conservation groups[6]. The first—grounded theory research (Strauss 1987; Strauss & Corbin 1994)—provided techniques to discern patterns of social interaction that are consistent with the experiences of social actors, rather than shaped by externally-derived theory. Confirmation of our findings or 'theoretical saturation' was achieved through extended fieldwork and six 'think tanks' involving 170 participants involved in regional NRM. Our second research method—action research—involves cycles of planning, action, observation and reflection (Kemmis & McTaggart 1988). The study involved two such action research cycles, culminating in several collaborative and catalytic (change-oriented) Think Tanks where we worked with participants to test and apply our emerging understandings.

The study involved collection, analysis and synthesis of seven sets of qualitative data: (1) a broad-ranging literature review on collaborative NRM (35 000 words and 150 references); (2) a collection of government and regional body documents, derived from the literature review, our fieldwork and a web-based search of documentation from the 15 regional bodies in Queensland; our analysis of government and regional body documents; (3) field notes and participant observation of over two years of regional body–grassroots interaction; (4) twenty interviews with grassroots group members, regional body staff and board members; (5) seven interviews with participants in collaborative NRM arrangements interstate and internationally; (6) six 'think tanks' where 170 people with an interest in regional NRM came together to discuss our emerging findings; and (7) two symposiums (one in south-east Queensland and one in central Queensland) where we presented our preliminary findings and sought feedback from over 60 people. By synthesising these seven complementary data sources, we were able to triangulate our observations (Lincoln & Guba 1985; Miles & Huberman 1984) by drawing conclusions from a variety of perspectives to validate the themes that are discussed in this essay.

As the study progressed we broadened the focus on the relationship between grassroots groups and the regional NRM body in south-east Queensland in two ways. Firstly, we began to examine other relationships: between regional NRM bodies and governments (Australian, state and local); and between regional bodies and other stakeholders including industry, as these relationships also impacted on regional bodies and voluntary grassroots groups. Secondly, we broadened our study to take in results of similar studies occurring in other parts of Queensland and Australia that were also focussing on the new NRM arrangements (Bellamy *et al.* 2004; Head 2004; Holm *et al.* 2004; McDonald *et al.* 2004). By broadening our study to integrate these research findings and additional comparative assessment, including an audit of NRM bodies' board membership across Queensland, we have maximised the relevance of our

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6   We defined two types of 'grassroots groups': NRM 'carer' groups' mostly initiated as part of a government program (e.g. Landcare, Coastcare, Waterwatch, catchment management groups); and conservation and environment groups, mostly community initiated, that focussed on environmental or conservation issues or places.

conclusions in both this and other regions. A discussion of our findings and conclusions follows.

## Discussion

Analysis of our case and desktop study data revealed that pressures on regional NRM body–grassroots group relationships and solutions to these pressures centred around four themes:

1. the regionalisation process itself, especially matters relating to spatial and temporal scales and the need for shared expectations;
2. resourcing the regionalisation process and the need to clarify roles and responsibilities;
3. grassroots groups working collaboratively, especially collaboration within and between sectors; and
4. recognising and dealing with conflict.

The following discussion expands on these four themes. Throughout fieldwork it was apparent that members of grassroots groups were often more interested in their local 'place' and issues relating to it, rather than the 'region'. This resonates with Duane's (1997) 'community of place' and the findings of Holm *et al.* (2004) and McDonald *et al.* (2004). We also observed that differences in temporal scales between grassroots groups and the regional body created some tensions, particularly in terms of an extended hiatus in government funding and support to grassroots groups. This occurred throughout the latter part of 2003 and 2004 as a result of NHT2 and NAPSWQ funding not being made available to groups until their regional bodies had their NRM plans endorsed by the state and Australian governments. This extended time period of very little funding and support from government had a negative effect both on grassroots groups' activities and their participation in the regionalisation process.

In general, there were fewer forms of support available to grassroots groups than to other NRM stakeholders, including local government and industry, and support was generally available at a much lower level. Throughout Queensland, we noted several examples where grassroots conservation group members travelled further to participate, covered more of their own expenses, and received less targeted support than other stakeholders. Not surprisingly, they were much less well represented across the state than other stakeholder groups. For example, our desktop audit of Queensland regional body web sites and documentation revealed that only 7% of the members of boards of Queensland NRM regional bodies sat as members of recognised grassroots conservation groups, while 24% of the board members were local government councilors. This outcome is consistent with Baccaro's (in press) assessment of the obstacles facing 'dispersed' interests such as community and civic groups compared to

the higher level of participation by 'concentrated' interests including local government councillors and producer groups[7].

From the outset representatives of established grassroots groups expressed reservations about the extent to which the then 'new' regional arrangements would achieve the intended level of collaboration. For example, when we presented a leading conservationist with a diagram that depicted the region's emerging institutional arrangements for NRM in late 2003 and asked him to identify where decisions might made collaboratively, he replied, "None of this is about collaboration." His assessment was confirmed in interviews with several community members who encountered regional bodies as 'creatures of government'. Interestingly, government officers interviewed often revealed that they encountered regional bodies as 'creatures of the community'. These disparate views suggest that both sectors had a relatively low level of ownership and may partially explain the reticence in some quarters to become and remain actively involved.

Grassroots groups are not alone in being underrepresented in the regional groups' board membership. Only one-fifth of regional bodies' board members are women and less than one tenth are Indigenous, despite clear commitments by the Australian and state governments, and regional bodies, that NRM funding decisions must be informed through the active involvement of traditional owner interests[8].

Conflict is widespread and endemic in NRM culture generally (Tsing 1999: 2). Our analysis suggested that the divisional (interest and sector-based) board structure adopted by regional bodies may, in some instances, weaken collaborative relationships by providing an institutionalised basis for competition and conflict over collaboration. For example, early in our case study, we sometimes noted a tendency towards competition for influence between organisations and individuals who would otherwise consider their interests congruent (i.e. NRM 'carer' and conservation groups). This is not to suggest, however, that the grassroots divisions did not ever cooperate. In the latter part of our study we observed 'carers' (Queensland Water and Landcarers Inc.) and conservationists (Queensland Conservation Council) collaborating to strengthen the capacity of volunteers to participate in regional NRM processes. This contrasted with the conflict and competition between grassroots groups we observed early in our fieldwork, brought about in part because of a scarcity of resources for grassroots groups occasioned by the hiatus in funding and support for grassroots groups, mentioned earlier in this essay.

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7  For example, grassroots groups were marginalised in the monitoring and evaluation of regional arrangements. A report commissioned by SEQ Catchments to clarify roles and responsibilities of regional bodies and key agencies (Briggs 2005) was based on interviews with twenty stakeholders, none of whom was formally associated with grassroots groups. Significantly, two interviewees represented industry groups.

8  Board membership is clearly only one indicator of engagement. Bellamy *et al.* (2002: iii) suggest the low level of traditional owner participation in these groups can be attributed to the mismatch between Indigenous customary governance and representative structures.

**Outstanding challenges**

Based on this study we argue that the concepts of power and culture are central to collaborative relationships and form the theoretical platform from which to address the main challenges we see facing community-based NRM in Australia (Arnstein 1969; Eisler & Koegel 1996; Eisler 1987, 2002; Fung & Wright 2003). Fung and Wright (2003: 262–267) highlight that redistribution of power in a relationship from the more to the less powerful (giving the less powerful party 'collaborative countervailing power') will ensure that 'empowered participatory governance' occurs. We agree with Arnstein (1969), Eisler 2002 and Oliver (2004), who would define such collaborations as 'partnerships'. Eisler (2002) has developed a cultural transformation theory, emphasising differences between the 'dominator culture,' that she sees as having prevailed in western societies for many years, and the 'partnership culture' that Eisler asserts must be adopted by participants if power-sharing relationships, such as those mentioned above, are to be effective.

On this basis we have developed a normative model for collaboration that uses the notion of 'collaborative space'. This model emphasises the need for participants to make careful decisions on which issues, in what contexts and with whom they should collaborate if they are to resolve an NRM issue. It also advocates the development of an ICASA (issue, context and stakeholder analysis) System to allow this to occur. This normative model for collaboration is described in Figure 1.
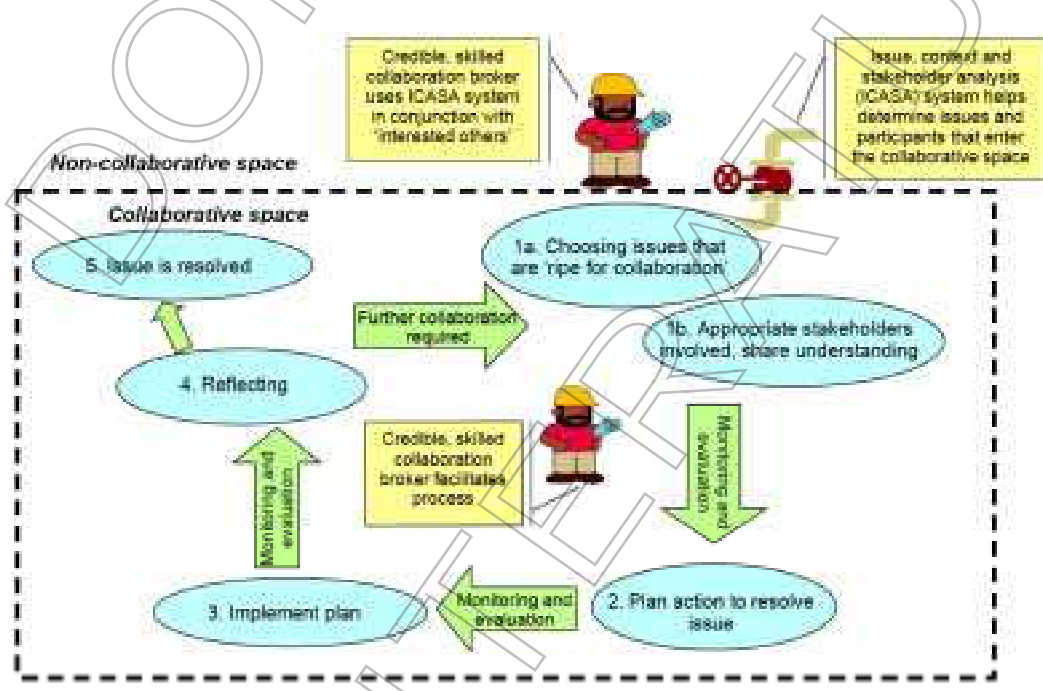


*Figure 1: Normative ('ideal') model for collaboration* (The input from members of the Engaged Government project (see *www.griffith.edu.au/projecteg*) in development of this model is gratefully acknowledged).

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Figure 2 describes a monitoring and evaluation framework for collaborative arrangements. We offer this framework as a starting point for deliberation on more 'inclusive' monitoring and evaluation by all parties involved in community-based NRM. Throughout the study we observed an increasing emphasis on the setting and achievement of biophysical targets in the regional NRM planning process[9]. We assert that in community-based, collaborative NRM, biophysical targets will not be met without good governance and healthy social processes. Process and outcome are dialectically related. Figure 2 summarises a broad range of literature to emphasise this point.



**Dimension 1: Efficacy**
* Effectiveness
* Efficiency
* Indirect effects
* Evaluation against what would otherwise most likely have been achieved
* How citizens perceive the effectiveness and value of the collaboration

**Dimension 2: Organisation**
* Flexibility (with respect to external change)
* Resilience (with respect to internal change)
* Vigour (level of activity)
* Cultural diversity
* Communication and dialogue
* Conflict resolution
* Social capital, including relationships, networks and resources

**Dimension 4: Evidence of social learning/adaptation**
* Changes in language and discourse
* Changes in organisation
* Changes in activities and practices
* Re-allocation of resources (funds, material, knowledge, labour)
* Re-allocation of responsibility
* Re-allocation of authority and power (use of collaborative countervailing power)

**Dimension 3: Governance and Institutions**
* Transparency
* Accountability
* Legitimacy
* Fairness
* Wisdom

*Figure 2: Monitoring and evaluation toolkit – four dimensions of 'health' of collaborative arrangements* (after Fisher & Ury 1983; Fung & Wright 2003; Glesne & Peshkin 1992; Habermas 1974, 1979; Kemmis & McTaggart 1988; Oliver 2004; Portes 1998; Rees 1988; Wondolleck & Yaffee 2000).

A monitoring and evaluation framework based on this framework would ensure that NRM processes and outcomes were valued as a unified whole and would be of use to all parties, including NRM bureaucrats, regional bodies, their members and staff and the grassroots groups they seek to serve.

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9 The SEQ regional body plan emphasises the building of social capital among its short, medium and long-term targets. We see this as far-sighted and innovative. The remainder of the plan focusses on improving the condition of the biophysical assets of the region (NRMSEQ 2005).

## Conclusion

Collaborative, community-based NRM is not a passing fashion. The brief historical background presented in this essay provides some insight into the fact that communities, industries and governments in Australia and elsewhere have arrived at their current interest in collaborative NRM via a long and arduous journey. The study presented here revealed that there is reason to believe that re-orientation of NRM culture towards one of partnership as described by Eisler (2002) where power is redistributed, giving less powerful parties collaborative countervailing power (Fung & Wright 2003: 262–267) can occur in a variety of community-based settings where community works alongside industry and government. We believe that this will reap significant social and environmental benefits including additional resources, legitimacy and ownership of both the process and its outcomes. We hope that the two tools presented here in overview serve as a useful basis for dialogue and action among all interested parties and look forward to continuing this important conversation with groups and individuals interested in collaborative coastal zone NRM and collaborative NRM in general.

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# COMMUNITY PARTICIPATION IN ICZM:
## LESSONS AND AREAS FOR IMPROVEMENT IN GOVERNANCE

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## Abstract

There has been strong debate about the practice and efficacy of ICZM and this is reflected in Australia by the multitude of policies, reports and inquiries that have been produced on this topic over the past two decades. Among other issues, the findings documented in these reports identify as being important the non-institutional community and stakeholder responses to the many *ad hoc*, multi-layered and uncoordinated approaches to planning and decision-making in coastal areas (RAC 1993, Dovers 2001, Graham 2002, Lazarow 2002, Smith 2002).

An analysis of papers and presentations from the 2002 National Coastal Conference in Australia points to the fact that there have been many gains in coastal resource management and protection outside of the traditional political and institutional management frameworks. Successes have been found in the political arena and perhaps a focus of inquiry should be asking why this is the case, whether the pursuit of short-term goals in the political arena may be dismantling the bureaucratic process, simplifying science and unwittingly leading to further degradation of our coastal environment. In this paper, the author comments on this phenomenon; questions whether successes can and should be measured outside of formal governance/ institutional arrangements and if so, what benefits this may have for coastal planning and management; and puts forward two key recommendations that the author hopes will lead to an improvement in governance for ICZM.

## Overview

Since the late 1960s, there have been a number of studies undertaken, programs devised, policies implemented and reviews undertaken specifically relating to the coastal zone (Kay & Lester 1997, Lazarow 2002, Harvey & Caton 2003). Many of the key coastal management issues faced today are common across borders and between nations and hence many countries face similar planning and management concerns for the coastal zone (there are, however, some marked differences between nations' ability to successfully deal with ICZM issues). It is now widely accepted that coastal planning and management, as with most other streams of natural resource management, requires a focus on both resource outcome and management processes (RAC 1993, Kay & Alder 1999, Thom & Harvey 2000, Lazarow 2002a). This implies an interaction between all levels of government, industry and the community for how we plan, manage, live, work and recreate in the coastal zone. This integrated and coordinated

approach to management has been a common imperative across most NRM policy development in Australia over the past decade.

The coastal zone can be defined functionally, cadastrally, geographically, spiritually, through the enactment of a policy framework or by a combination of any of these methods. The area of land and water and the population and industry base within the management regime encompassed by ICZM can differ from region to region and country to country. ICZM today is generally prescribed by a definition similar to that stated by Harvey (2004), who writes that:

> *Integrated coastal management is a continuous and dynamic process incorporating feedback loops which aims to manage human use of coastal resources in a sustainable manner by adopting a holistic and integrative approach between terrestrial and marine environments; levels and sectors of government; government and community; science and management; and sectors of the economy.*

Defining coastal management, however, does not provide any indication of how coastal management is practised. The Resource Assessment Commission's (RAC) Coastal Zone Inquiry (1993) identified that most previous reports into coastal management had concentrated on physical and environmental issues at the expense of social and cultural issues and emphasised the need for improved governance in achieving sustainable outcomes from the use and development of coastal zone resources in Australia. Major problems were identified with the *ad hoc*, multi-layered and uncoordinated approaches to planning and decision-making in coastal areas.

The Majority Report of the RAC inquiry emphasised community-based action as a key response, and the Minority Report emphasised a much more holistic approach, with a focus on integrated planning, decision-making and implementation. While community-based action was seen as necessary, Bob Graham, RAC Special Commissioner and author of the Minority Report, was of the opinion that it was not sufficient to tackle the existing problems of coastal planning and development, let alone emerging issues (Graham 2002). Graham argued that reliance on community-based action was a 'cop-out' that avoided the hard task of institutional and political reform (Graham 2002).

The RAC is one of a number of high profile national and international reports into ICZM that identifies the need for more emphasis to be placed on management. Table 1 below provides an overview of the recommendations relevant to this paper from these reports and lends support to the idea of a timely review of the institutional arrangements that support coastal management in Australia. These recommendations have yet to be properly implemented.

*Table: 1 Key management recommendations for ICZM*

| Report | National Coastal Management Act | Effective public participation | Clear identification of agency responsibilities & coordination at all levels of government | Improved training and understanding for coastal managers |
|---|---|---|---|---|
| Stratton Report (1969)[1] | X | X | X | X |
| HORSCEC (1980)[2] | X | | X | X |
| Aust. National Conference (1986)[3] | X | X | X | X |
| OECD (1990)[4] | X | X | X | X |
| HORSCERA (1991)[5] | X | X | X | X |
| Agenda 21 (1992)[6] | | X | X | X |
| RAC (1993)[7] | X | X | X | X |
| National Coastal Policy (1995)[8] | | X | X | X |
| SOMER (1996)[9] | | | X | X |
| National Framework (2003)[10] | | | X | X |

Source: Adapted from Lazarow (2002a)

Notes:

1.  Document underpinning the development of the US *Coastal Zone Management Act* in 1972 (Stratton 1969; see also US Government 1972)
2.  House of Representatives Standing Committee on Environment and Conservation (Commonwealth of Australia 1980)
3.  Report authored by Kenneth Stark summarising the major outcomes and recommendations from the first national coastal conference (Stark 1986)
4.  Organisation for Economic Cooperation and Development (pre-EU European based ICZM report) (OECD 1990)
5.  House of Representatives Standing Committee on Environment Recreation and the Arts (Commonwealth of Australia 1991)
6.  Report falling out of the first Earth Summit in Rio in 1992. A number of chapters in this report dealt with community-based coastal resource management (UNCED 1992)
7.  Resource Assessment Commission: Coastal Zone Inquiry (RAC 1993)
8.  Released by the Keating Labor Government in 1995, the report was the Commonwealth Government's response to the RAC Inquiry (Commonwealth of Australia 1995)
9.  State of the Marine Environment Report, Australia's inaugural report into the state of the marine environment, prepared by Leon Zann. Subsequent reports have been incorporated into the national state of the environment report (Zann 1996)
10. Framework for a National Cooperative Approach to Integrated Coastal Zone Management—document describing the Commonwealth Government initiative to improve ICZM at the national leve1 (Commonwealth of Australia 2003).

Across government, one could argue that there is a well-developed understanding of what has to be managed in the coastal zone—sea level rise, development, erosion, coastal hazards environmental degradation, overuse of resources and population

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growth (see for example the NSW Coastal Policy 1997, NSW Government 1997) but there has not been a similar commitment to understanding management needs for ICZM. In other words, too much attention has been paid to why (resource outcome) the coast is managed and not enough to how (organisational process) it is or could be managed—and there are a number of reasons for this, as follows.

- Legislative arrangements surrounding the Constitution have developed over many decades and are entrenched within the current system of government. This deliberate separation of powers supports institutional arrangements that in reality were never designed to deal with complex multi-jurisdictional natural resource management issues.

- Fiscal arrangements for the funding and reporting of coastal programs are regularly unaligned across governments and sometimes even with agencies or directorates at the same level of government.

- The Australian Government and to a lesser extent the states and many local governments have consistently demonstrated a resistance to driving the development of post-policy partnerships and other mechanisms that would see the growth of strong support networks to assist with the implementation of both policy and plans. Unfortunately, a black-and-white approach to program development does little to recognise the growth, maturity and capacity of many communities. With a more vigilant government and an increasingly well-informed community, this issue urgently needs to be addressed.

Dovers (2001) and Lazarow (2002a) have argued that the recommendations from top-level reports—that is, the terms of reference for coastal policies at state and federal government levels, including the current National Framework—are beyond the capabilities (and possibly the intention) of the respective levels. Simply put: "The silo-isation of agencies makes it very difficult to get decisions that cut across the interests of the various groups" (Thom 2001).

Nevertheless, it would be unfair and inaccurate to write off the many good things that have been achieved across the ICZM policies and programs since the RAC was released. These have had an important bearing on the manner in which coastal planning and management operates at the start of 2006.

## Learnings from the past decade

Over the past decade, the Commonwealth, states, regions and local governments have made significant progress in the development of coastal management policies and programs (National Coastal Policy, state policies in New South Wales, Victoria, Queensland, Western Australia and Tasmania). The creation and funding of community involvement programs has been extensive and the community has been widely involved in protection, management and rehabilitation of coastal environments. It is this type of participation that has most often been offered as 'community participation' in

ICZM. For example, in 2000–01, 78% of Coastcare funding in New South Wales was directed towards on-ground works, whereas education (9%), planning (8%) and monitoring programs (3%) have received a total of 20% of available funding (Lord 2001). However, these "programs have not seen the devolution of decision-making power that many think is needed, nor the guarantee of longer-term resources, administrative capacity and legal status that would make community-based management a core part of environmental governance" [Lazarow 2002a and supported by Dovers 2002, Smith 2004, Oliver 2003, Oliver & Whelan (this monograph)]. "That raises the suspicion that governments are happy to pass on responsibilities, but not power or ongoing capacity" (Dovers 2002).

Nevertheless, government increasingly recognises that community groups have an important role to play in environmental decision-making (Harding 1998, Coenen *et al.* 1998, Shindler & Cheek 1999). However there is some debate as to what motivates this new operating paradigm. One could argue that any of the following three scenarios characterise this change:
1. community involvement will lead to better environmental outcomes
2. community involvement is required by legislation
3. failure to involve the community will result in legal action (after Harding 1998, Connor 2000, Lazarow 2002a).

Despite the apparent advances in ICZM and institutional arrangements for public participation in ICZM, (e.g. National Framework and Implementation Plan, Commonwealth of Australia 2006), a growing number of groups seek to influence decision-makers and the decision-making process outside of the established channels —through direct influence on politicians and policy makers and Lazarow (2006 in preparation) suggests that successes have often relied on actions, events and actors external to existing policy, program and institutional arrangements. Public involvement in ICZM decision-making outside of the government initiated 'participation programs' has grown rapidly in recent years (Whelan 2002). The growth of this type of 'lobbyist' activity is by no means new—groups, organisations and industry have been participating in this process for many decades. A serious shortcoming of focussing on achieving 'wins' within the electoral and political cycle is that solutions are often of a short-term nature and do not necessarily represent a change in governance nor does it provide any assurance that the same issue will rise again in the not too distant future.

"Difficult decisions are usually put on the back burner in the lead-up to an election or are turned into electoral issues almost guaranteeing a short-term political fix to the issue. There appears to be an increasing list of old and emerging issues that are time-consuming and expensive to manage in the absence of commitment to a clear policy" (James 2002).

**Discussion**

Kay and Lester (1997) have argued that perhaps the key issue for ICZM in Australia is that the coast and its management are so intertwined with the Australian 'psyche' that the job of improving coastal management effectively is one of improving government and governance itself. Dovers and Mobbs (1997) argue that current policy settings within NRM place new demands on policy-makers and managers.

Setting up and maintaining the structures for active community participation, information and practical support is very demanding on local government and regional agency staff. Access by the general public to bureaucrats, the need for government staff at many levels to make themselves available to the public and a further requirement for many staff to proactively design and run public outreach programs is a task that is both time-consuming and requires specialist skills. The demands on human and information capital are significantly greater today than they were a few years ago. This poses greater stress on the ICZM process and individuals involved in the delivery of programs and services.

One of the major disadvantages of the government-initiated ICZM models over the past decade has been the inability to develop effective or lasting post-policy partnerships and this means that achieving positive environmental (policy) outcomes, which often takes time, has not been as successful as possible. There are many reasons for this: inadequate jurisdiction; conflict between stakeholders; the lack of mediation and conflict resolution; lack of funding; lack of resources; and time constraints, to name a few. It is also worth noting the types of indicators used to measure the success of ICZM generally focus on resource outcome issues and do not include these organisational process indicators (Lazarow 2002a).

In the absence of effective and accepted governance arrangements for ICZM in Australia and little in the way of incentives for change from within the current power structures, many groups and organisations will continue to pursue their ICZM agenda in the electoral and political arena.

The often rapid overhaul of programs and policies at all levels of government has left a legacy of disenchanted and in some case disempowered staff. Further, many agencies are losing personnel to the private sector (ALGA 2005). High levels of corporate knowledge and experience are vital to ensuring the best results are achieved in the research and the development of policies and programs. Buying in skills from outside contractors is all well and good but, at the local government level in particular, authorities may not have the capacity to evaluate the products they receive and there may be no requirement for peer review. Dean-Jones (2003 pers. comm.) suggests that even with well-developed state or regional policies and programs, these issues mean that delivery at the local level can be haphazard and inconsistent.

# Recommendations

## 1. Rationalising legislation, overcoming duplications and jurisdictional overlaps

Perhaps an ultimate goal might be the formation of a National Coastal Council or similar that has responsibility for marine and coastal affairs. The apparent lack of guidance and the inability to draw together the disparate information and resource needs of state and local government coastal managers might be partially amended through the auspices of a federal agency with carriage of marine and coastal affairs as recommended by the HORSCEC report (Commonwealth of Australia 1980) and a number of subsequent reports [e.g. National Coastal Conference (Stark 1986), HORSCERA (Commonwealth of Australia 1991)].

In the near-term, there is an urgent need to streamline and integrate policy and programs across local–regional–state–national–international levels. Policy scale and jurisdiction has consistently been an issue for ICZM. There are inconsistencies between policies developed at the national and state levels and the aspirations/expectations of local government and local and regional communities. The national and state programs are often unable to communicate the value of their broad (and hopefully strategic) approaches to regional and local governments, organisations and communities. It is these latter organisations and communities who are often best placed to manage the coast.

How might this be done? Clearly there is no easy solution. Nevertheless, two significant opportunities need to be discussed. Community offers both a capacity and opportunity for knowledge-gathering and the delivery of ICZM programs. Wherever possible, initiatives should be encouraged and promoted; however, careful thought needs to go into how best to involve stakeholders and not waste government and community goodwill. Research institutions, community and government continue to develop partnerships and opportunities for knowledge-sharing and this should be encouraged.

## 2. Placing significant attention on the development of partnerships

Creating the right settings for the advancement of environmental, social and economic factors in policy and decision-making is critical for the development of ICZM (after Connor and Dovers 2004). One of the major shortcomings of the government-initiated ICZM over the past decade has been the inability to develop effective or lasting partnerships with the community. For example, Shaw (pers. comm. 8 July 2004) argues that 'community' offers major advantages in place-based negotiation and planning but government are not sharing the power or processes effectively to allow them to participate effectively. Oliver (2003) and Wondolleck and Yaffe (2000) assert that investment in partnerships has made a significant contribution to the success of environmental (policy) outcomes and public support for complex programs.

Nevertheless, successful post-policy partnerships are often instigated through the hard work of individuals, rather than through a deliberate policy or program directive (Harding 1998, Bragg & Cuming 2002, Tait 2002, Lazarow 2002b). Not enough emphasis has been placed on some of the economic and social drivers of change that are putting pressure on the coastal zone or the positive impacts that a well-informed community can have on ICZM outcomes. The current *ad hoc* and inconsistent nature of such partnerships is inadequate for ICZM. Attention, time and effort must be given to the people and relationships that form such an important part of ICZM delivery, including the need to maintain and enhance corporate knowledge.

The development of cross-sectoral partnerships such as those between government and academia/research organisations has proven to be a useful avenue for bridging the gaps. Typical of these types of relationships are those between local government and academic institutions. On another level, there are also examples of multi-party partnerships. The Cooperative Research Centres provide good examples of this type of partnership.

## Conclusion

There are significant barriers, which must be overcome if these recommendations are to be even moderately successful. Firstly, strategies to monitor the impact of policy and management in ICZM need to be developed. To independently evaluate government performance (at all levels) with respect to integration in ICZM is no small feat and the small attempts that have been made to date have in some cases been met with fierce resistance. Secondly, the process to ground and develop post-policy and program partnerships among all stakeholders is hard to retrofit to existing policies and programs and there is often both resistance and a lack of knowledge about how to achieve this. Thirdly, the redirection of resources (that may involve the devolution of power) may not be supported and attempts to progress this may be actively undermined. Lastly, the need for more valuable public involvement in decision-making requires a shift in the way we practise ICZM in Australia.

Governance for ICZM—the practice of coastal management, requires significant improvement. The recommendations described in this paper have grown out of what are known to be central issues for reform and improvement of ICZM and have been major recommendations from practically every significant report and inquiry into ICZM in Australia over the past 20 years (see Table 1).

"Without a change in governance and in administrative structures … the future of coastal management will not differ much from that of the past" (Thom & Harvey 2000).

Based on our collective knowledge and experience, there are good reasons why ICZM planning, policy and implementation can and should be more integrated and fundamentally improved.

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# STRATEGIC ASSESSMENT AND INTEGRATED COASTAL MANAGEMENT: IMPLICATIONS FOR COASTAL CAPACITY BUILDING IN AUSTRALIA

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## Abstract

The importance of an integrated approach to coastal management and sustainable development of coastal areas has been endorsed globally by the 2002 World Summit for Sustainable Development and in Australia by the 2006 Implementation Plan for the National Framework for a National Cooperative Approach to Integrated Coastal Zone Management. The need to take a more integrated and holistic approach to coastal issues requires a strategic framework for environmental assessment and planning. It also requires knowledge, training and resources in order to implement such programs, particularly at the local government level where much of the coastal management takes place. This paper discusses the relevance of strategic environmental assessment and planning for coastal areas and examines the knowledge and training needs for coastal managers in Australia. The paper concludes that while there are some strategic and integrative initiatives in coastal management, the rate of non-metropolitan coastal development in Australia is imposing time and resource pressures on the development of such programs, particularly at the local government level.

## Introduction

In 1992 the United Nations Conference on Environment and Development (UNCED), known as the 'Earth Summit', recognised the international importance for coastal states to "commit themselves to integrated management and sustainable development of coastal areas" (Agenda 21, Chapter 17 in UN 1992). Ten years later, the World Summit for Sustainable Development (WSSD 2002) emphasised the need to promote the implementation of programs to achieve this integrated coastal management (WSSD 2002). In Australia, there have been moves at a national level to promote this integration first through the Framework for a National Cooperative Approach to Integrated Coastal Zone Management (Commonwealth of Australia 2003) and most recently the Implementation Plan for the Framework for a National Cooperative Approach to Integrated Coastal Zone Management (Commonwealth of Australia, 2006).

Each of the three spheres of government in Australia has an important role in coastal management although each State and the Northern Territory deals differently with: (a) coastal management and development control (Harvey & Caton, 2003) and (b) environmental impact assessment (EIA) of major coastal projects (Harvey 1998). Over the last decade coastal management and EIA of coastal projects have been under-resourced because the coast and particularly the non-metropolitan coasts have

experienced an "increase in pressure from rising numbers of residents, tourists and recreationists [which] is placing great stress on the activities of all governments, but especially local government" (Harvey & Caton 2003: 230).

This phenomenon of population shift has been described as a 'sea change' movement by Burnley and Murphy (2004). In response to these pressures Australian coastal councils established the National Sea Change Taskforce in 2004 which commissioned research papers into coastal communities and best practice coastal planning (Gurran *et al.* 2005a, 2005b). A special issue of the *Australian Planner* also addressed matters of coastal planning (Gurran *et al.* 2005c; Harty 2005; Huppatz 2005; Shepherd 2005). In addition there is an urgent need to explore strategic approaches to deal with environmental pressures on the coast along with a requirement for capacity building in coastal management at the local government level. However, a strategic approach will usually require a state government initiative to provide a broader coastal planning and development framework within which multiple coastal councils can operate.

A strategic approach to the environmental impact assessment of major coastal development is an important step in achieving a more sustainable use of coastal resources. The concept of strategic environment assessment (SEA) has been used for over 20 years in a number of countries and has recently been discussed in the Australasian context (Marsden & Dovers 2002). The use of SEA provides a more orderly framework for assessing regional impacts of similar types of coastal development and reduces the pressure for local authorities to respond individually to multiple generic *ad hoc* development proposals. Similarly, integrated coastal zone management (ICZM), which has been practised overseas for a number of years and particularly since the Earth Summit in 1992, has recently been endorsed at a national level in Australia (Commonwealth of Australia 2006).

Previous Australian studies have examined coastal management training needs for a targeted coastal email group (Smith *et al.* 2001) or more broadly for national capacity building programs, local councils and community groups (Harvey *et al.* 2002). Responding to these needs now appears more urgent given the endorsement of an ICZM approach (Commonwealth of Australia 2006) and recognising the importance of local government in the delivery of coastal management. While there are strategies for the implementation of ICZM, there is clearly a need for capacity building at the local government level. This paper explores the above issues of adopting a strategic approach to environmental assessment of major coastal developments and discusses the need for training and capacity building, particularly at the local government level, in order to adopt the recently endorsed integrated approach to coastal management.

## Strategic environmental assessment of coastal development

The need for better coastal planning was recognised by the Commonwealth Government in 1997 when it funded the preparation of *Good practice guidelines for*

*integrated coastal planning* (Graham & Pitts 1997). Subsequently the Sea Change Taskforce commissioned a paper examining 'best practice models of local and regional planning for sea change communities' (Gurran *et al.* 2005b). While both of these papers discuss the need for integrated and strategic planning frameworks they fail to address the EIA of major coastal development as part of this process. However, there are some good examples of strategic coastal planning and ICZM practice such as the three-tiered approach in Victoria (Morcom & Harvey 2003; Wescott 2004), although Harty (2005) criticises Victoria and New South Wales for the lack of integration between their respective pieces of coastal and planning legislation. The same criticism could be levelled at South Australia where key coastal policies need to be incorporated into the state's development plan under the planning legislation. According to Harty (2005) the need for the Victorian Coastal Spaces study (Victorian Government 2006) is indicative of the lack of integration in Victoria. There have also been initiatives to develop state-wide local government coastal management strategies (Caton *et al.* 2003). Notwithstanding good practice in strategic coastal planning, major coastal developments are usually handled separately through the EIA process, which in many states is an integral part of the planning process and is incorporated within planning legislation (Harvey 1998).

One problem with project-based EIA of major coastal developments is that it usually assesses isolated projects on an individual basis without a strategic approach. For example, Harvey (1998) provides detailed discussion of four coastal project-based case studies of EIAs subject to different pieces of EIA legislation in New South Wales, Queensland, South Australia and Victoria, providing real examples of EIA in practice for different pieces of legislation. Each of these projects was linked to wider strategic planning implications than the site-specific environmental impact issues as acknowledged in the assessment reports.

An international environmental impact assessment effectiveness study (Sadler 1996), in which Australia was a key participant, suggests that there should be an increased focus on strategic environmental assessment (SEA) as one method for strengthening the EIA process. Therivel *et al.* (1992) define SEA as a "formalised, systematic and comprehensive process of evaluating the environmental effects of a policy, plan or programme and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making". Although SEA is used in many countries, it is not used extensively as a formal mechanism in Australia although there are some similarities with elements of strategic planning as practised in this country (Marsden & Dovers 2002).

Harvey (2002) demonstrates that project-based EIA is often inadequate for coastal developments in Australia, particularly where generic projects and environmental issues exist. The author argues for greater use of SEA in Australian coastal management. Two coastal case studies from South Australia and Victoria where similar generic coastal marina developments took place in the 1980s are examined.

The first illustrates the use of an SEA-based approach to coastal marina development in South Australia. The state government was faced with a plethora of individual coastal marine proposals in the 1980s. Attempts were made to deal with each proposal separately through the South Australian EIA process even though there were a number of generic coastal environmental impacts and planning issues. The South Australian Government had not conducted any studies on the demand for marina berths, it had no marina guidelines and it had no plans for suitable or unsuitable marina sites. The government response was to impose a ban on further marina developments until it had undertaken appropriate studies (Harvey 2002). Subsequently, the government released reports on marina demand, marina guidelines, a metropolitan marina strategy and a non-metropolitan marina strategy. These strategies proved successful and have been referred to by Harvey (2002) as an *ad hoc* form of SEA which was produced in reaction to a generic problem. Ideally an SEA should be prepared before such problems arise.

A second case study was taken from Victoria, which has different EIA legislation to South Australia but encountered similar problems with the development of coastal marinas in Port Phillip Bay. In this case a marina taskforce was set up to identify preferred marina sites and to steer proposals through a two-stage approvals process. The coordination of marina developments in Victoria met with less success than the South Australian example. As noted by Harvey (2002: 131) the reasons for this were (i) the lack of standard policy; (ii) the ability of proponents to nominate sites outside the four preferred sites; (iii) the continued public opposition to coastal development, and (iv) an economic recession. The coordination process was largely superseded by the Victorian Coastal Strategy and other strategies for Port Phillip Bay (Harvey 2002).

A more recent type of coastal development in Australia that is a good candidate for SEA is the wind-power industry. This has seen a dramatic increase over the last 20 years, particularly in coastal locations in Victoria and South Australia. Wind farms are generally large-scale developments with generic environmental issues, particularly coastal landscape and aesthetic values given that a large number of suitable sites in terms of wind speed are found in exposed coastal areas. In many cases, the number of proposals has required an *ad hoc* or reactive approach to their assessment because of a lack of strategic planning as outlined by Hall and Harvey (2006). For example, South Australia, has the largest installed wind capacity (252 MW) followed by Victoria (92 MW) and these states also have the largest planned capacity with an additional 2000 MW proposed for South Australia and 1700 MW proposed for Victoria (AusWEA 2005). The market leader, South Australia, has an inconsistent approach to environmental assessment of wind-power projects. Both South Australia and Victoria have experienced public controversy and opposition to wind-farm proposals, particularly in the high amenity coastal areas. Many of these problems could be avoided with the use of SEA.

## Integrated coastal zone management: Information needs and capacity building

A definition and discussion of the key elements of integrated coastal management is outlined by Harvey (2004) and the practice of ICZM in the Australian context is addressed elsewhere in this volume. However, the recent national endorsement of the ICZM approach through a national implementation plan (Commonwealth of Australia 2006) has important implications for the training and capacity building of coastal managers, particularly at the local government level. Priority Area 6 of this plan outlines three objectives for capacity building:

- *Information*—Objective: Coastal information needs are identified and processes that support information-sharing arrangements are supported.
- *Education and training*—Objective: Promote adequate coastal and marine skills and training, awareness and capacity for land managers, government and community and facilitate interchange of knowledge.
- *Incentive measures*—Objective: Support and encourage processes investigating the use of economic signals for driving coastal zone outcomes.

There appears to be a paucity of research on the information and training needs for Australian coastal managers apart from four federally funded studies in the 1990s. The first by Brown and Burke (1993) examined the environmental, social and economic information and research needs for integrated coastal management at the local, state and national levels of government and administration. The second (Brown 1995) produced a document on integrated local area coastal management. The third (Commonwealth of Australia 1995) produced a directory of relevant tertiary coastal studies courses. The fourth (Commonwealth of Australia 1997) was an analysis of the training needs of coastal practitioners. This was conducted by each state using Commonwealth Government funding in order to design appropriate short-course training programs under the Coasts and Clean Seas initiative (Commonwealth of Australia 1997).

The Coastal CRC produced a report (Smith *et al.* 2001) based on a limited email-target survey of coastal stakeholders listed in its *Flotsam and Jetsam* newsletter email data-base. Although the survey had only a 23% response rate, it indicated key areas for training needs such as coastal ecosystems, coastal community involvement, project management and community education. A more comprehensive survey by Harvey *et al.* (2002) outlined coastal management training needs in Australia, within an international context, based on a survey of all states together with a detailed South Australian case study examining the training needs of community groups (39% response rate) and each of the coastal councils (63% response rate) in that state. This study indicated key areas for training needs such as coastal planning, coastal ecology, coastal processes and habitat rehabilitation (Harvey *et al.* 2002).

Brown and Burke's (1993) study, although completed over 10 years ago, demonstrated the inadequacy of information resources, which they describe as 'woefully inadequate'

for local government coastal management. They suggest that local government is isolated in terms of information systems and under-resourced which "makes in-service opportunities for local government managers an extremely high priority for action" (Brown & Burke 1993: 15). Brown and Burke's study also noted that EIA was one of the most important sources of coastal information for local government. This was confirmed by a separate study on the use of EIA by coastal managers in South Australia (Harvey 2002).

In the 1990s the Australian coastal management capacity building program was part of the Commonwealth's coastal and marine initiative under its Natural Heritage Trust (NHT) Coasts and Clean Seas program. The NHT was based upon a key partnership between community organisations and the three tiers of government. The five-year program was administered by Environment Australia. One of its subprograms— capacity building—provided opportunities for coastal and marine education, information exchange through the Internet, development of industry codes of practice and professional development and training. It aimed to improve coastal and marine managers' understanding of coastal environments and enhance their management capability and therefore ability to carry out ICZM. One element of the capacity building program was the short-course initiative which was designed "to provide professional development opportunities for those working within government, the resource development sector and the community" (Commonwealth of Australia 1997: 3).

As part of this initiative, each Australian state undertook a needs analysis (Carvalho *et al.* 1997; Chandran 1997; Harrison 1997; Mahoney 1997; Stadler *et al.* 1997) in order to determine the overall professional development and training needs of coastal practitioners in each state. On completion of the needs analysis, steering committees determined how the short-course initiative would best respond to coastal managers' needs. Coastal planning and coastal processes were identified by nearly every state for further training. Nearly all the states that recommended workshops, short courses or further training agreed that available expertise should be used to deliver the required training.

The South Australian short-course training program has been described by Harvey *et al.* (2002) and is summarised here. In 1996, the Local Government Training Authority of South Australia (LGTA) together with the Commonwealth Department of Education, Science and Technology (DEST), agreed to develop training programs for South Australian coastal managers. A needs analysis phase assisted the determination of the overall professional development and training needs of coastal practitioners in South Australia. The methodology included the design, distribution and analysis of a questionnaire that was sent to all South Australian local governments with a coastal border (43) and community groups (108) working on coastal issues; and a survey of existing tertiary training courses related to coastal management. Results indicated respondents' perceived needs for further information and training. For example, responses showed that coastal planning was the key issue for local government

compared to habitat rehabilitation for community groups, who ranked coastal planning second. It is interesting to note that the need for training in coastal planning was raised more frequently by non-metropolitan than by metropolitan respondents. Priority training themes based on the needs analysis survey were integrated into five modules: Coastal and Government Planning, Coastal Processes and Ecology, Habitat Protection and Rehabilitation, Aquaculture and Tourism and Recreation (Harvey *et al.* 2002).

The past decade has witnessed a number of industry, agency and university focussed coastal management short courses in New South Wales. In the late 1990s the University of Technology Sydney (UTS) offered a comprehensive five-day ICZM short course which was delivered in both urban and regional areas. Macquarie University's Graduate School of the Environment converted a postgraduate semester course into a short course and this was advertised to both students and the general public from 2000–2002. The UTS and Macquarie courses covered issues such as coastal planning, geomorphology, policy and legislation, community participation and ecological and biophysical processes. A further course has been developed by the University of New South Wales and was offered in 2004–2005. This course focussed on planning and management, policy and legislation and the biophysical environment.

Other states ran different training programs but perhaps the most successful approach was taken in Tasmania which organised training courses to be developed and run by independent institutions and designed for accreditation. Tasmania appears to have been the only state which ran a second phase of training courses based on a second round of commonwealth funding.

Some independent organisations have also provided training for coastal stakeholders including managers over the past decade. For example, the Coastal CRC, with a focus in Queensland, has worked with all levels of government, industry, and non-government organisations to design and deliver training in a diversity of skills areas required for coastal management, including environmental dispute resolution, integrating science and community, community engagement, regional NRM and collaborative governance, coastal processes and science, and communication.

An important capacity building framework was contained within the Coastcare program from 1995–2002 under the Coasts and Clean Seas program. A detailed analysis of the Coastcare program is given by Clarke (2006) who discusses the education arm of this program, particularly the effectiveness and success of the Coastcare facilitators in each state. Clarke, however, is critical of the absence of review and performance indicators for Coastcare and points out that the Commonwealth Government's claims of success for the program do not relate to the stated objectives. Clarke notes that the original NHT1 framework has been overhauled by the NHT2 and the National Action Plan for Water Quality and Salinity (NAP). Clarke (2006) suggests that the management of the coast may be jeopardised by new regional models of delivery through the natural resource management (NRM) framework.

These concerns are also reflected in the Australian marine and coastal community network's (MCCN) guide for integrating marine and coastal issues into NRM, which notes that the transition to the regional arrangements has been a challenge for coastal and marine management. The guide states that "coastal and marine input into the development of the regional NRM plans has generally been limited and may not be of the scale of response that is needed" (Flaherty & Sampson 2005: 15). The guide includes a separate section on capacity building. The NRM Standing Committee released its own capacity building framework document, which has a broad goal of "informed and improved decision-making, and the implementation of these decisions resulting in the sustainable management of natural resources" (NRM Standing Committee 2003: 4). This is underpinned by four pillars for achieving community engagement: (1) Awareness, (2) Information and knowledge, (3) Skills and training and (4) Facilitation and support.

In practice, however, coastal training and capacity building under the NRM framework is dependent on the priorities of the NRM boards controlling the 36 broad NRM coastal regions around Australia. Coastal issues no longer have a focus as occurred under the national Coastcare program (Clarke 2006). For example, it is apparent from the March 2006 meeting of South Australian coastal and marine facilitators that coastal capacity building in that state does not have a well defined strategy and varies considerably between the NRM regions. However, it is also evident that some excellent coastal capacity building and training occurs but this is largely attributable to the dedication and commitment of the facilitators. The employment of individual officers such as in the Mount Lofty NRM region provides an important capacity building element for coastal managers in that region but elsewhere in the state coastal issues are competing with non-coastal issues such as farming, which is perceived as more important. While the facilitators and the state NRM coordinator appear to have developed an efficient network for capacity building, many of their positions are very short-term and there is a lack of longer-term strategic investment in coastal matters.

## Discussion

The recently endorsed national implementation plan for ICZM (Commonwealth of Australia 2006) has implications for an integrated and strategic approach to coastal planning and environmental assessment. While there have been moves in a number of states toward better coastal planning, less attention has been paid to developing strategic methods for environmental assessment (SEA) as occurs in a number of overseas countries. As discussed above, the use of an SEA approach for coastal marinas in South Australia proved quite successful even though it was developed as a reaction to problems associated with poor coastal planning. Ideally, SEA for coastal developments should begin with the goal of sustainable development and work from the broader policies and plans through to individual projects rather than the other way around. A current coastal issue which lends itself to an SEA approach is the development of coastal wind farms, particularly in South Australia and Victoria.

The implementation plan for ICZM also has implications for training and capacity building, which is identified as a specific element of the plan. Former coastal capacity programs operated quite well under the Coasts and Clean Seas program, particularly through the Coastcare program from 1995–2002. It appears that the shift to the regional models of delivery through the NRM framework have significantly downplayed the importance of coastal management issues. It is also apparent that much of the work investigating coastal capacity building and training for coastal managers completed around ten years ago may no longer be relevant. At that time it was clear that local government was under-resourced for coastal management. It is likely that this situation has been exacerbated by the recent pressures on non-metropolitan coasts. There is a need, therefore, to undertake new research on current needs for training and capacity building.

## Conclusion

It is clear that steps have been taken by all three levels of government to improve coastal planning and particularly strategic coastal planning. However, there is a need to extend this with investigations of the potential role of SEA in the coastal zone, particularly at state government level, as a mechanism for assessing the environmental impacts of major coastal developments which are often removed from the normal planning system. This may apply to certain regions of coastal significance (e.g. the Great Barrier Reef) or to generic types of development (e.g. coastal marinas or coastal wind farms).

The recent national implementation plan for ICZM has also created an imperative for coastal capacity building and has specified actions for this such as assessing coastal information needs, and identifying priority areas for coastal management education and training. While these initiatives have an 'intended' time frame of two years there will be a need for coastal groups such as the Sea Change Taskforce to maintain pressure on governments to deliver these programs in a timely manner.

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# INSTITUTIONALISING ADAPTIVE LEARNING FOR COASTAL MANAGEMENT[10]

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## Plain English summary

- Continuous improvement in coastal management depends on effective learning—what good is an initiative if we do not learn why it was good or bad?
- Learning needs to be undertaken and shared among communities, researchers and decision-makers—this occurs through a process called social learning.
- Social learning requires a combination of learning by doing, learning with others, and learning by making change.
- Learning outcomes are not random—they should be designed through a proactive approach to assess: (i) the desired outcome; (ii) the necessary learning process; and (iii) the type of learning required for the desired learning outcome.
- Committing to a learning framework provides a mechanism to institutionalise continuous improvement for coastal sustainability.

## Abstract

Adaptive management has recently emerged as a paradigm for coastal management, yet little attention has been focussed on mechanisms crucial to its success. Social learning—learning on the part of communities, scientists, decision-makers and institutions—underpins the continuation of an adaptive management cycle. While there are exceptions, coastal research and management frameworks continue to be dominated by issue-specific focusses with little innovation in the mechanisms to build long-term management capacity and create a social culture of sustainability. In order to learn from coastal management, in terms of both failures and successes, a commitment to social learning must occur. A contextual learning framework can be used as a mechanism for facilitating and measuring ongoing learning for sustainable coastal management. Embedding such a framework within coastal management organisations and groups would facilitate the institutionalisation of adaptive learning for coastal management.

## Introduction

The promise of adaptive management is a cycle of learning; however, contemporary approaches to this paradigm have focussed more on the detail of the individual components of the cycle, rather than the core elements that bind those components

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into a meaningful cycle of improved management. The need for an adaptive approach has arisen from the mainstream acceptance of ecological uncertainty (Holling 1995) and recognition of the flaws of traditional positivist approaches to natural resource management (Walters 1986). Many authors (e.g. Funtowicz & Ravetz 1991; Lee 1993; Dovers 2000; and Ewing *et al.* 2000) have highlighted the need for a continuous and iterative cycle that integrates research seamlessly with management actions. In this way, knowledge creation becomes a dynamic process that defines management structures and adaptive approaches.

An adaptive approach to coastal management by its very nature (i.e. adopting an emergent design with a diversity of stakeholders) requires a new approach to science. Funtowicz and Ravetz (1991) introduced the term 'post-normal science' to describe a new paradigm in the approach to science—one that is intrinsically value-laden, participatory and dynamic. Similarly, a number of disciplines, including education (e.g. Schon 1983, 1988) and sociology (e.g. Beck 1992), have espoused the benefits of being a reflective practitioner. These approaches that underpin adaptive management are centred on the concept of continual learning.

Continual learning on the part of all actors involved in coastal management occurs through a process of social learning (Milbrath 1989; Lee 1993)—learning on the part of communities, scientists, decision-makers and institutions—and underpins the effectiveness of an adaptive management cycle through the creation of shared knowledge. However, information does not equal knowledge. In fact, information needs to be combined with experience, context, interpretation and reflection to create knowledge (Davenport *et al.* 1998). Hence, traditional reliance on information flows as a source of knowledge is insufficient to inform a continuously improving decision-making cycle. As Burroughs (1999) suggests, the effective exchange of knowledge between a diversity of stakeholders forms the basis for improving inputs to environmental decision-making. Hence, a commitment to social learning requires a complex process of experiential learning combined with collaborative learning and action learning.

Discussion of institutionalising adaptive learning will focus on some of the dimensions of social learning that influence the uptake of learning, followed by the development of a learning diagnostic (the contextual learning framework) and lastly, the potential application of the diagnostic for the evaluation of learning outcomes for participatory coastal management.

**Relevant dimensions of social learning**

Before discussing the development of a learning diagnostic, there is a need to explain why a commitment to social learning requires a complex process of experiential learning combined with collaborative learning and action learning, in order to provide the context of interpretation and application of the learning diagnostic.

Gladwin *et al.* (1997) describe a dominant 'northern' bias against sustainability from a social psychology perspective, whereby four interconnected mind-sets contribute to an unsustainable mind. These mind-sets include: (i) a cognitively bounded biological mind (biased to disconnection, proximity, simplicity, certainty and discrepancy); (ii) an obsolete worldview mind (biased to atomism, mechanism, anthropocentricism, rationalism and individualism); (iii) an addicted contemporary mind (biased to efficiency, growth, secularism, narcissism and techno-optimism); and (iv) a delusional psychodynamic mind (biased to repression, denial, projection, rationalisation and insulation). These mind-sets combine an inability to deal with contemporary understanding of complexity; a reliance on past assumptions and traditions; the influence of social marketing to exponentially increase wants over needs; and ego-defence to reduce, negate or ignore the actual impacts of ones actions. However, Gladwin *et al.* (1997) do also provide alternative mind-sets needed to contribute to a sustainable mind, including systemic understanding and a willingness to accept reality and reduce real sources of anxiety. These alternative or 'sustainable' mind-sets may be underpinned by experiential learning.

While Davenport *et al.* (1998) discuss the interplay between learning and context to create knowledge, and Burroughs (1999) espouses the need for effective exchange of knowledge (collaborative learning), Fien (1993) also highlights the need for action learning. Fien points out the difference between education *about*, *through*, and *for* the environment, whereby education *for* the environment requires people to learn and then translate that knowledge into action. It is through this process of action learning that sustainable outcomes may be achieved.

Similarly to the evolution of thought on environmental education has been an evolution in the concept of social learning. Milbrath (1989) introduced the term to explain the need for continual learning on the part of citizens to guide government policy for sustainability. Lee (1993) expanded the concept of social learning to allow for the nexus between science and communities to constantly re-chart the course towards sustainability—to ground the recommendations by researchers through a process of 'bounded conflict' or open and active public debate about science. Smith and Lazarow (2004) have gone further, to argue that social learning has evolved to recognise the nexus of ongoing learning between various actors—citizens, decision-makers and researchers, as well as institutions.

While various impediments to sustainable thinking and action have been identified by numerous authors (e.g. due to components of an unsustainable mind-set), a contextual learning framework provides one tool to address impediments to sustainable thinking and social learning. It does so through a proactive and constructed learning diagnostic to target learning improvements, rather than a reactive, *ad hoc*/disconnected and often subconscious approach to learning.

**Development of a learning diagnostic**

Social learning is an important aspect in all stages of the adaptive management cycle. It is critical to the flexible and responsive nature of adaptive management whereby learning is incremental and not a series of unrelated experiences. Biggs (1999) describes levels of engagement for learners in terms of level of understanding and effort on the part of the learner. These levels of engagement can form the basis of a learning diagnostic to describe and evaluate learning outcomes (Table 1).

*Table 1: Contextual learning framework* (adapted from Biggs 1999)

| Learning type | Learning process | Learner outcomes | System outcomes |
|---|---|---|---|
| Prestructural | Not specified | š˙ Misses point | No outcome |
| Unistructural | One-way information transfer | š˙ Identifies<br>š˙ Follows procedure | Information distribution |
| Multistructural | Multi-way information transfer | š˙ Enumerates<br>š˙ Describes<br>š˙ Combines | Describes system |
| Systems thinking | Transformative information | š˙ Compares and contrasts<br>š˙ Explains causes<br>š˙ Analyses<br>š˙ Relates<br>š˙ Applies | Improves knowledge of system |
| Extended systems thinking | Transformative knowledge | š˙ Theorises<br>š˙ Hypothesises<br>š˙ Reflects | Improves system |

The contextual learning framework (Table 1) allows the conceptualisation of learning in terms of structural and process connectivity—that is, how data and information relate to the situation in question and how that information is assimilated and exchanged. The learning type describes the relational aspects of thinking engendered by distinct learning processes and engagement with the system at hand (e.g. people and landscapes), whereby one-way information transfer does not promote more than an isolated experience of learning, disconnected from linkages between system components. However, a transformative learning process can promote not only structural linkages between system components, but also extended abstraction to other systems and knowledge bases. The diagnostic indicates that specific learning processes and objectives need to be identified to facilitate the kinds of learning outcomes necessary to solve complex coastal management problems (e.g. extended systems thinking to achieve transformative knowledge leading to systems improvements). Hence, the contextual learning framework can be used to formulate objectives based on desired learning outcomes.

**Application of a contextual learning framework**

As adaptive coastal management relies on effective learning, the contextual learning framework can be used to assess (i) the appropriate system outcome, (ii) the necessary learning process and (iii) the learning type. It can also be used to describe individual learner outcomes and can indicate the appropriate learning processes and tasks to be adopted in order to achieve desired outcomes. The contextual learning framework can also inform learning participants and materials to facilitate the achievement of learning types and system outcomes (Table 2).

*Table 2: Participant and material extension of the contextual learning framework*

| Learning type | Learning process | Participants | Materials |
|---|---|---|---|
| Prestructural | Not specified | Not specified | No stimulus |
| Unistructural | One-way information transfer | Disciplinary or single sector | Disassociated information |
| Multistructural | Multi-way information transfer | Multidisciplinary | Contextual information |
| Systems thinking | Transformative information | Interdisciplinary | Problem-solving stimulus (combination of contextual, experiential and theoretical information) |
| Extended systems thinking | Transformative knowledge | Transdisciplinary | Problem-transcending stimulus (combination of contextual, experiential, theoretical and abstracted theoretical information) |

The contextual learning framework may be embedded within the institutional structures of coastal management organisations and groups (similarly to on-ground monitoring and evaluation frameworks) in order to institutionalise adaptive learning. While the contextual learning framework provides a diagnostic to select learning processes, participants and materials to achieve desired learning and system outcomes, a number of other factors influence the learning process—factors such as time availability, institutional constraints, participant context, learning environment, prior knowledge and experiences and participant motivations (e.g. Biggs 1999; Prosser & Trigwell 1999; Thomsen 2003).

**Conclusions**

Regardless of the immediate outcomes of a management initiative, a commitment to social learning underpins the collaboration, appropriate management frameworks and policy development necessary to advance coastal management in the longer term: what good is an initiative if we don't learn from it and evaluate why it either did or didn't work? But, how can learning be targeted for various purposes? A contextual learning framework allows a diagnostic approach to learning for adaptive coastal management,

whereby learning outcomes are synonymous with systems outcomes. Furthermore, the contextual learning framework provides a basis for the selection of participants and materials to achieve both desired learning and system outcomes. Committing to a learning framework as a fundamental component of the coastal management process provides a mechanism to institutionalise adaptive learning for coastal sustainability.

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# RESEARCH TO SUPPORT COASTAL MANAGEMENT IN AUSTRALIA: GENERATING BETTER INFORMATION AND KNOWLEDGE IN THE CURRENT COASTAL MANAGEMENT ENVIRONMENT

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## Summary

By drawing upon the experiences of a national coastal research centre, this paper explores three aspects of research to support coastal management and how they are affected by current Australian institutional arrangements. They are:

- the identification of priority (national) research to underpin coastal management;
- the conduct of research, particularly in terms of the impact of institutional arrangements on integration and collaboration; and
- the access to and use of coastal research and the improvement of the knowledge of coastal managers.

Insights into options to overcoming these barriers are provided. These include the need for:

- nationally-focussed, broad-based stakeholder input to developing research priorities in the immediate future;
- adequate resourcing of integrated and collaborative approaches (where this approach is appropriate), achieving synergy among Australia's coastal management and research expertise, recognising necessary transaction costs and the conflicting rewards systems of stakeholders involved; and
- synthesis and sharing of information for greater knowledge exchange within and between research and management arenas.

## Introduction

Australia has unique biota, climates and landscapes. Unique Australian knowledge is needed to sustainably manage these natural resources, and better knowledge is critical to help governments balance competing demands on behalf of Australian citizens (Campbell 2006). Nowhere in the Australian landscape is competition for resource use more evident than in the coastal zone. Australian coastal managers acknowledge that decision-making for coastal zone management and planning can be improved significantly through better access to good quality data, information and knowledge (Fearon, 2005).

Many research organisations, such as universities, government research agencies (e.g. CSIRO, Geoscience Australia) and cooperative research centres (CRCs) aim to provide data, information and knowledge for coastal management in Australia. The

Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management (Coastal CRC) was created expressly to undertake and deliver research in a range of disciplines to underpin better management of Australia's coast. As well as the need for better decision-making processes, the need for good quality data, information and knowledge to improve decision-making for coastal zone management and planning was a key driver for the inception of the Coastal CRC.

During its seven years (1999–2006), the Coastal CRC completed more than 70 major research projects that generated data and information for coastal managers. But it also invested heavily in trying to ensure the research conducted was relevant, integrated and collaborative (with disciplines and stakeholders), and delivered ready-to-use to coastal managers. This was an ambitious undertaking and although the Coastal CRC is now well regarded by some coastal managers for the conduct of coastal research for management, many challenges were encountered. These arose primarily from the interaction of institutional arrangements among the many stakeholders involved in coastal management. This article reflects upon the challenges associated with delivering research for Australian coastal management, identifying some of the key barriers and strategies to overcome them.

## Identifying priority national coastal research needs

Better information is requested and required to improve coastal management nationally (Fearon 2005; Commonwealth of Australia 2006). National coastal research priorities should identify issues of national significance, which may be because of the broad spatial scale of an issue (e.g. crossing jurisdictional boundaries), or because of the importance of the issue to the Australian community regardless of its spatial scale (e.g. a rare species existing in only one location). Research addressing issues of national significance has the scope to draw upon synergies arising from addressing the research question in multiple locations, with multiple organisations and typically with a larger, more diverse research team. Research addressing local and regional scale issues also contributes significantly to meeting the research needs of coastal stakeholders, and many research programs include both national and regional/local scales of research (e.g. Coastal CRC).

The information needed to direct national-scale research has to be guided by the needs of coastal managers and other stakeholders nationally. Many researchers and research organisations have a strong desire to ensure their research is relevant to meeting the needs of coastal managers and they make significant attempts to identify critical national coastal research needs at the outset of program development. Two obvious options for acquiring input from coastal managers regarding research priorities are:
- direct engagement with stakeholders to guide national research programs; and
- drawing on agreed national coastal research priorities that have been developed through a process involving coastal stakeholders.

*Engagement directly with national coastal stakeholders to guide national research programs*

There is presently no mechanism to coordinate opinion and advice from, or participation of, national coastal stakeholders for coastal management or research. The Intergovernmental Coastal Advisory Committee (ICAC) is comprised of Commonwealth and state government officials, offering some broad representation of national coastal issues. However the primary concern of ICAG is to offer advice to higher-level government committees on coastal issues, including identifying opportunities to progress management of coastal issues that benefit from a coordinated government approach; it has not guided national research agendas, such as by identifying priority research needs.

Without an existing coordinated national stakeholder grouping, engagement with coastal stakeholders to set a national research agenda is left to engagement with individuals, usually within partisan groups. There are several challenges with this approach:

- It is left to individual researchers (organisations) to identify who should be engaged and how best to engage them.
- Successful identification of nationally relevant research priorities relies on individuals within stakeholder organisations to take a national view (to look beyond their own organisational needs, geographic scale and cross-institutional barriers).
- Engagement with individual stakeholder organisations will likely make progress towards meeting their individual needs, but lessens the likelihood of synergies arising from identifying and addressing national priorities.
- The transaction costs of engaging with numerous coastal stakeholders are quite significant.
- There is no real incentive for this engagement to be undertaken by researchers themselves; the system to reward researchers is heavily biased towards reward for publishing technical accounts of their research, the target of which are their scientific peers.

In an attempt to identify national coastal research priorities, one strategy of the Coastal CRC was, as suggested above, to address research needs found to be common to many individual stakeholders. Our experience with this approach was that any synergy that might arise from common needs of stakeholders was reliant upon the research centre investing significant resources in coordinating and seeking a convergence of priorities among these stakeholders. While there is certainly a role for research organisations to facilitate cooperation between coastal stakeholders to identify and deliver priority research, the reality is that without any formal national stakeholder coordination mechanisms, the investment required on behalf of the 'coordinator' is especially large. Although these costs may be warranted if a highly-relevant research program is to be delivered, the reality is they are typically undervalued by those funding (and often those conducting) research.

A second strategy is to for the research organisation to create its own national stakeholder advisory committee. The Coastal CRC employed this strategy and chose individuals representing a diversity of organisations and sectors, but individuals who were also likely to take a non-organisational and non-sectoral ('big picture') view of what research was needed for Australian coastal management. Although this strategy proved successful for the Coastal CRC (in the opinion of the members of the national stakeholder advisory committee, CRC management and most CRC researchers), for each research organisation to create and sustain its own national stakeholder advisory group is a highly inefficient way to identify national research priorities.

*Drawing on agreed national coastal research priorities developed through a process involving all coastal stakeholders*

Identifying agreed national coastal research priorities would no doubt have a significant impact on the direction and efficiency of research conducted by research organisations in Australia. A national coastal policy or legislation would have the mandate to play a major role in directing and identifying national coastal research priorities. However, there remains no agreed national coastal policy for Australia.

The 2006 Australian Government 'Framework for a National Cooperative Approach to Integrated Coastal Zone Management Implementation Plan' identifies the intention to "facilitate a strategic national approach to identify and address research knowledge gaps and identify research priorities for coastal zone management" (Objective 1.1.4, Commonwealth of Australia 2006). This is to be achieved within five years, although as yet funding to resource this task has not been agreed. The critical need for national research priorities has thus been acknowledged nationally. However, until that task is complete (estimated to be 2011 according to the framework, Commonwealth of Australia 2006), there will likely remain an absence of nationally agreed coastal research priorities.

Given the urgent need for better coastal data and information to underpin management, and therefore the urgency for national coastal research priorities, research endeavours must look to alternative strategies to identify national coastal research needs until such time as the national framework delivers.

The national framework and its associated implementation plan themselves do identify current coastal management issues. However, the issues of national significance identified in the national framework may not equate, or translate, to national research priorities. Firstly, the process to prioritise national issues of significance versus that to identify national coastal research priorities should be different and require different selection criteria. Secondly, issues do not always require research in order to be resolved. Thirdly, does 'national' mean the same thing in the national framework as it would when specifying national coastal research priorities? In the framework, the national issues are limited to those with a geographic scale extending beyond state and

territory government jurisdictions and those that the participating governments have agreed to address cooperatively.

Applying this definition of national to research priorities may exclude important research needs that (i) do not cross jurisdictional boundaries, but are of national significance nonetheless (e.g. unique ecosystems, threatened and endemic species, or 'tragedy of the commons' cumulative issues), or (ii) are not primarily the concern of management by governments, but may be high priorities for other coastal stakeholders (e.g. communities, industry). As identified earlier in this article, the definition of 'national' for the purposes of identifying national research priorities should be driven also by the significance of the issue, not only its spatial scale. And the key stakeholders cannot be limited to the government.

The existing Australian national research priorities document provides "a vision of where research can contribute to Australia's future prosperity and wellbeing" (Commonwealth of Australia 2003). This is presented as a list of disconnected priorities. Although all four of the priorities (An environmentally sustainable Australia; Promoting and maintaining good health; Frontier technologies for building and transforming Australian industries; and Safeguarding Australia) could, in a very broad sense, provide guidance about research needs that could be applied to the coast, the complexities of the coastal environment (including the management environment) demand research that is specific, and perhaps unique, to this environment.

In developing a national coastal research program in the absence of agreed national priorities, most research organisations would analyse the multitude of national, commonwealth, state/territory, industry and community documents that bear relevance to coastal management, in particular those identifying or alluding to research needs. In adopting this strategy, the Coastal CRC was required to undertake many individual discussions with these stakeholders, to work towards some form of 'national' research agenda. This is an expensive and inefficient process and one that is often unnecessarily repeated for every national research program and organisation.

## Conduct of research: Integration and collaboration in complex coastal management environment

Natural resource management in Australia and globally has recognised the need for collaboration and integration in order to succeed (e.g. RAC 1993; NNRMTF 1999; Commonwealth of Australia 2006). The planning, implementation and review phases require it, and as part of these processes, so does the act of generating knowledge to underpin natural resource management. The philosophy (and apparent practice) of integrated coastal zone management (ICZM) also specifically requires integration and collaboration. As defined by the European Commission, ICZM is a "dynamic, multi-disciplinary and iterative process to promote sustainable management of coastal zones…..ICZM uses the informed participation and cooperation of all stakeholders to

assess the societal goals in a given coastal area, and to take actions towards meeting these objectives" (European Commission 2000).

With hindsight, we acknowledge that integrative and collaborative research approaches are not always the preferred approach and many research problems would have been as effectively or better addressed by less or non-integrative research. Other authors have examined the suitability and effectiveness of integrative and collaborative research for different research needs (e.g. Dovers 2005). As this monograph examines current coastal management arrangements, we have focussed on the conduct of integrative and collaborative research (assuming it has been confirmed as a suitable approach) since it requires, by its definition, interaction with coastal management institutions.

With respect to the conduct of research, what does collaboration and integration mean? The Coastal CRC's working definition of 'collaborate' is to share knowledge and/or tangible resources, between two or more stakeholders to solve problems that can't be solved individually. In the project life cycle, collaboration involved participation of stakeholders in the identification of research priorities and in determining the scope, design, implementation, review and assessment of research projects. Our working definition of 'integrate' is to draw on knowledge from a diversity of sources (empirical, deductive, experiential, intuitional and typically from several disciplines) to solve problems.

While Australia boasts some of the best coastal scientists in the world, cooperation—or even communication—among the various research organisations, and with natural resource management stakeholders, is often poor, other than through professional literature. Collaborative and integrative approaches to research for coastal management have demonstrated significant benefits. The experience of the Coastal CRC was that the uptake and use of research by coastal managers was immediate in many cases (Souter, in preparation). This was a direct result of the specific strategies employed, which had the outcomes of ensuring that the research scope was defined and continually refocussed with the input of coastal managers, that the research was focussed on real and current needs, and that the format and delivery of research was appropriate. Other benefits arising from collaborative and integrative approaches to research included an increased value of cross-organisational and cross-disciplinary research teams by researchers themselves, 'training' in building and maintaining stakeholder–researcher relationships (for both parties) and expanded knowledge networks, especially for stakeholders (Souter, in preparation).

In the Coastal CRC's experience, several factors contributed to the success of collaborative and integrative research. Many of these related to the institutional arrangements of research and coastal management organisations and are outlined here. The participation of coastal managers in the conduct of the research had a significant influence on the relevance and usability of the research outputs. However,

the constructive participation of stakeholders in research teams required a significant effort (and thus resources) in building trust and understanding between these organisational representatives. The current disjointed arrangements for Australian coastal management (see other essays in this volume by Wescott; Stuart *et al.,* Fearon *et al.* and Lazarow) do not appear to place great importance on building and maintaining effective relationships between coastal managers, let alone between coastal managers and researchers. This remains the first hurdle for research organisations seeking to undertake integrative and collaborative research: build relationships with a multitude of coastal managers who typically have poor relationships among themselves.

Without a national stakeholder group, the Coastal CRC's role in brokering collaboration between researchers and stakeholders was even more critical. Apart from identifying the research priorities (as described above) to guide the researchers, there is a need for coordinating collaboration and integration. Mechanisms to allow these approaches must be championed and supported by a broker. A survey of Coastal CRC participants (researchers and research users including coastal managers) demonstrated the benefits of brokering collaborative and integrative efforts, in particular, by making available mechanisms to promote these activities (Eisner & Cox 2006). A dramatic increase in the amount of collaboration and integration, and the effectiveness of these approaches, was evidenced after the Coastal CRC instituted specific strategies and mechanisms to allow them (Eisner & Cox 2006).

## Better use of existing information and knowledge-building of coastal decision-makers

Closely related to the issue of collaboration and integration in undertaking coastal research is the issue of the *use* of research. Comprehensive approaches to collaborative research will include a strategy for distributing the data and information arising from research and knowledge-sharing beyond the scientific literature. For ICZM, non-competitive sharing of data, information and knowledge is critical. In addition to the need for research to fill gaps in our understanding, a second key concern of coastal managers is that decisions are commonly made without reference to appropriate information even when it does exist. Time constraints, 'information-overload', geographic distance, communication barriers and a lack of capacity effectively hamstring informed coastal decision-making in many instances (Fearon 2005).

The issue of open access to relevant data is one of the most time-consuming to solve. There is a trend toward greater sharing of data sets held by government agencies, regional bodies, NGOs and community groups. However, such arrangements take time to develop and are often complicated by ownership, cost-recovery, security and intellectual property issues. This is particularly the case for data in the grey literature, which may be owned by individual organisations or consultancy firms and may be confidential.

In most cases data and information access barriers are created by institutional arrangements; these can be overcome when the political will is sufficient. The biggest cost in developing systems or processes to overcome these barriers is the time required to develop mutually agreeable arrangements.

Unfortunately, the obvious need for sharing of data, information and knowledge for greater efficiencies and less duplication in research, planning and management does not guarantee that decision-makers will take advantage of any mechanisms developed to achieve this aim. The Australian Coastal Atlas is a good example of a well-developed and technically-sound tool for sharing information that is seldom used in some states. Compare its adoption to the less useful but more user-friendly tool 'Google Earth'. This problem highlights the need for adaptive planning, market-analysis and ongoing maintenance of such resources.

A second major issue regarding the use of existing research is that available data and information do not necessarily equal better knowledge of decision-makers. It does not become knowledge for decision-makers until they process the information themselves: "[knowledge] arises through individual cognitive processes that people use to make sense of the world … knowledge is not an abstract tangible thing that can be exchanged between people without any mediation, transformation or interpretation" (Campbell, 2006: 10).

This acknowledgement has spawned the emergence of knowledge brokers. Knowledge brokering is typically used to refer to "processes by intermediaries (brokers) in mediating between sources of knowledge (science and research) and users of knowledge" (Campbell 2006: 15). This is a critical extension of research; without it, the research remains information (and knowledge of the researchers), not the knowledge of coastal managers.

## Conclusions

If, as suggested by the Coastal Zone Inquiry (RAC 1993) and the new national framework (Commonwealth of Australia 2006), effective ICZM of Australia's unique coastal resources requires integrated approaches, then collaborative and integrated research for management is essential. At present in Australia, such research is hampered by institutional arrangements that mitigate against:
- effective identification of national research priorities;
- integration and collaboration in the conduct of research; and
- effective sharing of data, information and knowledge for management outcomes.

Previous experiences of the Coastal CRC over seven years provide some insights to overcoming these barriers, including the need for:
- nationally-focussed, broad-based stakeholder input to developing research priorities in the immediate future;

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- adequate resourcing of integrated and collaborative approaches when these approaches are suitable), achieving synergy among Australia's coastal management and research expertise, recognising necessary transaction costs and the conflicting rewards systems of stakeholders involved; and
- synthesis and sharing of information for greater knowledge exchange within and between research and management arenas.

## Acknowledgments

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# ENVIRONMENTAL HISTORY AND DECISION-MAKING

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## Introduction

In any examination of the impact and consequences of human activities on coastal environments over the past 200 years, it is necessary to appreciate how decisions are made which create the changes. The east coast of Australia, especially between Gabo Island and Fraser Island, is one of considerable environmental diversity; however it has experienced several different forms of human occupancy leading to dramatic modification of beach, dune, estuary, river mouth and flood plain environments.

The process of discovering how coastal landscapes have been transformed requires one to understand physical and biological conditions along the coast at the time of the European settlement. Under what circumstances were settlers and later residents encouraged to use these conditions; what actions occurred; what were the consequences; and most importantly how can we learn from past decisions in order to ensure sustainable land and water use in the future? Very little research has been undertaken on processes, impacts and consequences of environmental change resulting from human activities in coastal eastern Australia. Yet this is where most of us live. An examination of these issues within this region, which today is undergoing enormous pressure for development and contains large tracts of highly-prized natural areas, provides one with an opportunity to seek lessons from the past. These lessons should assist decision-makers today and in the future to address problems of environmental sensitivity and land use compatibility.

## Contemporary struggle for 'balance' and ESD

Recognition by successive governments, especially over the past two decades, of their responsibilities to ensure protection of environmental values, while permitting development, has created major policy dilemmas. Land-use conflicts have generated numerous inquiries, revisions of policies and decisions at individual, local and state government levels which reflect tensions between different interests in how land and water resources should be used. The concept of a balance between development invoking property rights and conservation involves competing interests and is reflected in the evolution of planning principles and policies and laws, as well as in management practices and judicial decisions.

Solutions to achieve the balance on the coast have been driven, in recent years, by the application of ESD and ICZM principles. Increasingly an understanding of the so-called

'wicked problem' of ICZM has forced decision-makers to apply these new principles. This has led to greater roles for both governments and local communities in coastal matters. Yet many problems remain in resolving management difficulties because of conflicts in land and water use arising from population growth, persistence of often fragmented administrative structures, case law, divergent community aspirations, economic greed and environmental ignorance.

Within the structure of our democratic society, and within the confines of an evolving federal–state legal system, resolution of conflict will involve political decisions. These decisions may be taken at any of the three levels of Australian government, but more often than not the power for addressing what we call the 'tyranny of small decisions' is vested in elected councillors of local government. In some contentious cases the courts may assume a consent authority role. However, trade-offs and balancing processes remain the same where decision-makers receive advice, which can be critical, supportive, conflicting or neutral. Key players in providing that advice are:

- bureaucrats,
- scientists / engineers / consultants,
- community groups and NGOs, and
- commercial interests.

Contemporary policies (i.e. post 1990) reflect the need to provide for ecologically sustainable development as enshrined in legislation. The institutional and policy framework for achieving the goals of ESD involve:

- inheritance of past legislative and administrative responsibilities,
- community interests in seeking both protection and rehabilitation of environmental conditions, and
- state and local demands for economic development and employment growth.

All these interests and demands exist within the context of uncertainty over both how environmental forces will operate in future, and how social and economic factors will impinge on the environment. Politicians will be forced to make 'hard' decisions (i.e. no development, or highly conditioned consents), or 'soft' decisions based on compromise accepting the imperative of job and wealth creation on the one hand and retention of environmental value on the other.

Coastal landscapes in eastern Australia have evolved over 60 million years. Reconstruction of past processes and landscapes helps us understand those ecological and geological forces which are responsible for our embayed coast so dominated by headlands, sandy beaches, estuaries and flood plains.

The 'fight against nature' culture using engineering expertise and taxpayer funds progressively emerged in the late 19th century and continued as the dominant culture until the late 1960s. Legislation and budgets reinforced the necessity during this period to invest in resource development. Lenore Coltheart's book detailing the history of ports and coastal waterways of NSW (*Between wind and water*, 1997) highlights the

difficulties faced by boat users, engineers and the State Government in funding, designing and constructing training walls, the legacy of which is still with us. Similarly the floods of the 1950s stimulated a massive works program of mitigation with little regard for ecological and water quality implications, especially the consequences of exposing those mid-Holocene estuarine deposits lurking quietly below the surface with their rich store of sulfides.

The rise of 'environmental awareness' among scientists, engineers, community groups and finally politicians in the 1970s generated a new culture. We saw through the 70s, 80s and 90s considerable tension at national, state and local levels between those interests supporting environmental protection and those still advocating resource exploitation and development. It was, and remains, a period of opposing paradigms where conflicting values are played out on various political stages: in council chambers, in the 'bear pit' of parliament, and in numerous boardrooms. Save the Barrier Reef, the battle for Kelly's Bush in Sydney involving 'green bans' against property developers, and the fight to protect Fraser Island from miners and loggers, were just three of the memorable clashes of paradigms which dramatically personify this period.

Legislation and funding now supports conservation and has led through the 90s to the latest culture, which involves 'sustaining natural values'. This culture is underpinned by ESD principles in federal and state laws and policies.

Thus we see that the present so-called post-industrial period represents a period of growth of conflicting interests in how coastal landscapes should be used. Economic forces push for expanded use in terms of diversity of product and amount of land to be urbanised. Income and job generation accompanying real estate booms produces waves of intensification of settlement at different places along the coast. But conservation interests concerned about uncontrolled development have, since the 70s, taken a more proactive stance in developing a political presence, which constrains the forces of economic growth.

In addition, scientific discoveries have raised questions of 'best practice'. Communication of uncertainties of impacts as well as new insights on management practices give both developers and conservationists material to assist in fostering their respective causes. Governments have been put into difficult positions in making decisions to best suit state and local interests. Added complications of population growth coupled with changing demographics projected for the next two decades, plus the consequences of global warming such as sea-level rise, serve to make planning for ecologically sustainable development a most complex and politically hazardous task in the years ahead.

## Transformation of the coast—decisions, impacts and consequences

We have seen that the coast has been afflicted not only by the 'tyranny of small decisions' but also by the 'tyranny of history'. The combined effect of these two tyrannies is a coast which has been savaged by the human footprint: now we are paying the costs and must pursue a course of rehabilitation as well as protection to ensure treasured environmental services and values will be available for future generations.

Five activities can be shown to have had a significant impact on the coastal landscape. They are:

- river entrance training works,
- sand mining of beaches and dunes,
- urban settlements,
- estuary and catchment use, and
- floodplain 'management'.

In some areas the impacts of these activities have been quite minor although the threat of future impacts remains. However, the scale and severity of change induced by an activity can be such as to have required legislation, new policy and/or funding by governments to address both cause and symptom. This has happened in the past and is happening today in both NSW and Queensland. Table 1 below provides an overview of major coastal activities, lessons from the past and issues for management.

*Table 1: Major activities, lessons and management issues*

| Activity | Lessons and issues |
|---|---|
| River entrance training works | <ul><li>Will future populations of cashed-up baby boomers with their new boats convince governments to spend millions to unplug the river entrances in perpetuity?</li><li>Will there be a need for further sand bypassing projects to assist in downdrift nourishment of starved beaches?</li><li>Is there a relationship between plugging of river mouths and reduced tidal flushing of estuaries which facilitates the collection of acid-charged waters in tidal channels and wetlands?</li></ul> |
| Sand mining of beaches and dunes | <ul><li>Mining 'opened up' many poorly accessed tracts of coastal land.</li><li>Mining provided land which could easily be converted into housing estates as seen at Casuarina and Salt developments in Tweed Shire.</li><li>Mining of black sand created its own hazardous waste as one mineral, monazite, is radioactive and has to be handled carefully.</li><li>Mining disturbed soil profiles and ecosystems and, to some extent, permanently degraded national parks in which mining paths are located.</li><li>Mining allowed and even encouraged the planting of bitou bush (*Chrysanthemoides monilifera*), now a weed of national significance, costing the taxpayers \$1–\$2 million per year to try to manage.</li><li>Mining may have facilitated shoreline erosion in certain localities during the stormy years of the 70s.</li></ul> |

| Activity | Lessons and issues |
|---|---|
| The impact of human settlements | • How do we best protect existing property at risk?<br>• Is the scale of beach nourishment seen on the Gold Coast (including the Tweed bypass project) capable of being reproduced elsewhere and from different sources, what are the environmental consequences and recurrent costs?<br>• Can coastal zone management plans effectively provide a basis for a long-term commitment by communities and governments to protecting our beaches given the need to interface those plans with other environmental, economic and social plans and interests?<br>• Will the legal system be more supportive of beach sand rights or private property rights when governments resist the call to protect every property at risk? |
| Estuary and catchment use and abuse | • We can make a difference to the health of coastal waterways if there is a concerted effort by authorities and communities to regulate and manage water flows.<br>• Urban sprawl and economic use of intermittently closing and opening lakes and lagoons (ICOLLs) in particular, and estuaries in general, have to be very carefully planned with aquaculture, sewerage and urban runoff schemes so designed to minimise polluted overflow into receiving waters.<br>• Riparian and wetland revegetation in catchments and around estuarine shores needs to be a priority in any coastal catchment management programme.<br>• Good science, coupled with assessment of potential land-use impacts, must continue in order to ensure the sustainability of our complex coastal waterways. |
| Floodplain management | • There is now much greater understanding the origin and past practices resulting in the release of acid sulfate soils into the environment.<br>• Management practices must continue to be developed and applied for acid sulfate soils to mitigate against future fish kills, sulfuric acid discharge into coastal waters, wetland destruction and loss of agricultural productivity. |

## River entrance training works

Initial settlements through the colonial period were very dependent on shipping. The difficulty of entering harbours, with few exceptions, was due to sand deposition at river entrances. The history of coastal transport is one of contending with river mouths. Engineering practices evolved as understanding grew of the dynamics of entrances. The role of the NSW Department of Public Works in the design of training walls, and in dredging, highlights the many difficulties over time in maintaining effective programs under different governments and local pressures. Financial restrictions impeded continued operations, and the battle between ships and bars led to much personal suffering and economic hardship. Novels and songs have been written that highlight the traumas of shipping.

Despite the decline of coastal shipping during the interwar years (with some notable exceptions), the cry for more training walls and more dredging is still with us today. The prevailing rationale is local economic need coupled with improved boat safety for recreational and commercial fishing vessels. On the Manning and Nambucca rivers

there remains a demand to complete works left unfinished 80 or more years ago. For the moment, state and federal governments remain unconvinced. An interesting exception is at the Tweed where years of wrangling over Queensland's demand for sand trapped updrift of the breakwater at Letitia Spit resulted in a generous investment by one state (NSW) in the long-term benefit of the beaches of another state (Queensland).

**Sand mining of beaches and dunes**

A phenomenon of geologic inheritance which has had considerable impact on coastal land use is the concentration of economically significant quantities of heavy minerals in beaches and dunes. Over a period of 50 years there has been extensive mining of rutile and zircon along the east coast. Progressive improvements in mining technologies enabled larger and more technically efficient companies to remine old areas and seek minerals in deposits of low concentration (e.g. high dunes such as Stradbroke Island). With a few exceptions, mining ceased as a significant economic activity in the late 1980s. Environmental and other consequences of mining are both positive and negative.

**The impact of human settlements**

Human settlements have many environmental impacts in coastal settings. Changes to biodiversity, water and air quality and the consequences of protecting property from natural hazards should all be mentioned.

The increasing desire to visit or retire to coastal towns has heightened the threat of erosion affecting property. There is a compulsion to build hotels, motels, unit blocks, homes and other infrastructure on sites close to the beach and thus at risk to shoreline erosion. Early 20th century resort developments were largely confined to rocky headlands. However, the boom of the Gold Coast from the 1950s onwards has given impetus to using coastal sand dunes for locating dwellings on episodically eroding foredunes.

Severe and recurrent storm events in the late 60s and 70s created local shoreline erosion problems of varying severity. Major investigations and beach improvement programs were initiated by these events. In particular, legislation was changed to give NSW and Queensland governments greater power in planning and managing the erosion threat. It is now apparent that legislation and policies in both states have required reinforcement in recent years. The sad thing is that from a manager's perspective, historical decisions based on land titles severely restricted 'best practice' beach protection, and allowed judicial decisions to support property protection over any obligations that the state may have to maintain the beach amenity and the public's right of access to the beach. Use of the 'land surrender' provision of the Queensland *Coastal Protection and Management and Other Legislation Amendment Act* (2001, s.61ZU), and new enforcement provisions of the NSW *Coastal Protection Act (as*

*amended 2002*), combined with the Coastal Protection SEPP (No. 71), should make it easier to protect the beach environment and beach amenity.

The erosion threat is ever present. Global warming with its potential for higher sea levels, and the threat of increased storm activity along this coast make the hazard of development on frontal dunes (and on cliff edges) that much higher.

**Estuary and catchment use and abuse**

Critical to human health and the biological health of coastal waterways are factors influencing the discharge of waters, sediments, nutrients and pathogens into rivers and estuaries. Throughout the 19th and 20th centuries, land clearance, soil erosion and urbanisation (including canal estates) have all contributed to the cumulative degradation of rivers, estuaries and coastal lakes. Symptoms of the degradation are many including:

- siltation of channels, which in some cases like on the Hunter has resulted in downstream displacement of shipping ports, and in the burial of estuarine sea grasses;
- increased levels of nutrients, especially nitrogen and phosphorus, which are key elements for plankton and plant growth and trigger algal blooms when they reach excessive levels; and
- the presence of pathogens which may be digested by humans causing death and ill-health following consumption of seafood, or ingested while swimming.

Quite clearly urbanisation and deforestation has had some effect along the east coast. The saga of Wallis Lake since the oyster contamination event of 1997 is there to remind us of the sensitivities of waters to pollutants. These sensitivities are not just biophysical and economic, but also lead to complex judicial proceedings on responsibilities under the common law concept of 'duty of care' as determined in the Wallis Lake case by the High Court.

We know that increasing nutrient loads or even the sediment loads from catchments into estuarine and lake systems may not trigger much change as these systems have considerable resilience to varying biophysical conditions. However, the fear is always that a lake/lagoon or estuary backwater will go beyond the 'critical load point'. Turbidity and phytoplankton will then dominate. It was such a concern that encouraged the then Planning Minister for NSW, Andrew Refshauge, in 2001, to stop a 2000-lot subdivision at Lake Wollumboola on the NSW south coast. This was at a location which years before had been zoned for such intensive urban use.

**Floodplain management**

Sea level may have fallen slightly since the postglacial marine transgression terminated at 6500 ± 200 years. This 'termination' event has had dramatic consequences for human use of coastal NSW: sand barriers have prograded and vertically aggraded;

flood-tide deltas have choked entrances; heavy minerals have been swept ashore and concentrated in seams; and estuarine and tidal flat sediments have had time to accumulate to levels close to (and even above) mean high water mark, and be covered by a layer of fine sediments deposited during river floods. Levees, crevasse deposits, abandoned channels, backswamps and lagoons have all evolved over this 'stillstand' period. Anoxic conditions prevailed for thousands of years allowing iron pyrite to remain unaffected by oxygen, but drainage and exposure through development creates significant environmental problems.

Drainage for agriculture and flood mitigation (and more recently aquaculture) has 'opened' up the deltaic surfaces. It was not known that by digging these drains, part of that geologic history—the sulfide mud basins and intertidal flats—was going to be exposed. The consequence of such exposures was the periodic release of acids which damaged fisheries and aquaculture.

## Conclusion

There are many lessons we have learnt from past 'mistakes' in land and water use in Australia. We have tried to place our use of coastal environments in eastern Australia in a context of first struggling with nature, then fighting nature, only to be followed by a period of greater environmental awareness. Into the future, will we make decisions based on good science and policy or will management be subservient to the politics of the day, and will our understanding of environmental interconnectivities enable us to develop and implement management plans that cut across institutional or cadastral boundaries? We are all part of a generation that takes us beyond just awareness into the brave new world of sustainability, being built on the need to understand and adapt to changing biophysical systems so that we can more effectively manage and plan for improved environmental, economic and social benefits.

## Note

The substance of this paper was delivered by Thom at the 5th International Acid Sulfate Soils Conference, 2002.

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# Appendix 1: Report from Governance Concurrent Sessions, Sea Change Taskforce Conference, Port Douglas, 4–5 April 2006

Facilitators: Steve Dovers and Neil Lazarow

The sessions considered two topics:
- The need for a national scale review of governance and institutional arrangements for the coast
- Four key issues and needs, and possible institutional reforms to address them.

## 1. A national review?

The group concluded that, more than a decade since the Resource Assessment Commission's overview, and given the widely perceived and often demonstrable fragmentation, overlaps, complexity and lack of coordination in coastal policy and management, it is timely and important to undertake a broadscale review of governance and institutional settings for the coast. Such a review would describe the current situation, identify areas where improvements are needed and possible, and develop options for improvement for consideration by governments and stakeholder groups. *The essay by Lazarow provides an overview of key recommendations from past reviews and Wescott discusses the potential role of a national coastal council.*

It was recognised that the Commonwealth and state/territory governments—individually and/or collectively—may be reluctant to undertake or finance such a review. However, it was felt that the Sea Change Task Force and others should advance the idea strongly, and consider options for commissioning the review or otherwise ensuring that such a review is undertaken. The review should engage all levels of government, regional organisations, NRM regional bodies, community stakeholder groups, industry, relevant research organisations and experts and draw on expertise both in coastal management and in institutional and policy coordination in federal systems. *The Dovers essay provides an overview of key lessons from other institutional domains that are relevant to ICZM. In his essay, Kay highlights lessons from international experience and suggests a broader review to capture and improve on international experience.*

Among other things, the review would have the following objectives:
- Map and describe current institutions, legislative frameworks, organisations and policy processes that define coastal policy and management, taking a triple bottom line approach.
- Clarify roles and responsibilities of different levels of government, agencies, NRM regional bodies and other statutory and non-statutory organisations.
- Identify unnecessary duplication and redundancies (noting that some redundancy and overlap may be desirable to provide resilience and checks and balances).

- Consider the appropriateness and adequacy of current resources available for coastal policy and management (including human, information and financial resources) currently assigned to those roles and responsibilities.
- Identify conflicting processes, policy goals and processes that impede achievement of integrated coastal management.
- Identify a range of reforms, options and best practice models for better integration, communication and achievement of synergies and outcomes.

*The essays by Dovers, Fearon* et al. *Harvey, Kay and Lazarow address policy aspects of the institutional arrangements dimension of ICZM and suggest possible options or paths for reform. Smith and Smith examine opportunities for improving the ways in which we learn and use research to assist with decision-making. The essay by Stuart* et al. *provides a particular focus on the local government arena and highlights opportunities for improvement in integration across the policy and planning spectrum.*

## 2. Institutions to help or hinder with key issues and needs

From group discussions at the conference more broadly, and from the set of papers prepared for the conference, the following four issues which could be resolved by institutional adjustment or reform stand out as critically important.

1. *Knowledge and information:* Local councils and others need timely access to data, best practice models, policy options and decision support tools to assist with managing change and achieving integrated outcomes. It is clear that currently such access is a major impediment across local government and that there is a clear need not only for relevant information to be produced, but for clearing houses, communication networks, quality control mechanisms and other measures to be in place to make that information widely available in suitable and reliable forms. *See essays by Dovers, Kay, and Stuart* et al.
2. *Integration and coordination*: One of the most commonly cited deficiencies of current arrangements (despite the development of regional NRM bodies) is a lack of integration and coordination:
   - vertically, across three (and sometimes four) levels of government;
   - horizontally, across agencies and portfolios at one (especially state) level of government; and
   - across government, community and industry interests and groups.
   *See essays by Dovers, Fearon* et al.*, Harvey, Lazarow and Thom and Lazarow.*
3. *Consistency:* Variation in standards, developer contribution schemes, etc. across state and local government boundaries are often stated as a problem. *See essays by Dovers, Harvey, Stuart* et al*. and Thom.*
4. *Persistence and continuity*: Effective and sustainable management of the coast in the face of change requires long-term approaches. However there is a widely held view that policy and planning processes are too often short-term, tied to budget and election deadlines and not persisted with, learned from or improved. *See essays by Dovers, Harvey, Lazarow, Smith and Smith and Wescott.*

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**Overcoming the issues**

The group suggested three broad responses that would assist significantly in addressing these issues (these issues and needs should be addressed in any review of institutional arrangements):

**1. Realising the potential of strategic planning**

Ideally, strategic planning, whether at local, regional or national scale would be the key process where the integration of environmental management, development planning, social services, infrastructure, etc. would occur and where responses to change are best developed. Yet, according to many practitioners, this potential is rarely achieved. The group saw an opportunity for realising the potential of strategic planning, especially at local government scale, by embedding it within all aspects of council's core business and by tying strategic environmental planning to the electoral cycle (as far as possible), budgeting, asset management and capital works programs.

The aim would be to establish strategic planning as an integrated, iterative process over the long-term, providing flexibility for incoming administrations but in a predictable fashion where industry, community and other public agencies know in advance when and how plans will be reviewed, priorities re-assessed and expenditure programs focussed on expected demands. The engagement of stakeholders and the interest of the community would be enhanced through the predictable cycle of review and plan evolution. Information needs would be defined proactively through the longer-term and iterative process created thus making easier the use of appropriate information in strategic planning made easier.

State-by-state variations in process and requirements are recognised, along with the potential need to augment the capacities of especially smaller councils (and poorly-resourced regional organisations) to engage in such long-term, thorough and participatory planning processes. In some cases strategic planning may be a joint exercise between more than one council or undertaken at least in part through regional initiatives and organisations (see below).

*The essay by Harvey discusses the need for strategic environmental assessment across jurisdictions. Dovers discusses the concept of sustainability and the need to operationalise this consistently across government.*

**2. Informing consistency across boundaries**

Despite apparent problems with a lack of consistency across local governments and states with standards, approval processes, developer contributions and other infrastructure funding mechanisms, etc, the group did not see formalised responses to this—e.g. standardised legislation—as a viable or necessary way forward. At minimum, however, the collation and communication of best practice models and examples would

assist local authorities by providing a range of operational options from which the most appropriate could be selected or adapted. *See essays by Dovers, Harvey, Stuart* et al. *and Smith and Smith.*

## 3. Integration through regional initiatives

The group believed that the regional scale has significant potential as the most appropriate at which to pursue many of the challenges of integration—the local level is often too small to integrate the key environmental, social and economic considerations, and state scale is too large to develop participation, relevance and ownership by communities.

The group recognised that many state and increasingly Commonwealth policies and programs are delivered at regional scale including NRM, health, transport, social services, etc. (although this varies widely state-to-state). Some councils interact with as many as 20 or more different regions across different policy areas. The first priority is to review and where necessary rationalise regional boundaries—while there is no such thing as a perfect, 'catch-all' regional boundary, as few as is necessary would make for more transparent and efficient information exchange and program delivery and greater clarity between programs and the community.

The choice of regional boundary and the structure and process used will vary according to the region itself and the policy area being addressed.

Whatever the regional definition and process, the key to integration is that all regional delivery and all regional governance structures apply 'triple bottom line' (environmental, social and economic) principles, to ensure some consistency and to drive integration rather than create a renewed disintegration at a new scale. Consistency and accountability should be ensured through national and state strategies which define principles and broad goals.

Some qualifications to the regional approach were noted. First, is the issue of the representativeness and democratic legitimacy of regional organisations (skills vs. representation models). Second, the capacities of regional organisations (informational, financial, human, statutory and administrative) compared to the burgeoning range of tasks being devolved (by states and the Commonwealth) or evolved (by local government) to the regional scale. Insufficiently resourced regional organisations and programs will not produce the desired outcomes. Third, if regionalism/regionalisation continues to intensify, the role, status and even existence of local (and state) governments would need to be assessed.

*See essays by Harvey, Stuart* et al.*, Wescott and Wimbush which all provide some commentary on the regional application of NRM to ICZM. Note that the non-NRM ICZM issues have not been covered in these essays e.g. infrastructure planning (roads, sewerage) and settlement planning.*

The above three proposed responses could be addressed by institutional reform in the near-term. They may be further developed in specific contexts, can inform broader policy development, and should be included in the remit of the national review of institutional arrangements for coastal management recommended above.

## Possible project proposals

The following project outlines are designed to connect with the suggestions coming out of the governance sessions.

For each of these projects, the choice of local government authorities (LGAs) or regions to be included in the studies would depend on a number of factors such as: location, size, transferability of lessons, support for the research and ability to attract funding.

**Project 1** (suggested by Lazarow)

This project would focus on 3–4 LGAs to forecast costs and impacts of sea change over the next 10–30 years. Identify gaps in terms of dollars, infrastructure, services, amenity etc. and investigate opportunities to cover the gaps.

**Project 2** (suggested by Dovers)

This project would address suggestions 1 and 3 in the session report. These are
- Realising the potential of strategic planning and
- Integration through regional activities.

The project would identify and document best practice in strategic regional planning and promote these examples as the prime means of integrating environmental, social and economic considerations in managing growth in sea change communities.

**Project 3** (suggested by Dovers)

This project addresses suggestion 2 in the session report. This is:
- Informing consistency across boundaries.

The project would seek to identify and document best practice models and processes in standards, approval processes, developer contributions, infrastructure funding, etc.) to inform consistency and effectiveness on the part of local governments and regional bodies in growth regions.

**Project 4** (suggested by Berwick)

This project would seek to identify the institutional changes required to integrate local government and regional natural resource management planning and delivery.

## Fearon paper

The aim of this talk is to give you some of the conclusions and recommendations from a recent review of coastal institutional arrangements facilitated by the Coastal CRC, the ANU and the Sea Change Taskforce. Because a key message is the need for cooperation, communication and collaboration we are setting an example and giving this presentation in two parts and Neil Lazarow will follow me to discuss recommendations on where-to-from-here.

I am going to further complicate matters in that I am going to start with my conclusion and then move on to a bit of discussion based on the review papers and the experience of the Coastal CRC over the past seven years. I'll end with a very brief background.

The conclusion I have reached is that Australia has a **coastal addiction**.

At this conference, we all know the statistics about (what has been called) 'Australia's love affair with the coast'. However, I am constantly amazed by the passion with which we have entered into this relationship. Globally, we know around 40% of people live within 100 km of the coastline. Here, that statistic is 85% (that we have all heard so often) and actually applies to the zone 50 km from the ocean.

While, I don't agree that the sea change phenomenon is a myth, as was suggested by Brian Haratsis on Tuesday at the conference, it is true that our coastal nature has been long established. Eminent historian Geoffrey Blainey describes in *The tyranny of distance* how the need to communicate and trade with other countries as well as with other Australian settlements, combined with military strategy and the harsh interior, led to the development of 'limpet ports' dotted around the coast. Bernard Salt's suggestion that Australia has moved from a bush culture in the 19th Century, through a suburban culture in the 20th and is rapidly moving to a coastal culture in the 21st century doesn't, I believe, pay sufficient homage to our long-standing coastal vacation and beach culture (which Andrew has just mentioned) nor the fact that our main urban centres are distinctly coastal. Regardless, it is abundantly clear that the coast is very important to Australians and coastal development is growing.

With growth comes a range of pressures and this audience doesn't need to be further regaled with lists of the negative impacts of our expanding coastal footprint. They have been acknowledged repeatedly at a whole-of-government level over the past couple of decades through the RAC coastal zone inquiry, COAG agreements, stalled policies and most recently the national coastal framework and associated implementation plan.

Notwithstanding the repeated acknowledgement of an urgent need for action, and the increasing litany of negative coastal impacts in SoE reports, ABS figures and research reports, the drive towards ICZM in Australia has been exquisitely slow (to say the least).

This situation is nicely analogous to the traditional definition of an addiction…..."The term addiction describes a chronic pattern of behaviour that continues despite the direct or indirect adverse consequences that result from engaging in the behaviour. It is quite common for an addict to express the desire to stop the behaviour, but to find himself or herself unable to cease."

The costs of our coastal addiction are acknowledged, even if they are difficult to demonstrate at times. Yet there is still a level of complacency or sometimes outright denial in the light of continuing coastal impacts.

If there is not an irrational addiction, what is causing the inertia? Here are some suggestions…

1. Dilution is the solution to pollution

The first is a lack of belief that we can damage something as fundamental and large as our coast, the fifth longest in the world. Our population is smaller than those of other countries and a lot of the coast is still uninhabited.

Using Geoff Wescott's suggestion to reframe issues, I'd like to turn this argument on its head. I'd suggest that given our vast coastal zone, it is actually remarkable that we have a litany of local ecological impacts ranging from loss of seagrass to invertebrates, fishes and marine mammals. As with the oceans and the atmosphere, we are finding that we can harm really large ecosystems if we try hard enough.

2. Overseas benchmarks

Another reason could be that we don't appreciate the magnitude of these impacts. Australians are great travellers and many have seen the highly degraded coasts of other countries, particularly in Asia, Africa and Europe.

Of course, another way to frame this would be to note that with a fraction of their population and only a couple of hundred years, we are now able to compete with regions with vast populations and millennia of coastal use and abuse. This gives some hint at the high intensity and also a steep negative trajectory of Australian coastal impacts.

3. Red Queen hypothesis

Another reason for the inertia is that ICZM is hard. The red queen hypothesis is a theory in evolutionary biology which compares evolutionary change to the dilemma of the Red Queen of Alice in Wonderland fame. The red queen notes to Alice "Now here,

you see, it takes all the running you can do to keep in the same place". And so it seems for integrated coastal management in Australia.

There are exceptions and we have heard of some of them in the past couple of days. But the list is disappointingly short. We seem to hear the same case studies repeated year after year with few additional exemplars added to the list. However, given the poor level of resourcing for ICZM around the country, what is most remarkable about the exemplar areas is not their rarity, but rather that they exist at all. The coastal champions that have made them happen need to be congratulated and recognised far more broadly than they currently are.

## 4. A common tragedy

The tragedy of the commons is an intrinsic problem for the coast. This was reflected clearly by Tony de Domenico on Tuesday. He said that "developers need to make a profit" and that "development proposals need to be assessed individually on their own merit." These entirely sensible aims underpin the tragedy of the coastal commons. Each developer and home owner rationally seeks to maximise their lifestyle but consequently ignores the 'big-picture' impacts and the externalities of their activities. Moreover the large number of incremental changes is subject to the tyranny of small decisions and the chronic build-up of cumulative impacts.

## 5. A common currency

Finally, and I think most importantly, we need to be able to share knowledge, costs and benefits using a common recognised currency. Tony de Domenico's presentation on Tuesday showing a salt marsh and the improved golf course that replaced it was an interesting comparison. Recent work by the Coastal CRC has shown that salt marsh can sometimes provide more energy to fisheries resources than mangroves.

A positive feature of Tony's talk was that when questioned, he clearly understood that salt marsh had some value even if the actual magnitude of the value was unclear. Even 10 years ago I suspect that this point would not even be discussed by the President of UDIA. Moreover, confusion over the value of salt marsh and other coastal systems is not uncommon.

The environmental value of the coast for economic development can be roughly estimated through the tangible ecosystem goods and services it provides. A global comparison of the value of goods and services of all major ecosystems has shown that coastal systems are among, if not *the* most valuable of all because of the range and extent of goods and services they provide. Problem is the numbers are pretty rough— they can be criticised. However, arguments over the numbers miss the main message. The point is that these systems have an economic value beyond their intrinsic and intangible values; we just can't measure them very well. This makes it difficult to compare the short-term benefits of economic growth from coastal development with the long-term costs of environmental and social impacts.

This makes it virtually impossible to do the net benefit-to-community analysis that Tony called for. The outcome is that development—with a clear case for benefit to communities—often out-competes other values which are more difficult, or impossible to discuss transparently.

The take-home message here is that 'business as usual' complacency is not going to cut it for the coastal zone. The background to the series of reviews we have put together was a drive to break the inertia and complement current arrangements for ICZM, and follows on from discussions with coastal stakeholders from around Australia. The papers were written by coastal experts from around the country and have some good suggestions on how to overcome some of the problems I have discussed.

For any addiction, all "treatment approaches universally focus on the individual's ultimate choice to pursue an alternate course of action". I am not sure that we as a whole have truly made that choice yet.

## Lazarow paper

Government is an experiment. In Australia, every few years we, the people, vote for one or another political party and provide some guidance as to how we think the experiment should proceed for the next few years. Coastal management then, is an experiment of government.

We all know that natural resource management issues have a curious habit of not tying themselves to electoral cycles, levels of government or bureaucratic boundaries, yet this is how they are so often managed.

It is for this reason that the significant recommendations put forward in the three federal government reports into coastal management to date—the 1980 HORSCEC report, the 1991 HORSCERA inquiry and the 1993 RAC report—are all similar.

Twenty-six years after the first report, what has changed markedly is the scale of our actions on the environment and our understanding of the consequences of our actions. Despite our good intentions and despite apparent policy and planning advances across all levels of government, we stand as witness to a degrading natural environment.

This was the point of departure for our work on institutional and governance issues for coastal management. Rob and I have worked with Steve Dovers, Regina Souter and the National Sea Change Taskforce to contribute to and edit a series of papers on this topic. The report includes 10 *[Editors' note: now 13]* short essays from many of Australia's leading coastal management thinkers and practitioners as well the proceedings of a workshop on governance issues from the recent National Sea Change Conference.

Our work attempts to approach the issue from a different angle. We wanted to know:
- What are the pressures on existing institutions?
- What can we learn from existing institutions?
- What are the outstanding challenges?

We know that the most significant issues for coastal planning and management centre around:
- the need for effective strategic planning;
- the need for an upscaled and ongoing investment in human capital e.g. education, professional capacity and resourcing; and
- the need for a clear articulation of responsibilities.

The overwhelming argument across the essays is that the current institutional arrangements, governance and learning systems simply are not able to deal with the complexities of coastal management. So how do we move forward? We've identified two opportunities:
1. possible institutional reforms to address these issues; and
2. the need for a national-scale review of governance and institutional arrangements for the coast, including a draft terms of reference for the review.

The opportunities centre around four themes:
1. Knowledge and information—about timely access to data, policy options, best practice models
2. Integration and coordination—across governments, across agencies, between government, industry and community
3. Consistency—variations in standards across local and state government boundaries
4. Persistence and continuity—need for long-term approaches, where possible, unbundled from budget and election cycle deadlines.

I believe we are on the cusp of a significant change to coastal management here in Australia. A collective sense of frustration at lost opportunities and the rise of a number of new forces of energy present us all with a unique opportunity to improve coastal planning and management.

Opportunities:
- Australian Coastal Society
- National Sea Change Taskforce
- CERF funding round + CSIRO's proposed AVCA
- National framework and implementation plan
- National coastal council
- A federal review
- A National Coastal Act

Yesterday saw the birth of a new professional body for us. The coastal society will play an important role as a peak professional body, provide a vehicle for individuals to share knowledge and will lead the way in the development of partnerships across industry and sectors. In time it may commission research and take on a strong role in advancing the debate on coastal land use.

Over the past two years, the National Sea Change Taskforce has grown to be a powerful ally for many of us working in coastal management. Through the Executive, the Taskforce has commissioned valuable research to assist local government and has been able to take important coastal planning, infrastructure and management issues to the Federal Government.

Late last year the Coastal CRC opened up a series of discussions on the need for a National Coastal Council and more recently, we have again considered the usefulness of a National Act. As you know these are not new recommendations. Would an act of parliament give coastal management issues more importance and prominence? Would it mean that good coastal initiatives would stand the test of successive governments and tie in funding opportunities for the states? Could a National Coastal Council promote the national framework but be powerful enough to drive programs across all the levels of government and bureaucracy that are appropriate to manage particular issues? Will it take a National Coastal Council to force discussion on the impact and use of key economic drivers such as developer contributions and negative gearing for better coastal planning and management or linking income tax or GST credits to strategic planning and infrastructure development?

Despite our dreams and fantasies, we all know that coastal management is not the main game in Canberra or in any of our states and territories. An underfunded national framework and often difficult state-commonwealth relationships will not improve this situation much. The key challenge is to pull coastal management out of the periphery of governments' attention and make it as relevant and important as we all know it needs to be.

Through the contributions to the report and the discussions arising out of the Sea Change Conference, we have attempted to map out a path forward that recognises and manages risks.

I hope that along with me you can see the opportunity that presents itself to us at this time—an opportunity to use the current wave of enthusiasm to pick up on some of these key recommendations.