

# Coastal News

## Newsletter of the New Zealand Coastal Society A Technical Group of IPENZ

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### Contents

Management Committee	2
Coastal Management in South Africa	3
A Note on Coastal Management	4
Canterbury Coastal Research and Planning Group Seminar	5
Otago Harbour Development	6
Conferences and Notices	6
Tasmanian Spill Raises NZ Awareness	7
Important NZ Lessons from Kobe Quake	8
Corporate Members	8

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## Coastal Society Seminar Coastal Hazards: Are We Managing?

*This year's Coastal Society seminar (26 June at the Plaza International Hotel in Wellington) aimed to encourage debate and discussion on the issues that underlie the management of coastal hazards in New Zealand. The conference speakers highlighted many complex aspects of coastal hazard management, including future research directions, financing issues, the involvement of coastal communities in coastal hazard management planning and interagency cross-boundary issues.*

Special thanks should go to the Minister of Fisheries, Hon. Doug Kidd, who replaced the Minister of Conservation at short notice, for giving the opening address. His discussion gave the audience a forthright view on the political nature of coastal zone management, which was illustrated with many amusing personal anecdotes.

Thanks are also due to the keynote speaker, Mr David Thom, CBE. David, who has had a distinguished career as a consulting engineer, was recently elected a Vice President of the World Federation of Engineering Organisations (WFEO) and is currently Chairman of the Committee on Engineering and the Environment. David gave a stimulating address on the history of hazards. He noted the importance of coastal hazards and the need for proper levels of preparedness.

"Are we managing coastal hazards?" was the central focus of the seminar. The papers presented at the seminar addressed aspects of this question, but it is evident that truly effective coastal hazard management is some way off. However, we should not view this as a negative outcome but look at this year's seminar as a necessary step towards more effective coastal hazard management.

A personal highlight was the impact Philip Milne had on the seminar. It seemed clear that for many delegates the opportunity to interact with a member of the legal fraternity on coastal hazard management issues was a new and profitable experience. Perhaps the animated discussions on the RMA's implications occurred because the legal profession, which plays such a crucial role in the management of the coastal zone, has not often been represented at traditional conferences, which are "single discipline orientated"? Herein

lies the challenge for the coastal society. If we are to foster integrated management of the New Zealand coast, then we must draw other disciplines, Iwi and interest groups into future forums.

Successful coastal zone management will rely on our ability to mould the strengths of the different disciplines and the aspirations of coastal communities to establish innovative and effective management policies.

I urge all members to make the effort to encourage others to join the New Zealand Coastal Society. For if all central government agencies, lawyers, consent officers, planners, biologists, the finance and insurance industry, and other stakeholders in coastal zone management are represented at future seminars, then the Coastal Society could be the principal catalyst in the further integration of coastal zone management in New Zealand.

Personally, I would like to see the one-day seminar format we have had for the past two years extended to two days. This would enable the interdisciplinary discourse that we saw glimpses of at this year's seminar to develop and strengthen.

The seminar concluded with the Coastal Society's AGM. The name change from the "New Zealand Society for Coastal Sciences and Engineering" was formally adopted. New members joined the committee -- good luck to them as they develop the Coastal Society during the coming year.

Congratulations to the organisers, and I look forward to next year's seminar.

Harley Spence  
Environment Waikato



## Past Chairman's Message From the Management Committee

After three years as chairman of the Management Committee, I decided that it was time for a change and, accordingly, at the last meeting of the Committee, held on 28 September 1995, Mr John Duder, Director of Tonkin and Taylor Ltd, Auckland, was duly elected chairman. John has an impressive record as a leading consulting engineer and has a particular interest in the integrated management of the coast. I am confident that under John's guidance, the Coastal Society will continue its steady growth.

Mr Fred Smits of NIWA, Wellington, was elected secretary.

Once again, a very successful seminar was held in Wellington, on 26 June 1995, and a lead article appears on page 1 of this issue. The seminar was attended by over 100 people. It seems clear to the Management Committee that there is a demand for such meetings and it should be part of the Society's business to hold these functions on an annual basis. It has now been decided to expand next year's event, which will be held in Auckland over two days, on 26 and 27 September 1996. This is to allow more time for presentations, debate and interaction. At this stage, it is intended that only invited papers will be presented, but ultimately the intention is to turn this into an annual conference.

The Coastal Society's AGM was held at the end of the June seminar and the new Management Committee for the 1995/96 year is listed below. Society members should feel free to contact any committee member if they have any suggestions concerning the Society.

Earlier newsletters had publicised the proposed change to the name of the Society to the "New Zealand Coastal Society". A resolution to this effect was put to the AGM and was duly passed without dissent.

The standard and frequency of the Newsletter remains a matter of concern to the Management Committee. It seems to be difficult, whilst relying on the voluntary efforts of busy people, to

produce more than two Newsletters a year. The Committee is conscious of the need to have frequent contact with members and will be exploring ways to improve the standard of the Newsletter as well as the frequency of its issue. Inevitably, this comes down to funding and the Society's present limited income does not allow much scope for more expenditure on the Newsletter. Members should note, however, that advertising space is available in the Newsletter at a current charge of \$250 for one-third of a page.

Since this is my last opportunity to write this column, I would like to finish by reminding members that the main objective of the Coastal Society is to encourage communication among the different disciplines with an interest in the coastal zone and to lead the way towards achieving fully integrated coastal management. The New Zealand Coastal Policy Statement promotes this concept but, in practice, we seem to have some way to go.

Territorial authorities may be a good place to start as particularly the larger councils are likely to have several departments with an interest in some part of the coastal zone. This may include departments responsible for works, planning, parks, culture, roading and, perhaps, other matters. Each will have its own agenda and, all too often it seems, there is a fundamental lack of appreciation of the wider issues.

It is essential for planners, policy makers, scientists, engineers and others to properly interact and to progress in an integrated manner. Members of the Coastal Society are well placed to encourage their own organisations to move ahead in this way.

Finally, on behalf of the Management Committee, I would like to take this opportunity to wish all members and their families a happy Christmas and best wishes for 1996.

*John Lumsden (past Chairman)  
Coastal Consultant  
Christchurch*

## Management Committee

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# Coastal Management in South Africa

The South African coastline is about 3000 km in length and is made up primarily of high energy sandy coast (about 70%), a mixture of beaches and rocky coasts. The coastal plains are flanked by an escarpment that runs from the south-western Cape through to northern Natal. Although a large percentage of South Africa's population lives in the interior, the coastal zone does contain four major cities: Cape Town (pop. 1.5 to 2 million), Port Elizabeth (pop. 1 million), East London (pop. 800,000) and Durban (pop. 1.5 million). The rapid growth of these cities, combined with the large demand for holiday housing and recreational development, has seen a dramatic impact on many parts of previously unspoilt coast, especially since the late 1970s.

## Coastal Zone Management (CZM)

While there is no universal model of CZM (Clark, 1991), most countries have embraced the following components:

- overall policy statement and principles for CZM;
- management strategies to be used in coastal land use planning, project review and environmental assessment, resource conservation and management, pollution control, coastal environmental education and awareness, public participation, and research and information

(fisheries and marine resource management is not usually included in CZM programmes);

- institutional arrangement for the implementation of the policy strategies; and
- a system to evaluate how the CZM programme is achieving its policies and objectives.

## Policies

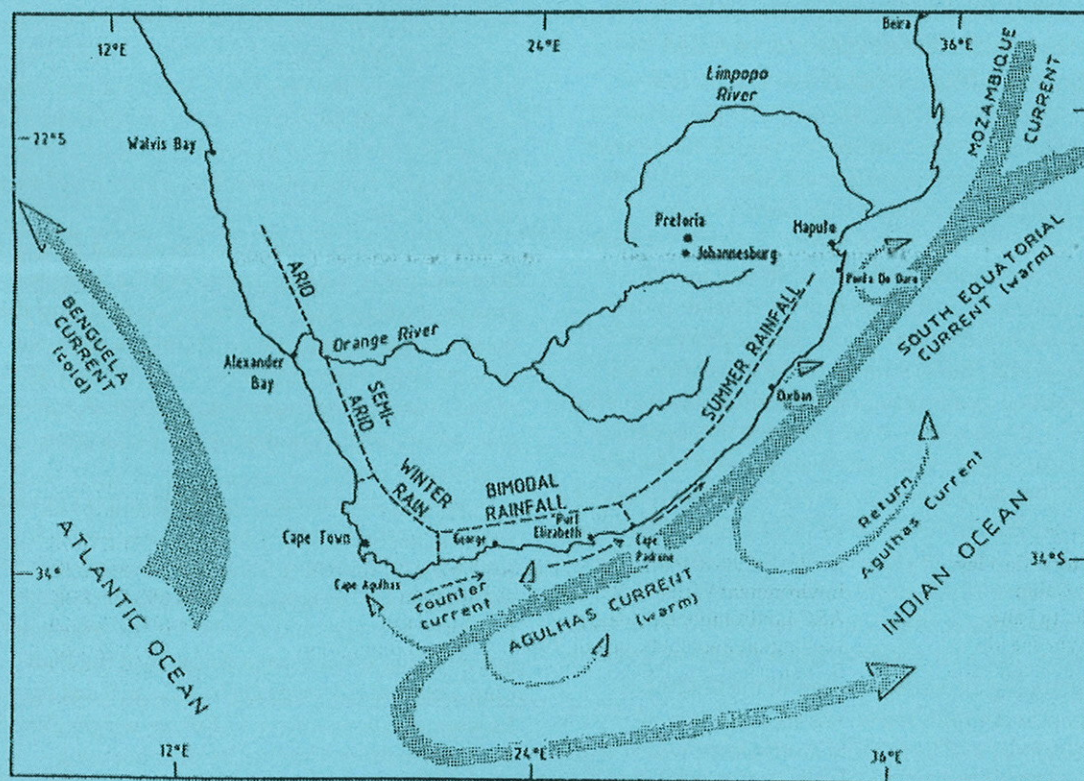
In South Africa, the Department of Environment Affairs (DEA) has the primary responsibility for setting policies for CZM. DEA has published:

- Principles and Objectives for CZM;
- Guidelines for Coastal Land Use; and
- Integrated Coastal Management Plan.

The coastal zone is defined as "a system with open boundaries which may include estuaries, onshore and offshore areas wherever they form an integral part of the coastal system". To date, there is still no definition of the coastal zone in South African legislation, and debate continues over both the seaward and landward boundaries. However, DEA have proposed a seaward boundary of 5 km offshore and a landward boundary defined by cadastral units, which best approximate the ecological interface of the coastal zone. Within the landward component of the

## Coastal News

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*Characteristics influencing South Africa's coastal environment*



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coastal zone, these areas have been defined as Limited Development Areas, where certain activities are restricted (similar to those outlined in Section 9(4) of New Zealand's Resource Management Act).

### Strategies

There are a number of strategies to further the objectives of CZM in South Africa. These include:

- coastal sub-regional structure plans, similar to District and Regional Plans;
- the Integrated Environmental Management process;
- the Cape Coastal Conservation Plan and the Coastal Action Strategy (COAST), which include dynamic planning and management systems using GIS technology; and
- Coastal Management Advisory Program (CMAP), which included, amongst other initiatives, seminars around the coast to various sectors, such as the public, developers, local authorities, etc.

### Actions Required to Achieve Integrated CZM in South Africa

A number of actions have been identified by various authors, including:

- coastal zone policy formulation has been hampered by the legislative requirements to obtain concurrence rather than consent of other government ministers;
- the possible promulgation of a separate Coastal Zone Management Act; and
- the formulation of a "lead agency" to coordinate activities and efforts relevant to CZM.

### Personal Observations of CZM in South Africa and New Zealand

The Resource Management Act (RMA) is definitely a more integrated vehicle for general environmental management than equivalent legislation in South Africa. South Africa's legislation relevant to the coastal zone is generally more cumbersome and suffers from the problem of not integrating the marine and landward components of coastal processes. However, the weakness of the legislation has resulted in a much more concerted national effort by DEA to promote coastal zone management policies and guidelines than appears to be the case in New Zealand. South Africa has followed a more traditional route of CZM in that "the coastal area" is viewed primarily as the landward interface with a limited marine extent of this management zone. Under the RMA, "the coastal area" has a far greater marine emphasis with the planning and management of the landward component relying on the coordination of Regional and Territorial Authorities, which in the last few years has been shown to have certain conflicts in management objectives.

Note: This overview covers the period leading up to April 1994 and is based on a paper by Merle Sowman (1993) and the writer's own experience working for the Cape Provincial Administration.

Clive Heydenrych  
Royds Consulting, Christchurch

### References

- Clark, J R (1991). *The status of integrated coastal zone management: A global assessment*. Rosentiel School of Marine Sciences, University of Miami.
- Sowman, M R (1993). "The status of coastal zone management in South Africa". *Coastal Management*, 21:163-184.

## A Note on Coastal Management

A 1.36 km long timber seawall, of which some 600 m is reinforced with rock toe protection, has been in existence at Paekakariki on the Wellington west coast, for over 15 years. Contrary to predictions at the time of construction this seawall has generally continued to provide satisfactory protection of the roadway running parallel to the coast, without destroying the remaining beach.

The 700 m of timber seawall that remains without rock protection does from time to time suffer damage during storm conditions and a spectacular failure occurred during the Dec 94 — Jan 95 period, at a time when beach levels were high and MHWS was some distance seaward of the seawall. Rip currents formed at two locations causing rapid removal of sand and a consequential lowering of the beach by 1.5 to 2 metres along short lengths of the coast. This was sufficient to expose the bottoms of the timber palings at one location and ultimately resulted in failure of part of the seawall.

As an emergency response measure, a rock revetment was installed to protect the damaged area by the Kapiti Coast District Council, and this was later the subject of a retrospective resource consent application under Sections 330 and 330A of the Resource Management Act 1991. A consent was subsequently granted by the Wellington Regional Council.

In issuing this consent, the Wellington Regional Council warned that the Kapiti Coast District Council could not rely on future consents being granted under the emergency provisions of the Resource Management Act 1991 if the risks were known. This arises from a decision of the Planning Tribunal (*Gisborne District Council and the Minister of Conservation v J I Falkner and the Pare Street Partnership*, October 1994) concerning coastal protection works at Wainui Beach,

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# Notes on seminar of Canterbury Coastal Research and Planning Group in conjunction with the New Zealand Coastal Society

The seminar was hosted by the Canterbury Regional Council on 11 May 1995 as part of their commitment to information sharing on coastal matters. The seminar was attended by 30 people from local authorities, university, crown research institutes and private consultants.

The morning session involved addresses on research investigations undertaken on behalf of the CRC. Murray Hicks (NIWA) started proceedings with an address on his recent modelling of historical and future change of the Washdyke-Opihi shoreline. The objective of the modelling exercise was to predict future shoreline changes that may result from the effects of climatic warming on various coastal processes. The modeling was carried out using the GENESIS one-line shoreline evolution model. As Murray pointed out, although the model could be reasonably calibrated against historical shoreline change, there was difficulty and uncertainty in handling abrasion, sediment rollover processes and quantifying river inputs. However, the predictions of shoreline position over the next 45 years provide a useful input into the planning framework for this part of the coast.

Richard Reinen-Hamill (Tonkin & Taylor) followed with an address on his research into shoreline modelling calibration for the adjoining central Canterbury Bight coast. This work involved calibrating the more versatile UNIBEST one-line shoreline evolution model against historical changes to test whether it is satisfactory for predicting future shoreline changes that may result from the effects of climatic warming on various coastal processes. As with the earlier modelling, although the model could be reason-

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Gisborne, which indicates that Sections 330 and 330A are not applicable if the events leading to the emergency could have reasonably been foreseen.

A territorial authority, having quite properly (in accordance with NZCPS Clause 3.4.1) identified areas where coastal erosion hazards exist, should, therefore, not rely on the emergency provisions of the RMA, to allow emergency mitigation work to be carried out on the coastline in such areas without an appropriate resource consent.

The Wainui Beach decision contains a number of other important points that merit close study by all those involved in coastal management.

*John Lumsden  
Christchurch*

ably calibrated against historical shoreline change, lack of knowledge of abrasion processes and river yields, made modelling of these processes difficult. The decision now rests with the Canterbury Regional Council as to whether they will proceed with more modelling in other areas in spite of their limitations or whether they will first address the problems of better defining the process variables such as abrasion, rollover and river inputs.

The next address, by Derek Goring (NIWA), summarised the first nine months of record from the Sumner Head sea level recorder. The significance of a lagged inverted barometer effect and short period continent shelf oscillations on the ability to use the record to predict sea level during storm events were outlined. Further research using this sea level record was also outlined.

The final address of the morning session was by Maurice Perwick (Elliot Sinclair) on the difficulties of hydro surveying in the sea to obtain an accurate level of the sea bed. Such factors as how to correlate an echo-sounding track with a GPS survey fix while adjusting for changing tide and taking account of swell conditions were explained.

The afternoon session started with an address by David Gregory (CRC) on the current state of play on the Regional Coastal Environment plan. David outlined the effect of recent Planning Tribunal decisions on the plan, notably the declaration on jurisdiction of the control of developments in hazard areas. In terms of the timetable for hearing submissions on the plan, David pointed out that there is a hold up while submissions on the Regional Policy Statement are dealt with, but that it is hoped that cross-submissions would be called for later in 1995, with a submissions hearing in February or March 1996. At this rate, the final working document may still be up to two years away.

Next, Chris Freeman (Christchurch City Council) outlined the Beach Care programme the City Council is embarking upon. Chris explained that the emphasis of the five-year programme is on planting, predominantly with native sand binders, and that public involvement is being sought through the formation of up to six community beach care groups.

The seminar concluded with short addresses by John Lumsden, who outlined current activities of the Coastal Society, and Mike Stevens (City Councillor), who detailed his personal beach monitoring programme at Waimairi Beach.

## Coastal News



# Otago Harbour Development in Relation to Legislation and Environmental Concerns

*Extract from a thesis written at the Department of Marine Science, University of Otago, Dunedin, New Zealand, for Master of Science degree in Marine Resource Development and Protection, Institute of Offshore Engineering, Heriot-Watt University, Edinburgh, Scotland.*

In the early part of the 19th century, Europeans began to arrive in the Otago Harbour, at first living in short-lived whaling stations. After the Crown took possession of New Zealand in 1840, the newly-formed New Zealand Company was tasked to find suitable settlement locations. One such site chosen was the Otago Harbour. Here, under the title of "The New Edinburgh Scheme", Dunedin and its port town of Port Chalmers were to be developed as a Scottish settlement.

This combination of town and port was intended to mirror Edinburgh with its port of Leith, but would also overcome the problems of lack of deep water at Dunedin and very limited flat land at Port Chalmers. The division almost proved too much of a development obstacle and if it had not been for the 1861 discovery of gold, Dunedin could have remained a minor backwater.

Instead, the town was propelled to colonial pre-eminence, with rapid expansion demanding the improvement of Dunedin's harbour facilities at the expense of Port Chalmers. Through the authority of a number of Acts (Public Reserves Act 1854, Harbour Endowment Ordinance 1861 and Otago Harbour Trust Leasing Ordinance 1862), the Provincial Council were able to proceed with land reclamation, raising funds by leasing out the new land.

In the early days, environmental considerations, as we might know them today, were of little importance, certainly in the legal sense, and development was driven by commercial motivations. Perhaps the only significant environmental concern was in relation to the fear of too much reclamation reducing the tidal compartment and hence the tidal scour over the harbour entrance bar. This intermittently caused the Council to be wary of proceeding with reclamation schemes.

Reclamation, however, continued largely unregulated under the Otago Harbour Board (OHB) until the mid-1970s introduction of an environmental impact assessment requirement prior to Government acceptance of a development proposal. The Town and Country Planning Act 1977 followed, bringing the first legislation to deal with coastal planning. In common with most other harbour boards, however, the OHB's activities were not seriously restricted and although it produced an informal harbour plan in 1983, it retained its powers.

By 1990, reclamation in the Otago Harbour had amounted to approximately 370 hectares (Port Otago Ltd figures), or 8% of the harbour area. This had continued at an almost uniform rate

over the last 130 years. Since there is no evidence to assume that development will not continue in this manner, it is apparent that tighter controls should be imposed.

Harbour control passed to the newly-formed Regional Council in 1989 under overall administration by the Department of Conservation. Responsibility for the commercial running of the port was delegated to Port Otago Ltd, the OHB's successor, whose activities are run on a far shorter reign than in the past with the introduction of the Resource Management Act 1991. This Act requires the Council to produce a Coastal Plan that must be derived through public dialogue and be ultimately approved by the Minister of Conservation and also imposes far stricter regulations on harbour works than have previously existed. However, it remains to be seen if the authorities have the ability and the will to sue the Act to safeguard the environment.

Niall M Bennet

### Historical sources:

- McLintock, A H (1951). "The Port of Otago".
- McLean, G (1985). "Otago Harbour: Currents of Controversy".
- Historical documents sourced from Hocken Library

## Conferences & Notices

- **Silver 25th International Conference on Coastal Engineering (ICCE)** — Orlando, Florida, 2-6 September, 1996. Coastal Engineering Heritage is the theme of this conference, which continues the ICCE series on the latest developments in coastal engineering and related sciences. For further information, contact ICCE '96, c/o Conrad Blucher Institute, Texas A&M University — Corpus Christi, 6300 Ocean Drive, Corpus Christi, Texas 78412 USA, Phone 001 512 994 2376, Fax 001 512 994 2715, email icee96@cbi.tamucc.edu
- **Second National Coastal Management Conference** — Adelaide, South Australia, 17-21 April 1996. This conference aims to promote an integrated approach to coastal management that involves government and non-government professionals and that is relevant to all who are interested in coastal management. For further information, contact Dr Nick Harvey, Mawson Graduate Centre for Environmental Studies, University of Adelaide, SA 5005, Fax 08 303 4383, email nharvey@arts.adelaide.edu.au

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# Tasmanian Spill Raises New Zealand Awareness

*One of the gravest threats to the marine environment must surely be the chance of a major oil spill from a tanker, cargo ship or offshore oil installation. Thankfully, New Zealand has been relatively free of such incidents, although minor spills do occur from time to time, generally as a result of fuel transfer operations in commercial ports around the coast.*

Most regional councils in New Zealand are now well advanced in their preparation of contingency plans for the effective response to oil spills in their regions as required by the Maritime Transport Act. Under this Act, these plans must be accepted by the Maritime Safety Authority's Environmental Protection Division. Proceeding parallel to this planning proviso is the purchasing of extra new response equipment for distribution to the major threat sites, again administered by the Maritime Safety Authority.

A recent significant oil spill on the northern coast of Tasmania had the effect of raising New Zealand's awareness of the effects of oil spills in the marine environment. The spill occurred as the result of a shipping accident. A vessel grounded on a reef while approaching a pilot pickup area, which can occur at any port at any time.

The weather conditions and tidal influences at the time caused the 300 tonnes of black bunker oil lost to migrate into the Tamar River, coating the foreshore over a distance of five miles and seriously threatening a colony of fairy penguins situated at the entrance to the river.

The authorities in the region responded immediately, directed by a regional contingency plan and the quick assembly of well-trained response crews from the region and from all over Australia. Equipment was moved to the site from other parts of Australia within 12 to 24 hours.

The seabird rehabilitation centre, formed quickly near the threatened penguin colony, succeeded in saving the lives of many birds over

the following weeks. Over 1100 birds were treated at the centre. As an overview, this spill could be regarded as having a "good" news and a "bad" news side to it. The "bad" news is that the spill occurred at all and in such an exposed and sensitive area. The "good" news was that the spiller was a vessel belonging to one of Australia's largest companies, which has an enviable record of being a good corporate citizen in terms of its operations. This company was immediately able to provide trained personnel to the spill site to supplement those already provided by the national, regional and environmental agencies. In fact, the company exuded a "no expense spared" attitude to the response operation and experts and equipment were immediately available when and where required.

Unfortunately, most spills do not have this "fortunate" element and there will exist the worry of cost recovery, alongside the central concern of whether or not the spill response will be effective. While most foreign vessels visiting New Zealand are insured for such events to a certain level, it was comforting to experience the commitment made on the spot by the spiller.

It can only be hoped that if in the future some New Zealand site is exposed to a significant oil spill, all our systems will work and everything is in our favour as it was in this recent Australian incident.

*John Lee-Richards  
Manager Marine Pollution  
Northland Regional Council*

## Coastal News

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- **1996 World Congress on Coastal and Marine Tourism** — Honolulu, Hawaii, 19-22 June 1996. For more information, contact Dr Jan Auyong, CMT 96 Convenor, c/o Oregon Sea Grant College Program, Oregon State University, AdS A500G, Corvallis, Oregon 97331-2131 USA, Phone 001 503 737 5130, Fax 001 503 737 2392, email auyongj@ccmail.orst.edu
- **15th International Conference of the US Coastal Society** — Seattle, Washington, 14-17 July 1996. The conference theme is "Seeking Balance: Conflict, Resolution and Partnership".

For further information, visit the society's home page at [http://www.wsg.washington.edu/conferences/coastal\\_society.html](http://www.wsg.washington.edu/conferences/coastal_society.html) or contact Megan Bailiff, Conference Chair, at [mbailiff@u.washington.edu](mailto:mbailiff@u.washington.edu)

### Request for Information

The Wellington City Council is preparing a Coastal Management Strategy and is seeking information relevant to the Wellington Coast. If any Coastal Society members have access to any historical data, would they please contact Annie Bedard at phone (04) 801 3265.



## Coastal News

# Kobe Earthquake Holds Important Lessons for New Zealand

In July this year, I was privileged to attend the 6th US/Japan Workshop on Earthquake Disaster Prevention for Lifeline Systems, which was held in Osaka. There are striking parallels between the nature of the damage in Kobe to what might be expected, for example, in Wellington.

The damage in Kobe was widespread, but the Port of Kobe, which is the sixth largest in the world, provided unforgettable images of failed coastal structures. Large areas of reclamation were subject to liquefaction that caused rotation of massive wharf-face caissons. The resulting lateral displacement caused the legs of all 55 container cranes to be spread apart. Other damage included settlement of seawalls, built to provide protection from typhoons, by as much as two metres.

*John Lumsden,  
Christchurch*



*The results of lateral ground displacement during the Kobe earthquake*

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