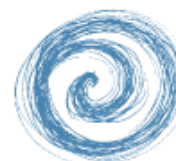


# OCEANS POLICY SECRETARIAT

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**OCEANS POLICY**

## THE LAND–SEA INTERFACE

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## Introduction

*Conserve the land and you will save the sea. Make a link between the two<sup>1</sup>*

1 The land and sea are inextricably linked. The global coastal margin is an important boundary connecting processes operating on land with those in the ocean. It is a site of rapid population growth, industrial and agricultural practices, and urban development. The flow of water from the mountains to the sea carries the sediment and pollutants of land activities into marine ecosystems. Some human activities, such as ports and sewerage systems, straddle the land–sea interface and utilise the marine environment as part of the urban infrastructure.

2 The importance of integrated management between the land and sea is highlighted in international agreements such as the 1995 Washington Declaration on Protection of the Marine Environment from Land-Based Activities. In the New Zealand context, management of the land–sea interface raises many important issues for an Oceans Policy. The coastal margin has many management challenges, such as hazard management, protection of public access and amenity values, and the protection of fragile ecosystems such as estuaries. Ecological integrity of the oceans can be threatened by pollution from land-based activities, both through direct discharges such as sewage and stormwater, and through non-point source pollution of rivers hundreds of kilometres from the coast.

## Problem issues with the land–sea interface

3 There are a number of problems faced in management of the land-sea interface. These issues have been identified through four sources:

- submissions to Stage One of the Oceans Policy
- discussions with relevant bodies of local, regional and national government
- examination of regional policy statements and regional coastal plans
- relevant literature, particularly the 1997 State of the Environment Report, and the 1999 report of the Parliamentary Commissioner for the Environment.

## Effects of land use on waterways

4 Land use practices have a profound effect on the water quality of adjoining rivers, which has a downstream effect on marine water quality, particularly in near shore or low energy environments, where pollutants have little chance to disperse.

5 Water quality can be affected by both point and non-point source pollution. Point source pollution is discharged from specific sites, such as factory outfalls. Pollutants washed into waterways as run-off from land surfaces are non-point source

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<sup>1</sup> Submission of the New Zealand Federation of United Seafood Interests Inc to Stage One of the Oceans Policy.

pollutants. In many cases, removal of riverbank vegetation has caused an increase in the contamination of rivers from non-point source pollution.

### **Agriculture**

6 Agriculture dominates the middle and lower catchments of most streams and rivers. Agricultural practices in the main require the application of fertilisers and pesticides, which if not broken down, may leach into groundwater or contribute to run-off. Additional organic waste is discharged into surface waters from facilities that process agricultural products and animal carcasses<sup>2</sup>. The recent increase in conversions to dairying has intensified land use in a number of regions.

7 Good management practice in relation to dairy shed effluent and waterways is essential for maintaining water quality for downstream users and ultimately coastal waters. In recent decades some of these pressures have improved as the agricultural sector has become more aware of the problems, water waste treatment technologies have improved and international consumers have demanded higher environmental standards in the production of New Zealand's exports.

### **Sedimentation**

8 Land use changes such as subdivision or forestry can increase the sediment load of rivers, particularly when riparian margins are disturbed. Downstream, this sedimentation can have profound effects on marine ecosystems, particularly in low-energy enclosed areas where sediment cannot 'escape' to the wider marine environment.

9 For example, concerns about sedimentation in Whangamata Harbour have caused concern over the loss of estuarine habitats and biological communities. This sedimentation also affects human uses – for example reduced access and navigation, loss of recreational space, loss of amenity value, and loss of water views and property values.

### **Water abstraction**

10 Increasing urban demand for water has reduced the levels of some rivers and aquifers. Agriculture also draws a large amount of water from waterways. Water flows are also affected by damming upstream. Changes affect the habitat of ecosystems on the coastal fringe influenced by flow levels (e.g. estuaries) or through changing sedimentation levels.

### **Point-source discharges**

11 Urban areas produce a large amount of sewage and stormwater. After varying degrees of treatment most end up discharging these into the marine environment. Sewage and stormwater have adverse effects on marine water quality, and the discharge of sewage in particular is of considerable social/cultural concern, especially

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<sup>2</sup> Ministry for the Environment and GP Publications 1997, *The State of New Zealand's Environment* 7.37

to Maori. Stormwater is a major source of marine debris, much of it non-biodegradable plastic which contributes to the litter of many urban coastlines. Stormwater can also carry a number of toxic substances and heavy metal pollutants discharged off road services. Some industries also have direct discharges into the oceans; for example, fish processing outfalls.

12 A recent and severe case of land-based pollution occurred at Waikare Inlet in the Bay of Islands, where sewage from the Kawakawa treatment facility is suspected to have led to a viral infection that affected local oyster farms.

### **Loss of natural character/amenity values in the coastal environment**

13 A major issue for many councils is the trade-off between coastal development and natural character values. There is also a tension between amenity values and public access issues – increased access and development on the coastal environment can diminish the values that attract people in the first place. Issues with the protection of natural character are occurring around the country, particular in relation to areas of rapid development such as North Auckland or Tauranga.

### **Perception of reduced public access to the coastal environment**

14 Councils are divided in opinion as to the scope and severity of the issue. The Ministry of Agriculture and Forestry is currently leading a project examining access issues, including access to the coastal environment across private property. The work responds to concerns over the need to clarify and enhance the legal situation pertaining to public access over private land and the foreshore of lakes and the sea and along rivers.

### **Adverse impacts on fragile ecosystems**

15 Fragile ecosystems such as estuaries or mangroves are adversely affected by modifications such as infilling, rubbish disposal and commercial land development<sup>3</sup>, or through diminished water quality. Areas adjacent to urban centres, such as estuaries in the Auckland region, are under extra pressure, particularly due to heavy metal contamination from motor vehicles.<sup>4</sup>

### **Increasing danger of natural hazards**

16 Coastal hazards are natural events that threaten the health of coastal ecosystems and communities. Population growth and increased development on the coastal fringe mean that people are increasingly putting themselves ‘in harm’s way’ of hazards such as coastal erosion, storm surge or tsunami. Hazards can be created or intensified by human activity. For example, coastal development can accelerate coastal erosion by removing stabilising vegetation.

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<sup>3</sup> Ministry for the Environment and GP Publications 1997, *The State of New Zealand’s Environment*, 7.27

<sup>4</sup> Ministry for the Environment and GP Publications 1997, *The State of New Zealand’s Environment*, 7.74

17 The frequency and severity of hazards varies around the country. For example, the long exposed reaches of the Bay of Plenty or the West Coast could be severely damaged by a tsunami. Areas of intensive development such as Auckland or Tauranga may see accelerated coastal erosion and a higher vulnerability to storm events.

### **Variations over space and time**

18 The incidence, scope and priority of land–sea issues vary around New Zealand. The state and inter-relationship of geography, ecosystems and human uses lead to large spatial variations in the nature and incidence of problems. For example:

- The Auckland region is experiencing rapid population growth, placing increasing pressure on the marine environment, particularly in relation to retention of natural character and protection of sensitive coastal ecosystems
- The primacy of dairy farming in Waikato and Southland raises river management issues different from those of areas with different concentrations of land use patterns, such as sheep farming or horticulture
- The Gisborne area has high levels of sedimentation, requiring management responses very different from those in areas of lower sedimentation.

19 Land–sea issues will change over time with the flux of human and natural systems. For example:

- Large-scale dairying conversion in recent years in the Waikato and Southland has resulted in increased concerns about river pollution, and downstream effects on coastal water quality. If land use patterns change in the future, this issue may diminish in importance.
- Spatial concentration of residential development on the coastal fringe has increased natural hazard, public access and amenity value issues.
- New technologies can enable the avoidance or mitigation of some adverse environmental effects. For example, sewage treatment technologies now make it possible to produce a ‘cleaner’ discharge than in the past.

### **Policy problems underlying land–sea interface Issues**

20 The land–sea interface is difficult to manage, for a number of reasons. Work on the Oceans Policy is trying to untangle the many interacting strands of ‘the problem’ to see where improvements to the management system can be made. To date, the following policy problems have been identified.

### **Implementation of the Resource Management Act**

21 The Resource Management Act (RMA), in theory, provides for a high degree of institutional coordination. Arbitrary boundaries, such as the mean high water spring mark and the boundaries of different councils present challenges that the RMA addresses through a policy hierarchy and provision for integrated planning.

22 A fundamental philosophy of the Resource Management Act is that the environmental effects of activities should be managed, as opposed to focusing on the type of activity in question. The assessment of individual activities on a case-by-case basis can lead to cumulative problems, such as the effects of individual farms on river water quality.

23 A key message to arise from consultation with local government, however, is that effective implementation of the Resource Management Act is the issue, rather than the design of the legislation (although some areas could be ‘tidied up’<sup>5</sup>). The Resource Management Act has a wide range of tools to promote integrated planning, such as the hierarchy of policy statements and plans, or provision for joint hearings and transfer of powers. The following problems have been raised in relation to effective implementation of the Resource Management Act .

### **Societal pressures and political decision making**

24 The Resource Management Act is just one part of the planning process. Councils deal with the expectations of their constituents, which are not always easily aligned with statutory requirements. This is expressed through tension around issues such as the protection of natural character, or the management of coastal hazards (when everyone wants to build on the beachfront). Often councils may know what activities are causing problems, but are unwilling to take steps that would adversely affect the economic and social values of their constituents.<sup>6</sup>

25 Political and social pressures can also mean that the ‘big projects’ will always go through, due to their national significance and benefits for the region. It is unlikely that councils would not approve any major petroleum development in Taranaki, or a large energy scheme such as Project Aqua<sup>7</sup>.

### **Institutional fragmentation**

26 Management of the land–sea interface cuts across the jurisdictional boundaries and responsibilities of territorial and regional councils, which have different roles and objectives affecting their decisions. The Resource Management Act’s model of integrated planning may be hard to implement in practice. Other players such as the Ministry of Transport, the Ministry of Fisheries and community groups, for example, also have roles to play in the complicated management scheme, and there may be a need to clarify the fit between these.

27 One cause of institutional fragmentation, enshrined in statute, is the mean high water spring boundary, which separates many management functions between the terrestrial and marine environments. This arbitrary boundary does not recognise the interaction of human and natural systems across the land–sea interface, and can be “a ridiculous day-to-day irritation”<sup>8</sup> for coastal planners. One example of this problem is the management of noise pollution. For example, noise levels from the local harbours annoy residents in Lyttleton, or the Auckland CBD, but noise control staff from local

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<sup>5</sup> For example, the management boundary at Mean High Water Spring.

<sup>6</sup> Pers comm, (2003) *Coastal planners meeting*, 19-2-03.

<sup>7</sup> Pers comm, (2003) *Coastal planners meeting*, 19-2-03.

<sup>8</sup> Pers comm, (2003) *Coastal planners meeting*, 19-2-03.

authorities do not have jurisdiction to regulate activities on the water as they do on land.

### **Working relationships**

28 Most good practice examples of integrated management demonstrate strong and constructive working relationships between relevant parties. There are many current examples of Resource Management Act authorities working together constructively to overcome jurisdictional fragmentation.<sup>9</sup> Community-based solutions such as maitaitai and taiapure work best when iwi, local community and government agencies are all working together, there is ‘buy-in’ to the projects and there are the ‘teeth’ to enforce it when required.<sup>10</sup>

29 In some cases, though, provisions for policy consistency and integrated management are debated in a litigious rather than cooperative manner. Reasons for relationships to break down can include ‘patch protection’, or the fractious relationships of key individuals. It is hard to implement integrated management effectively without good relationships and a degree of ‘buy-in’ from all parties.

### **Capacity issues**

30 Land–sea issues are difficult to deal with, because of their complexity and cross-boundary nature. Good planning requires good resources, and it is notable that larger, better-resourced councils have better developed plans and means of implementation (e.g. monitoring programmes), and are better able to address difficult issues. In some cases, the human and financial capacity of agencies may not be sufficient to deal with problems effectively.

### **Complexity of issues and lack of information**

31 It is hard to plan well without baseline information on the environment, and an accurate picture of how a proposed activity may affect that environment. This is particularly true of cumulative effects – how does a council know when to draw the line and stop further development?

32 Councils are often required to make decisions in the face of uncertainty. Without good information on the cause and effect of environmental problems, councils are poorly placed to respond to the issues.

33 This problem is a fundamental constraint on the ability of councils to address land–sea problems. If a council is unsure as to the downstream effects of an activity, or the cumulative effect of many small impacts, it is very hard to relate decisions about specific activities to distant impacts in different jurisdictions. It has to be accepted, however, that managers will seldom have all relevant information about complex issues, and there is a need to develop techniques for decision-making in the face of uncertainty.

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<sup>9</sup> For example the Raglan Sedimentation Management Plan, or Waitakere City Council / NIWA / Ministry of Transport project modelling vehicle fleet emissions and environmental impacts

<sup>10</sup> Pers comm., meeting with territorial authorities 11/2/03

## **Monitoring**

34 Another information-related issue is monitoring, in theory a prerequisite for good environmental management. Some councils appear to lack the capacity to better maintain sound monitoring provisions, and there is a need for guidance on how monitoring can be better targeted (within the constraints of limited information on marine ecosystem processes and functions).

## **‘Bedding-in’ of the Resource Management Act**

35 Although the Resource Management Act has been in force since 1991, it is widely accepted that there is significant room for improvement in its implementation. Many plans have only been operative for a short time, and some are still at a draft/proposed stage. Given that the RMA was such a significant paradigm shift in resource management planning, it is understandable that it will take time to adapt to the new framework.

36 Second generation plans, and improved experience with implementation, should enable councils to deal better with issues such as integration across jurisdictional boundaries, or management of cumulative effects.

## **Lack of guidance from central government**

37 The current review of the New Zealand Coastal Policy Statement has revealed some dissatisfaction from some councils, who seek guidance on issues of national priority, such as integrated catchment management or natural hazards. A lack of national environmental standards may also be limiting councils’ ability to set appropriate standards at the local level.

38 Central government has the ability to set national environment standards<sup>11</sup> that prescribe both technical standards relating to the use, development, and protection of natural and physical resources and methods for implementing these standards. To date, no environmental standards have been implemented; those developed so far are still at a guideline stage. In this respect, central government has not taken the opportunity to provide guidance to local authorities that may help them deal with some land–sea interface issues.

39 Discussions with councils have revealed a varying degree of support for central government involvement, particularly in relation to regulatory measures such as standards or policy statements. There is fairly common consensus, however, that there is some role for central government in setting national management priorities and facilitating best practice/information sharing dialogue between councils.<sup>12</sup>

## **The wider management framework for sustainable development**

40 Aside from Resource Management Act implementation issues, the wider context of planning presents certain challenges for land–sea management. Changes in

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11 RMA ss43, 44

12 Pers comm. Meeting with Territorial Authorities focus group 11-2-03, Meeting with Regional Coastal Planners 19-2-03

activity patterns are driven by a number of economic and social cycles (e.g. the aquaculture boom, local elections, desirability of coastal property). The environmental planning cycle – for example, the RMA, council by-laws, and other statutes where relevant – may not be well-suited for intervention at the right times to regulate these activities properly. In other words, negative effects may happen due to a number of different reasons, but environmental managers have limited ability to address the issues. For example, the aquaculture boom was driven by the high productivity of marine farms, and a subsequent sudden increase in investment. Concerns about the ability of the RMA to respond effectively and quickly to the issue, and inability to understand and manage the cumulative effects of new marine farms, led to recent reforms to aquaculture legislation and a moratorium on new applications.

### **Existing uses**

41 A related issue is the ‘rollover’ of existing activities; for example forestry, agriculture, and industrial activities. Plans can only deal with proposed new uses, which means that different standards apply to ‘old’ activities, or activities with existing use rights. This makes it difficult to attribute environmental trends to different activities and uses, although some councils are currently exploring how to address existing use problems.

42 Reforms to the Local Government Act, to allow strategic community planning, may help councils address these issues. Long Term Council Community Plans (LTCCP) are to be prepared by every local authority at least every three years to provide, among other things, for: integrated decision making; the coordination of the resources of the local authority; and an opportunity for participation by the public in decision making on activities to be undertaken by that local authority. The authority of local government to undertake these roles is strengthened by the grant of a ‘power of general competence’.

### **Conclusions**

43 Current management of the land–sea interface raises a number of problems. Their effects on the maintenance of ecological integrity, preservation of public access and amenity values and the economic values of the oceans are particularly relevant to the Oceans Policy.

44 Land–sea interface problems have to be assessed on a case-by-case basis, and in their geographic and temporal context. Local authorities are best placed to deal with their own local issues, and at this stage it is hard to identify any national priority for how the problems should be ranked.

45 With respect to the causes of these problems, it appears problems in the implementation of the Resource Management Act may be more important than problems with the legislation itself. Development of policy options should, therefore, focus on making the existing system work better, and encourage greater integration between the various management agencies involved. There may also be some scope for central government to take a more proactive role in providing national guidance and facilitating good practice.